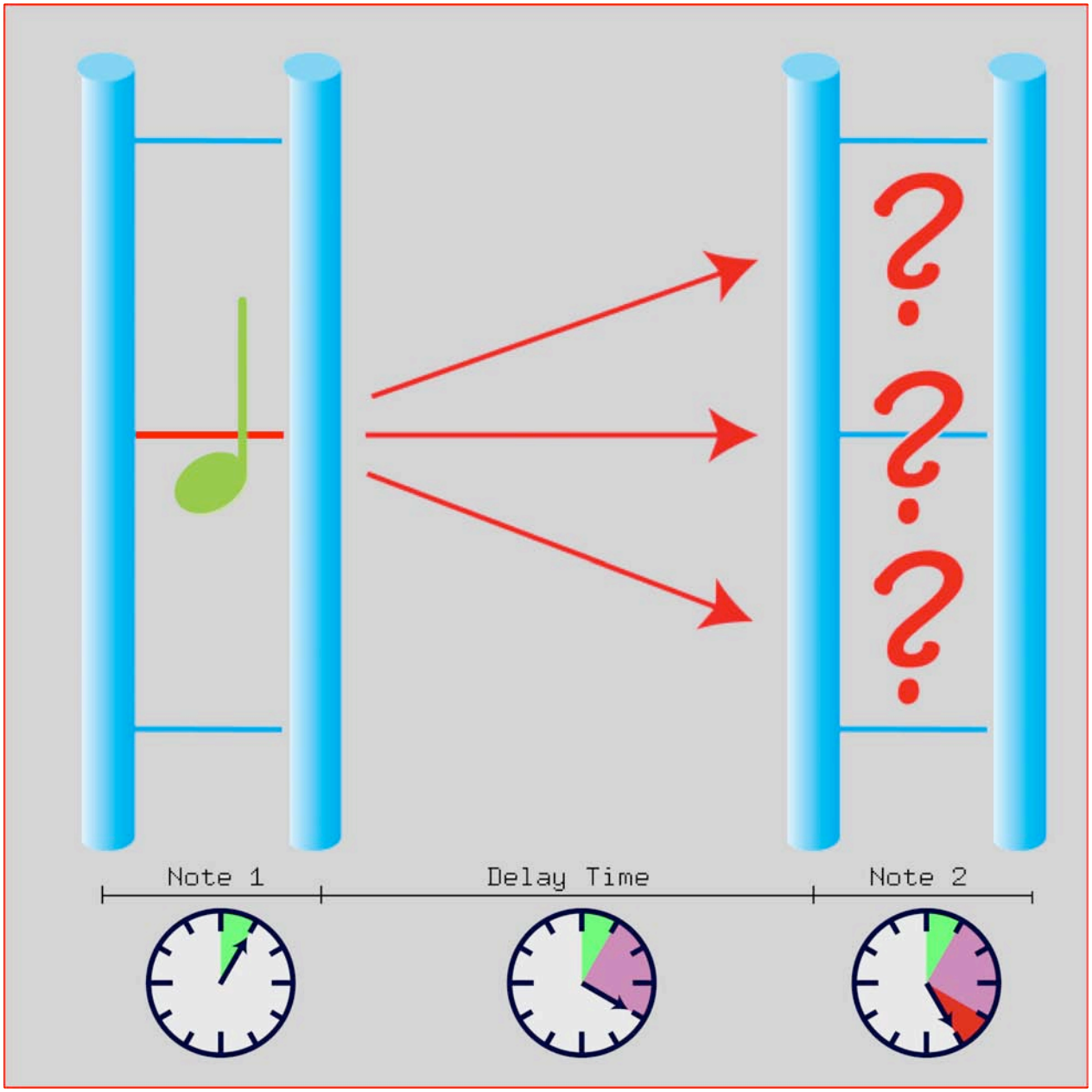


TuneCrack

User's Manual (v1.01 – October 2015)

www.AlgorithmsAndDataStructures.com, F. Rudin

TuneCrack (TCR)

User's Manual

Trademarks

Table of Contents

Welcome to TuneCrack (TCR)

TuneCrack stands for: Crack the tuning problem – Learn to tune instruments precisely. Tuning is often underestimated because it is only used to bring the instruments in accordance with each other before a performance begins. It is not part of a performance, nor does it demand much time to do. If the tuning is done, everything that follows is relative to that tuning arrangement. Therefore tuning is often considered a necessary side-step in the whole process of music-making.

However, the tuning process is a crucial step, and therefore cannot be skipped or done hastily. That is why we have developed the product TuneCrack. Tuning is a listening skill: You have to listen to a pitched reference sound and then adjust your instrument accordingly. The first step is to take over, or transfer the reference sound to your ear, keeping it securely in mind. The second step is to compare this reference sound with an appropriate sound of your instrument. If there is no match you have to take action by lowering or raising the pitch on your instrument.

TuneCrack has exercises to improve your listening skill and your pitch-transfer skill.

Your listening skill is improved by training with the Precision Listening Method. Your task using the Precision Listening Method is to differentiate ever-smaller pitch deviations. Since the standard Western system, the equal-tempered tuning system, is most often used, the training focuses on deviations between these notes, thus improving your absolute pitch recognition skill. However, the method goes beyond this. Tuning is a relative skill and one tunes an instrument relative to another instrument. However, the pitch of another instrument may not lie on the equal-tempered scale; therefore, exercises in the Precision Listening Method require you to match the pitch to an arbitrary frequency.

Your pitch-transfer skill is practiced using the Pitch Keeper Method. The Pitch Keeper Method increases the time between the two sounds you must compare. To keep a pitch in mind you must first develop the means to transfer a sound from the instrument where you play it to an independent hearing of it in your ear. In the beginning that may seem very easy, but as the time between the notes increases, you may suddenly realize you have not really taken over the sound in your memory—or at least not well enough. Going back over shorter times between pitches lets you identify and perfect the skill of “taking over a pitch.” Because singing is the closest connection we have to monitor whether we have internalized, - thus know a pitch by ear -, the program lets you sing back the notes and identifies which pitch you sang. To ensure you have transferred the correct pitch, the program gives you feedback with a colored pitchline.

To internalize a pitch is not something that can be learned overnight. That means, in becoming a tuning master, you will observe progress, but also setbacks. It is important that the progress and setbacks are recorded over a long time period. As long as you recover from the setbacks and continue to improve your ability to retain a pitch for an increasing amount of time, you should use our methods to build confidence in your ear. For this reason the program collects statistical data on how precisely you can remember a pitch after a certain period elapses. Tracking your results over a longer period allows reflections on the performance, and lets you recognize trends. You can overcome weak points by setting short-term measures. Strengths in your pitch retention allow you to promote your strong side: giving you reference points to build upon.

If you are playing the lead tuning instrument—(usually the oboe in an orchestra, or piano in smaller ensembles) in which case every instrument in your group is tuned relative to your instrument—then tuning is less important, as everyone else has to tune their instrument to yours. Otherwise tuning will accompany you your whole life. Therefore, to improve the tuning process is a tremendous help in your musical career. Training in tuning well fosters the most crucial skill in music: listening.

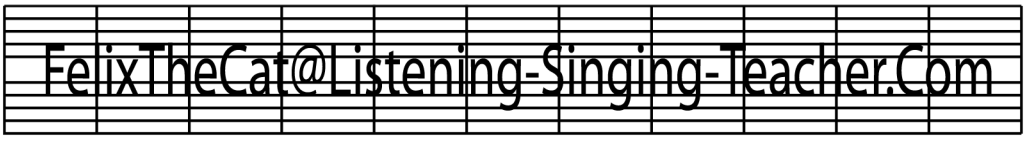
What is unique to TuneCrack?

Our Precision Listening Method, introduced with Listening Music Teacher, contains exercises to train you to hear pitch differences to a deviation of one cent. To better compare the differences, the program allows you to decrease the delay time between the two notes. TuneCrack introduces the Pitch Keeper Method, which focuses on the other direction: transferring a pitch to retain in your ear. Thus the time between hearing the two notes is slowly increased. By keeping the reference sound in mind for longer, you will feel less need to replay it in the program during the tuning process. Because the Pitch Keeper Method also achieves a precision beyond half-steps, you will gain the necessary confidence to stay on track and keep the sound in mind with enough precision.

The progress tracking of the method allows you to build a Pitch Retention Curve. This curve shows you your personal Absolute Pitch Point: the length of time after hearing a pitch where you still remember it to the required precision of 50 cents. If this length of time grows to longer than a day, then you can claim absolute pitch for those notes, as you are able to remember the exact pitch without a reference sound.

Contact

We hope you will spend many enjoyable hours with TuneCrack. Your comments and input are most welcome. Please mail them to:



Installation Macintosh

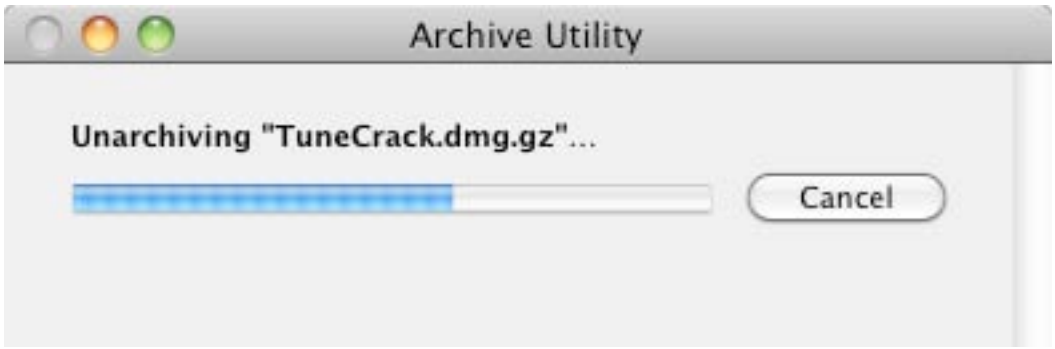
Requirements
Before you begin, make sure your computer has enough RAM to power the program quickly enough. To have a good performance at least a G4 with 1 GB of RAM and an adequate graphic card is required. A Mac Mini G4 with 1.25 GHz and 1 GB of RAM, or later version will suffice. This program was tested with Mac OS X l0.4.11 and OS X 10.10.5.

You must have an appropriate microphone connected to your computer. Check the relevant manuals on how to connect a microphone. A Mac Mini G4, for example, does not have a microphone input; you have to use additional hardware, such as a computer-compatible USB device capable of handling microphone inputs. Important: A “line in” is not the same as a microphone input. If you do not have a microphone input you might need a pre-amplifier.

Getting and unpacking the disk image
First, download the compressed disk-image-file. In your browser go to www.TuneCrack.com and download the newest version.

Warning: The file has about 80 MB and takes about 1/4 hour on a low-speed DSL line. After the download has completed you should see an icon on your desktop that looks like this:

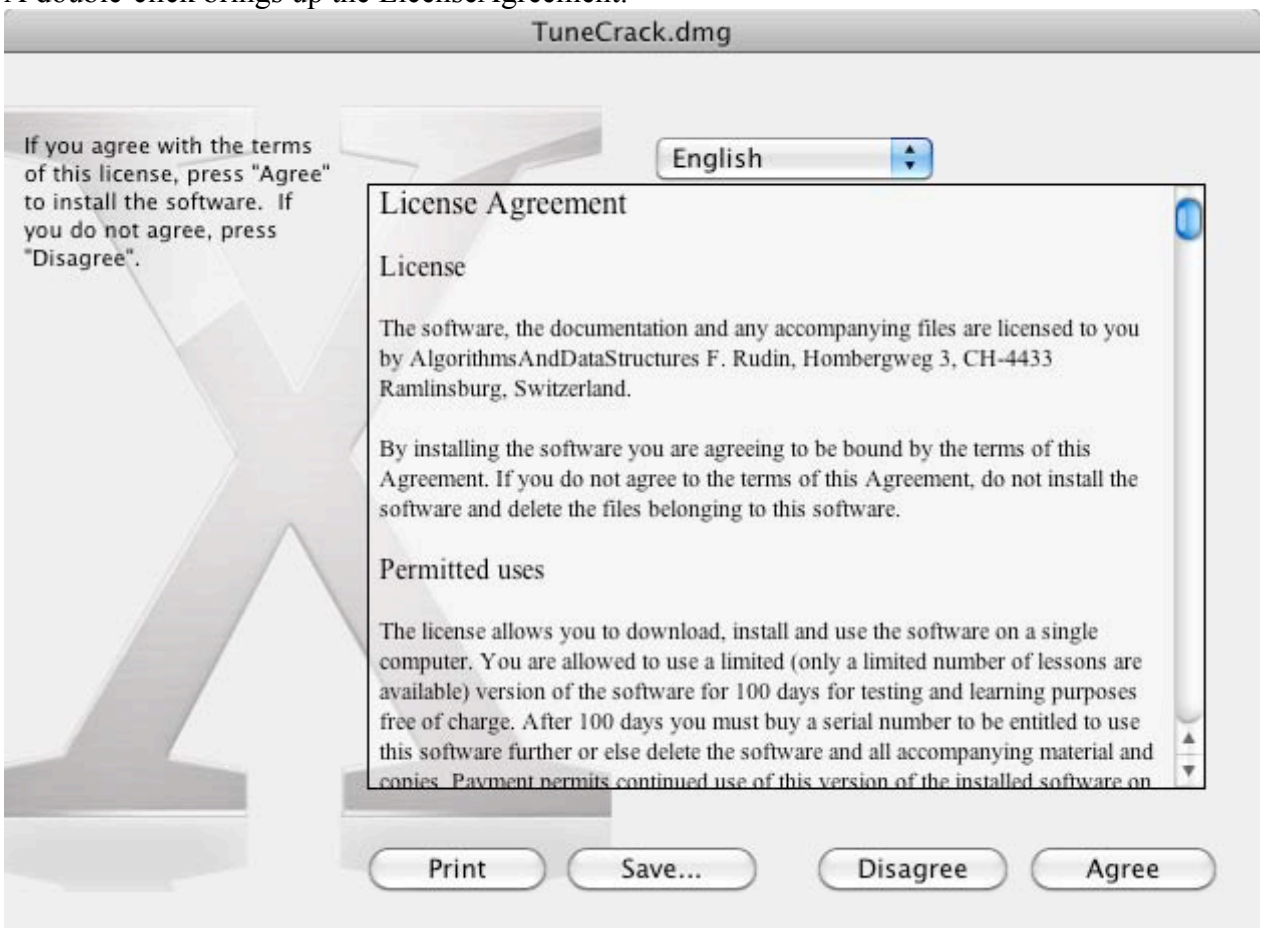
Second, decompress the file. Double-click on it; the Archive Utility appears.



After this task is completed, double-click on the new icon that was created.

The Disk Image gets mounted. On the desktop you should see the following icon:

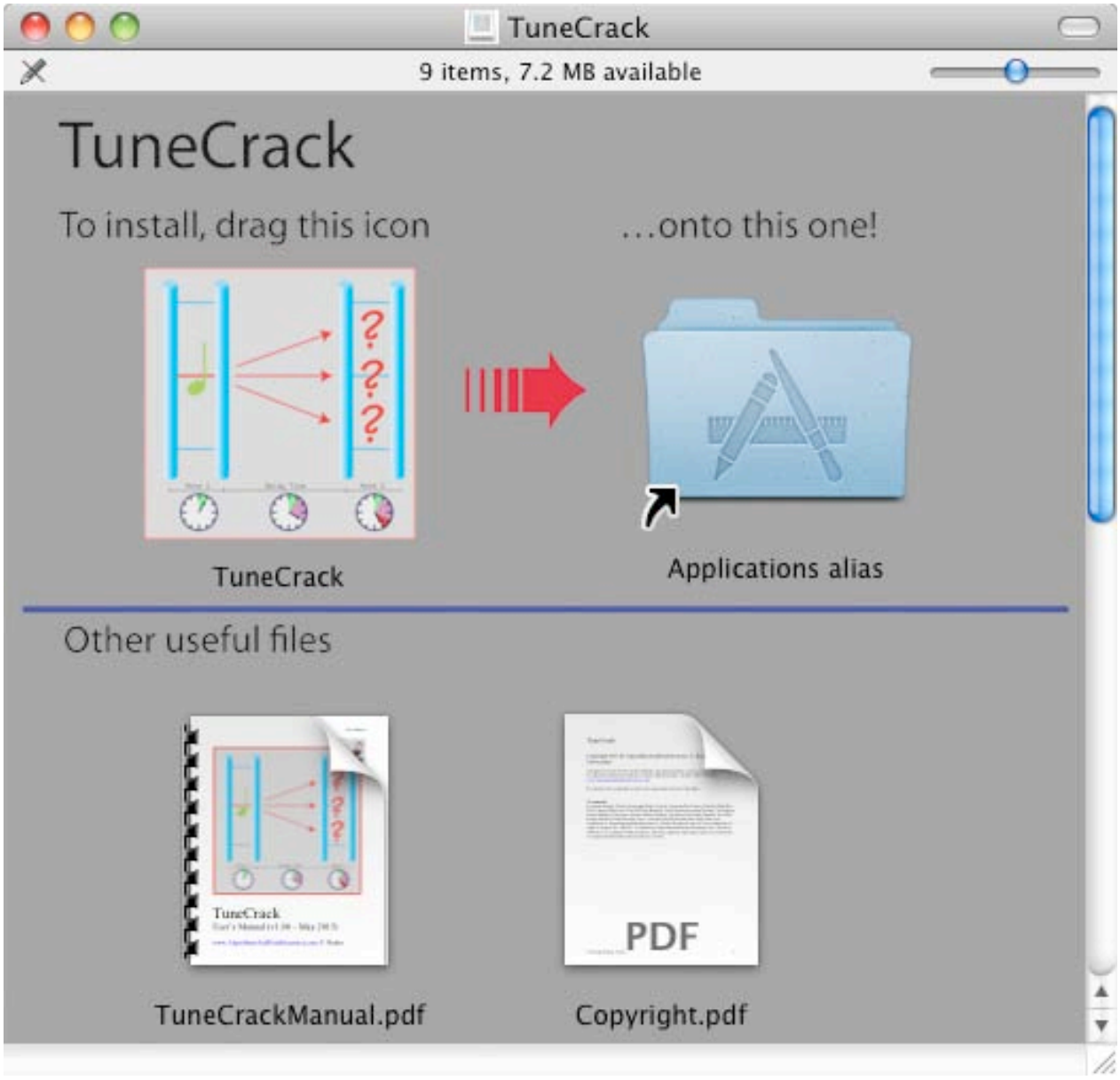
A double-click brings up the LicenseAgreement.



Installation

Read the License Agreement. You must agree to the terms or discard the downloaded files.

If you agree, the installer window opens. Drag the TuneCrack icon to the Application alias folder.



If you followed the instructions, TuneCrack is installed in your applications Folder.

Uninstalling TuneCrack
In the Finder click on Applications and drag the Icon for TuneCrack to the Trash.

Installation Windows

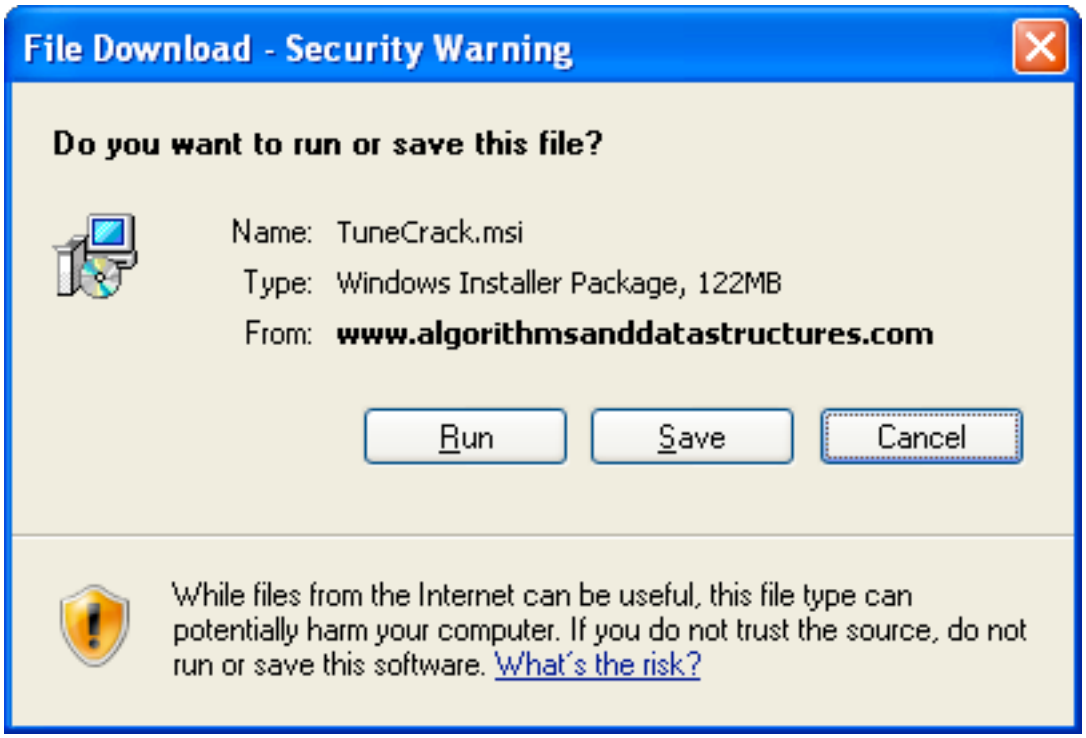
Requirements
Before you begin, you may want to make sure your computer has enough RAM to power the program. To have a good performance an Intel core Duo with 1 GB of RAM and an adequate graphic card is required. The program has been tested on Windows XP, Vista, and Windows 7/8/10.

You also need QuickTime, which is downloadable.

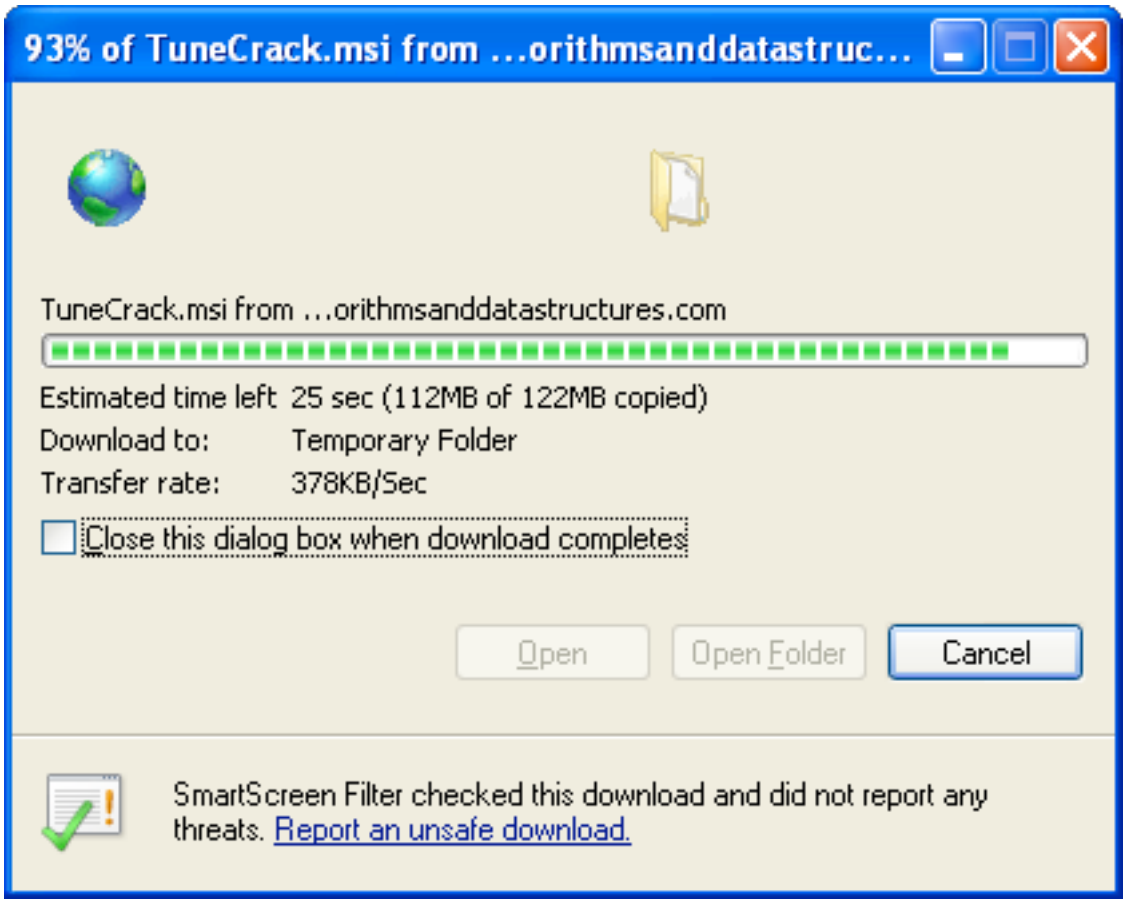
You must have an appropriate microphone connected to your computer. Check the relevant manuals on how to connect a microphone to your computer. Some PCs have no microphone input, in which case you must use additional hardware, such as a computer-compatible USB device capable of handling microphone inputs. Important: the "line in" is not the same as a microphone input. If you do not have a microphone input you will need a pre-amplifier.

Getting the installation file
The first step is to download the compressed installation file (.msi). In your browser go to www.TuneCrack.com and download the actual version under the download-tab.

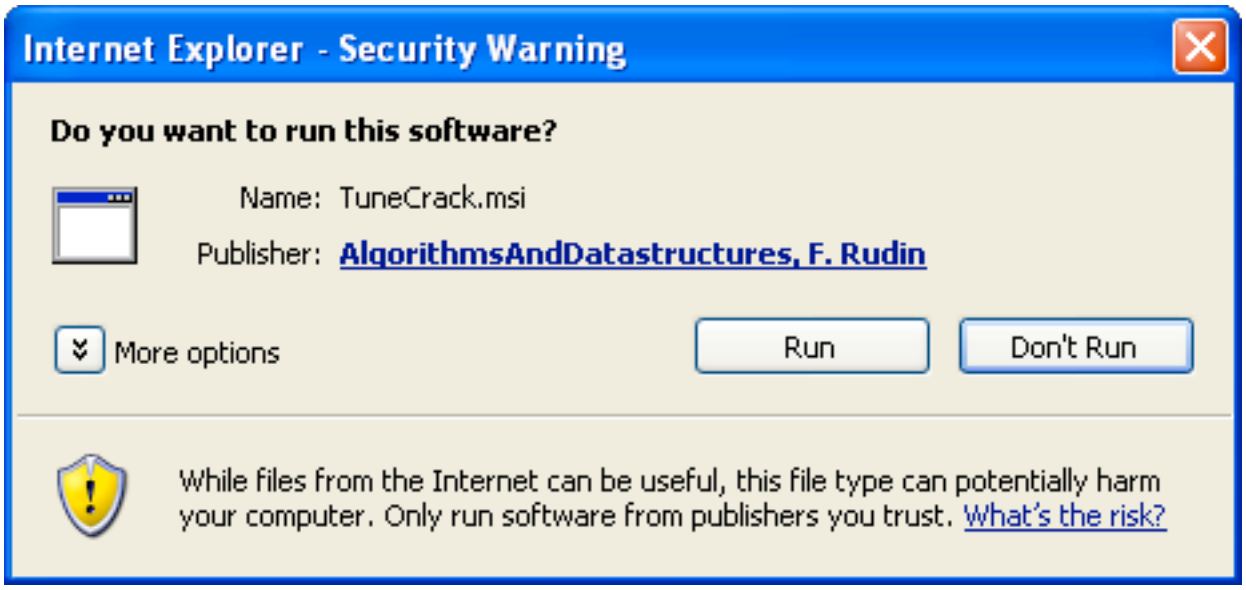
Warning: The file has about 80 MB; this will take about 1/4 hour on a low-speed DSL line:



Click "Run." The actual download starts.

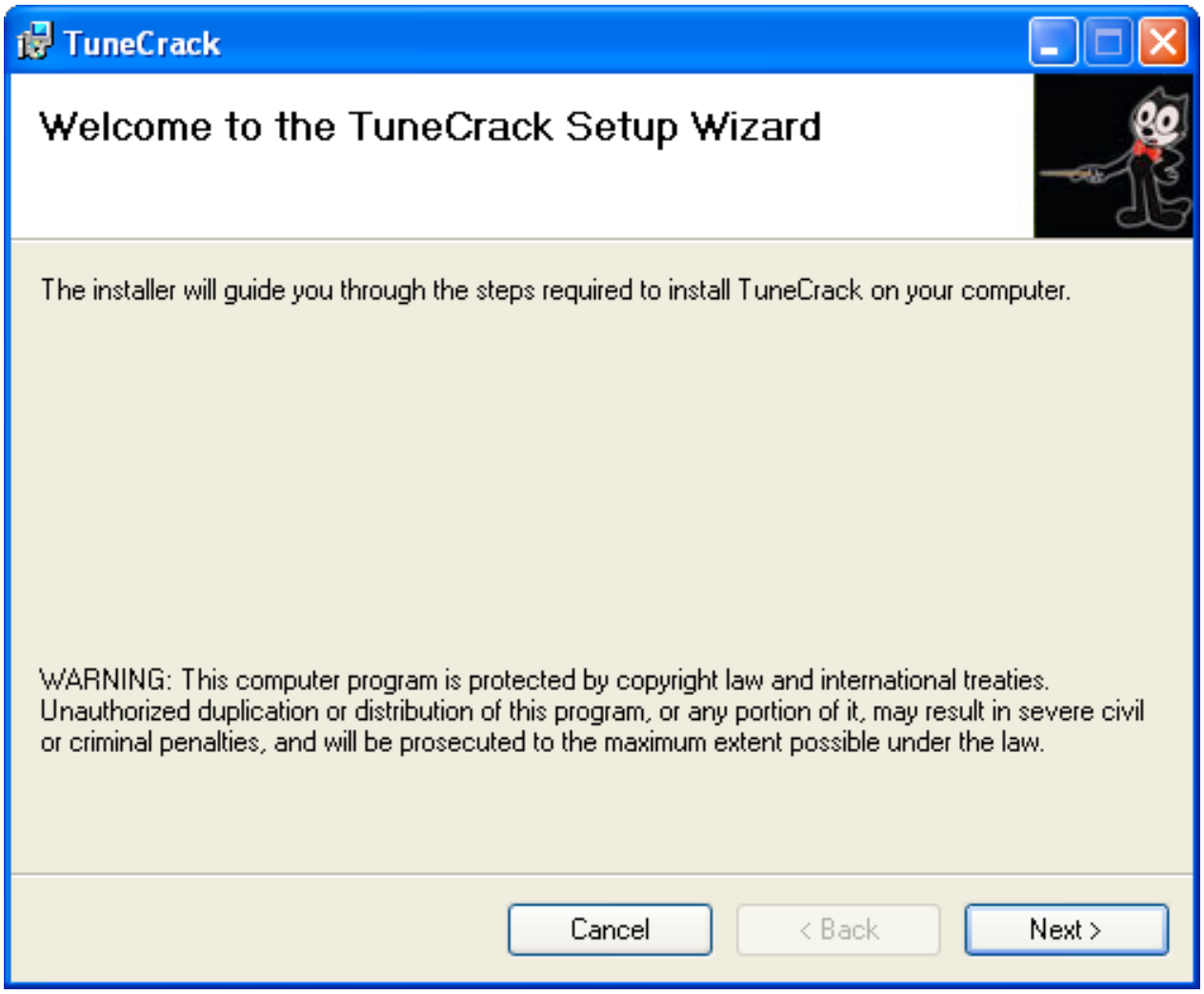


When the download finishes the following Security Warning appears:

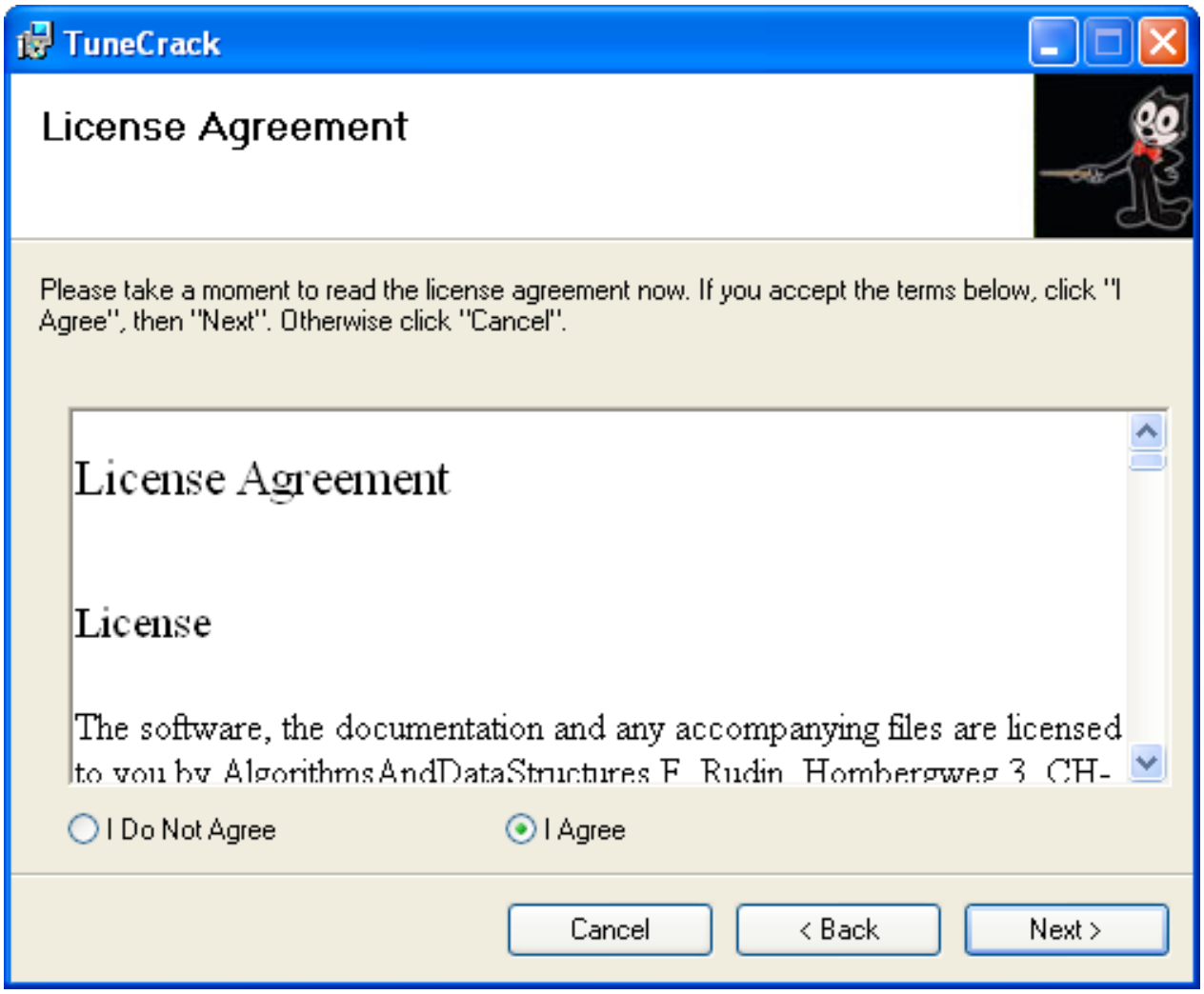


Click “Run” to continue the installation.

The Setup Wizard Window opens:

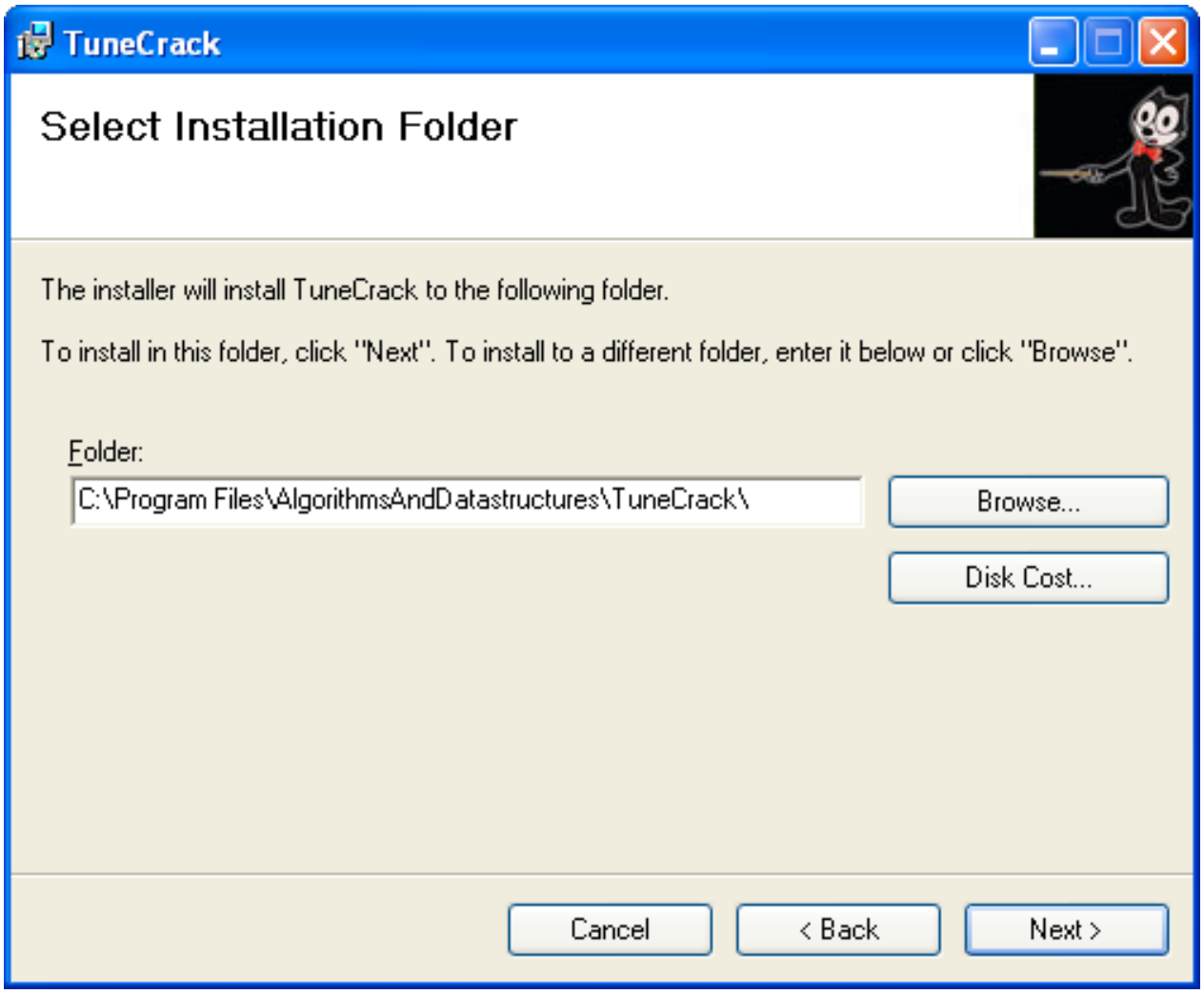


Click Next. The License Agreement appears.



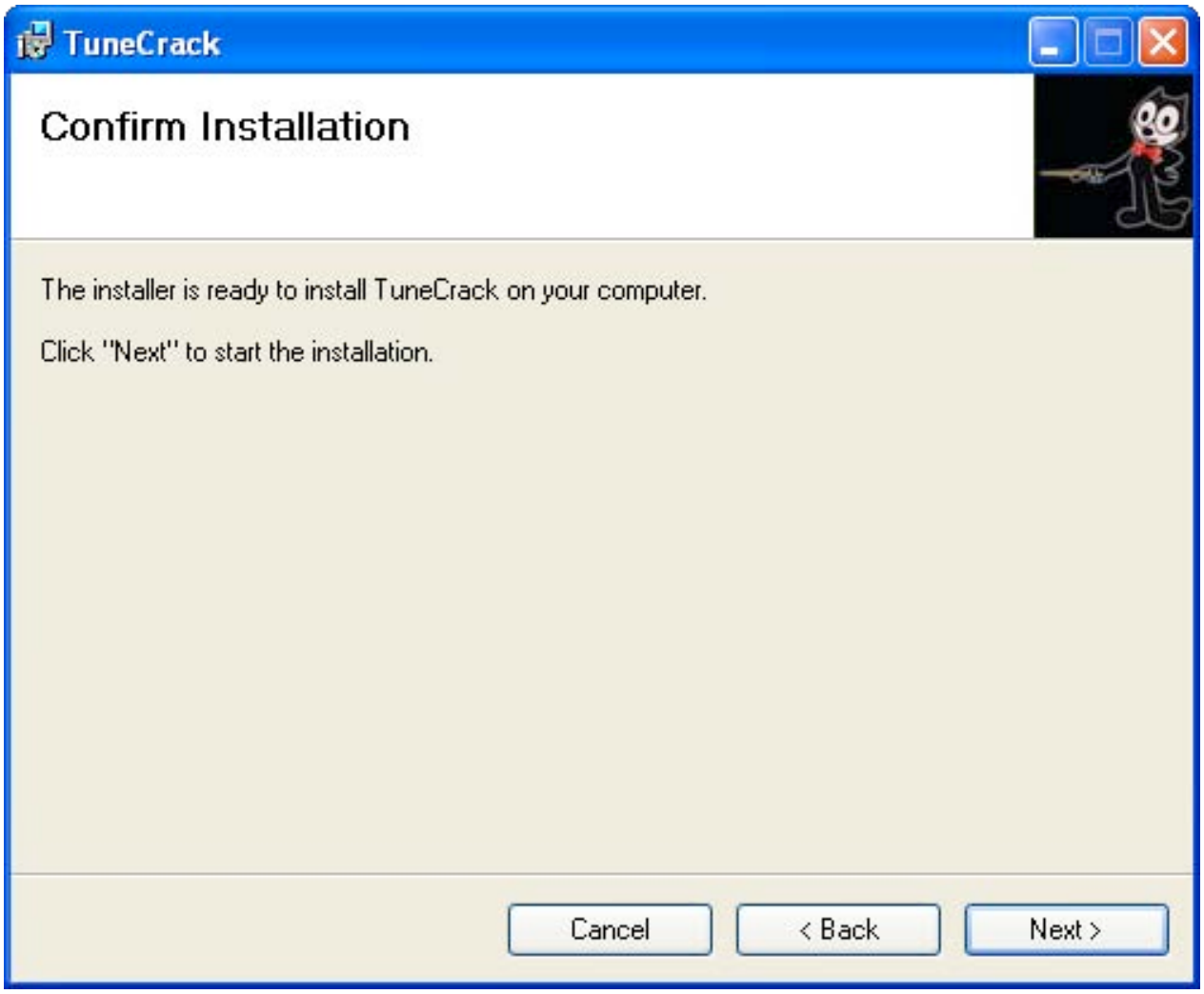
Read the License Agreement and the Copyright before installing. Click “I agree” if you agree with our License Agreement.

The “Select Installation Folder” dialog appears. By default the application will be installed under C:\Program Files\AlgorithmsAndDatastructures\TuneCrack.

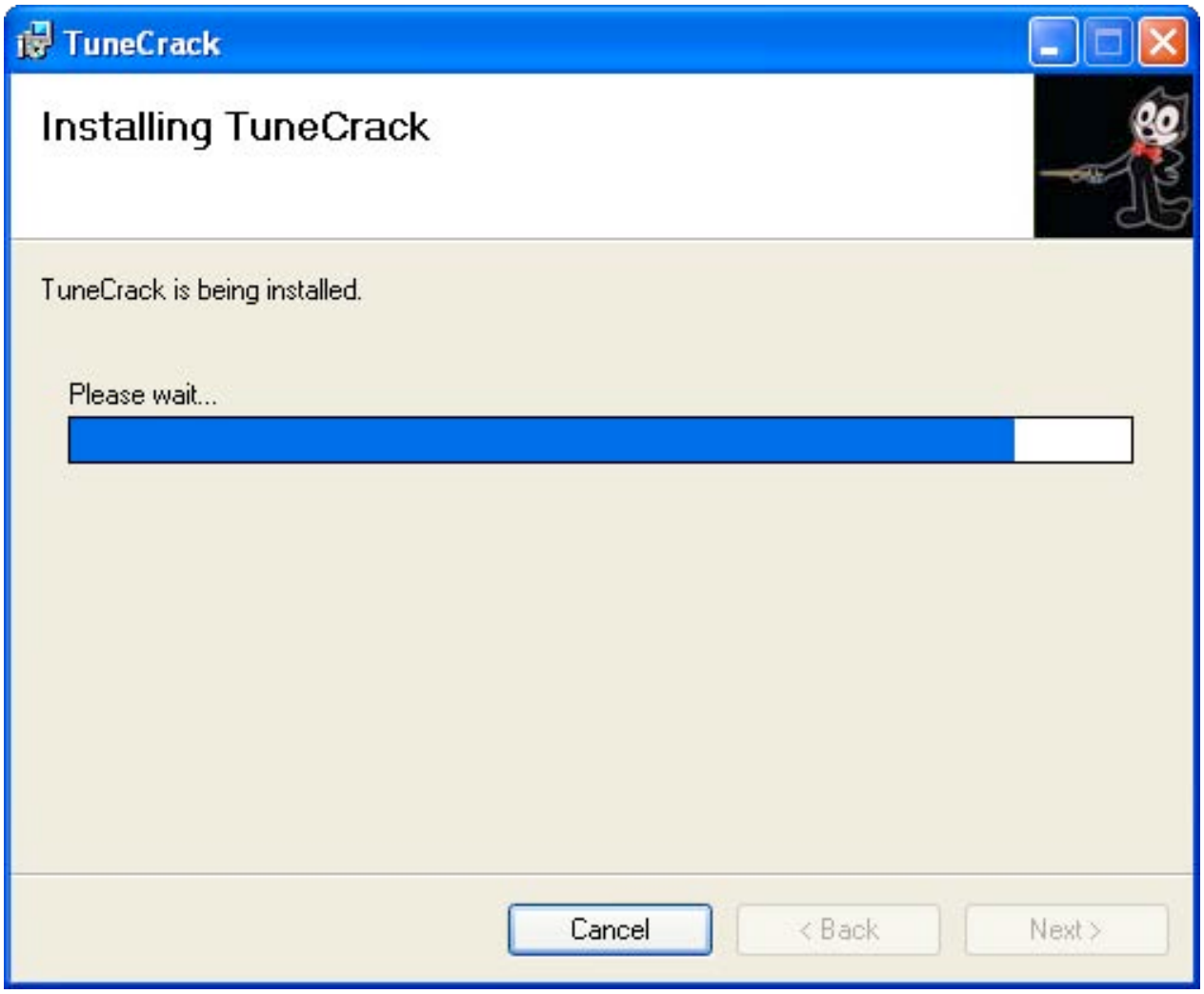


Choose your folder location and click “Everyone,” so that persons with a separate login on your computer can also run the program.

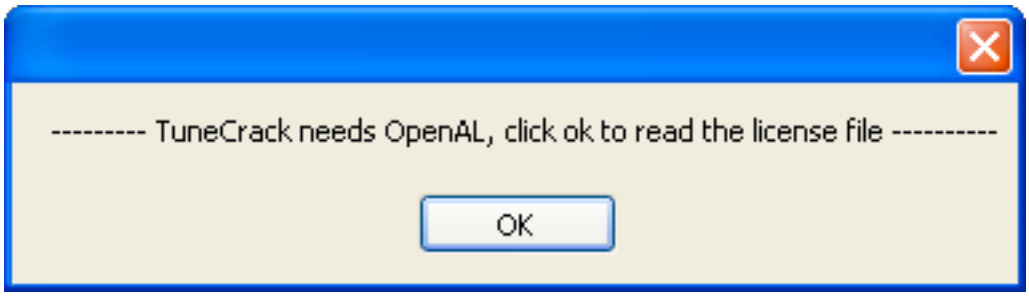
The confirmation Window appears:



Click “Next” to start the Installation:



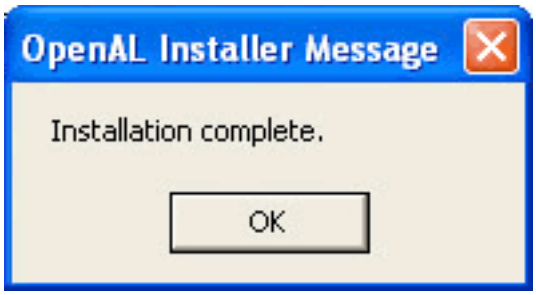
TuneCrack uses OpenAL for sound.



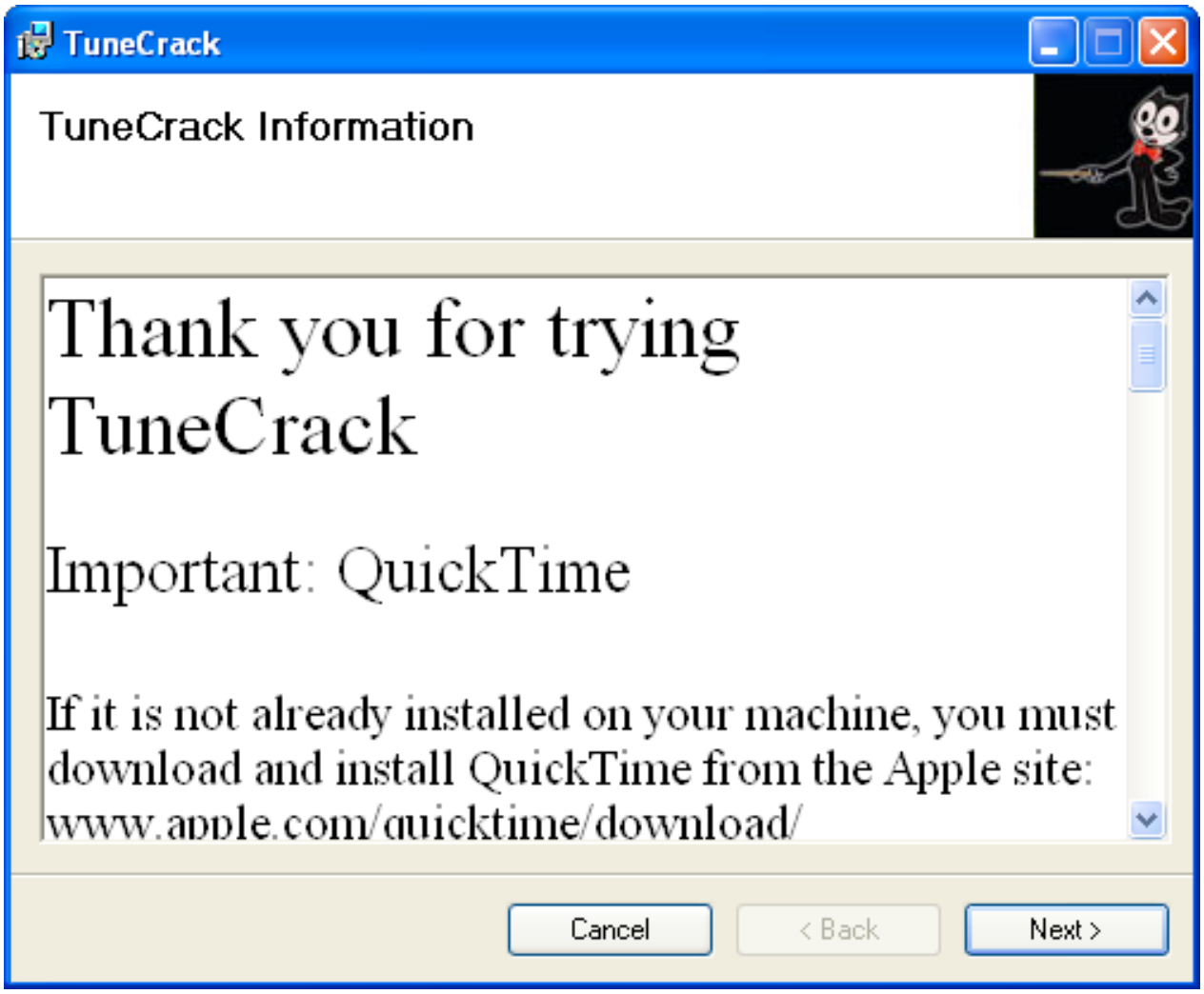
Click “Ok” and you will be presented with the OpenAL License Agreement:

Click “OK” if you not already have installed OpenAL.

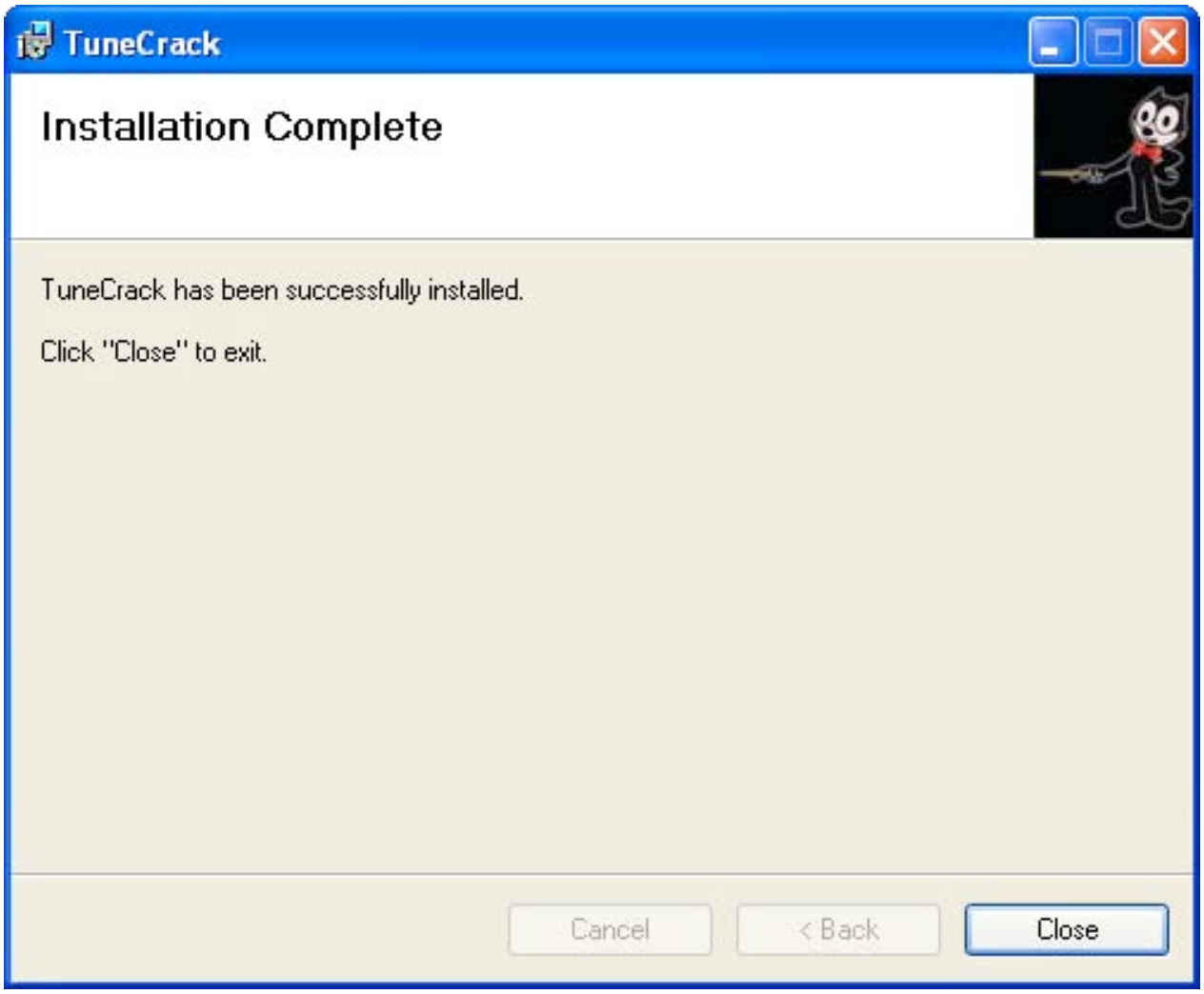
The OpenAL Installer informs you about the installation:



The installation is finished.



Browse through the ReadMe file, and then click “Next.”



Click “Close.”

On the Desktop you should find a Shortcut to TuneCrack:

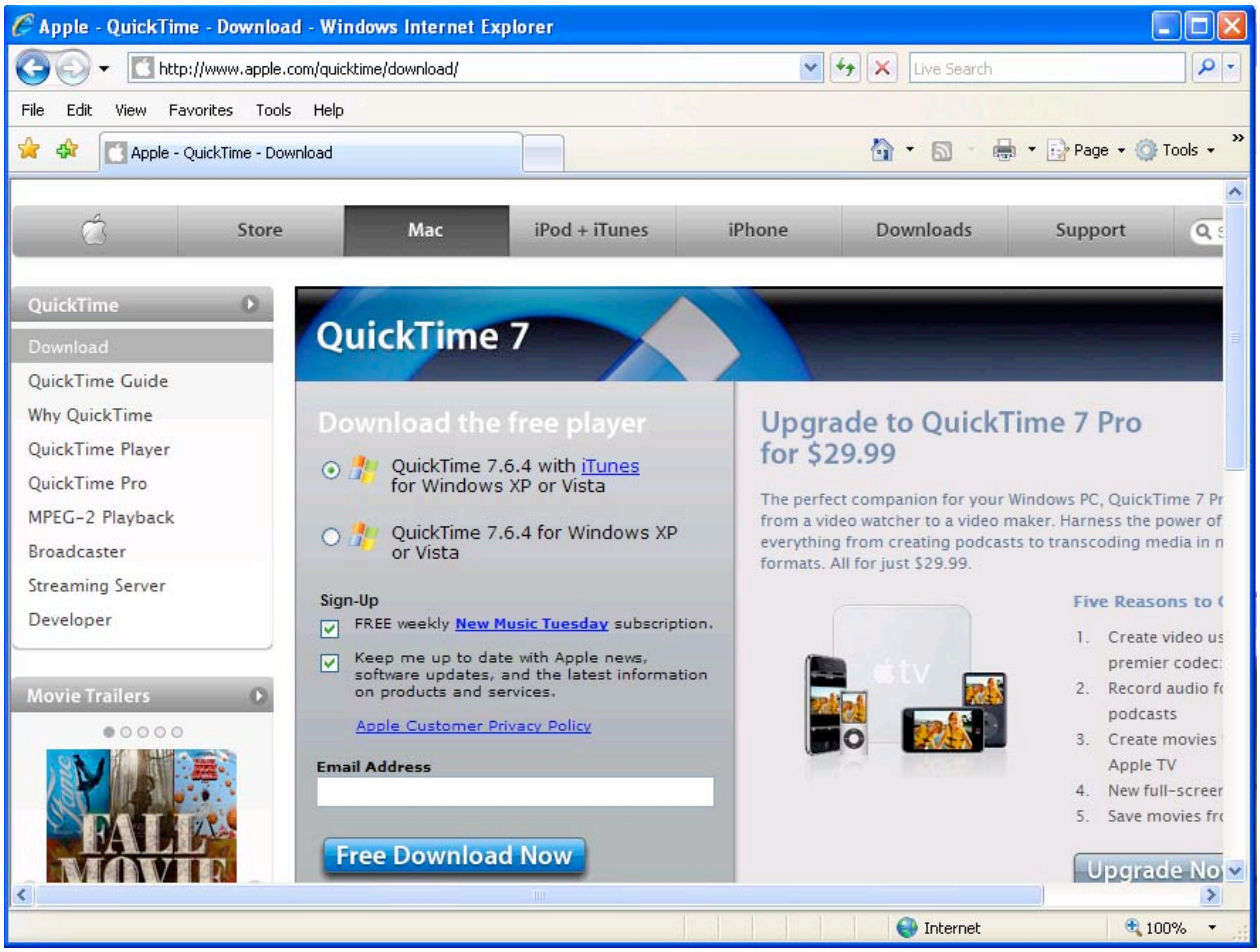
Uninstalling TuneCrack
If you need to do so, use Uninstall from the Add/Remove Software Control Panel.

QuickTime

This software uses Apple's QuickTime. On Macintosh computers this software is pre-installed, but on Windows QuickTime is not installed by default unless you have installed QuickTime or iTunes already, in which case you do not have to install QuickTime again. However, it is always best for running the program smoothly to have the newest version.

You will need Windows XP with Service Pack 2 or Windows Vista, Windows 7/8/10 to install QuickTime.

In the Internet Browser enter http://www.apple.com/quicktime/download. You will be presented with a page like this:

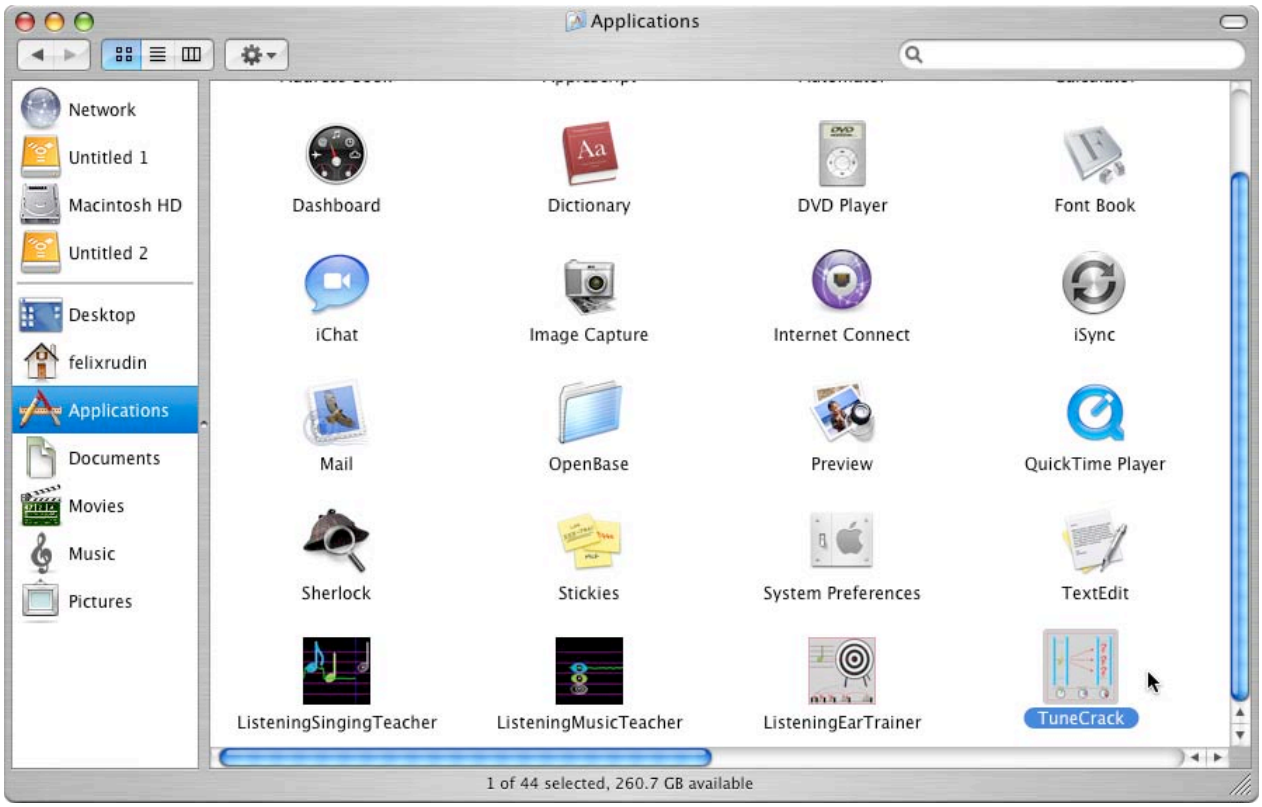


Choose if you want to install QuickTime with iTunes, or QuickTime separately. Click "Free Download Now" and follow the installation instructions.

After installing QuickTime, you will be ready to use TuneCrack.

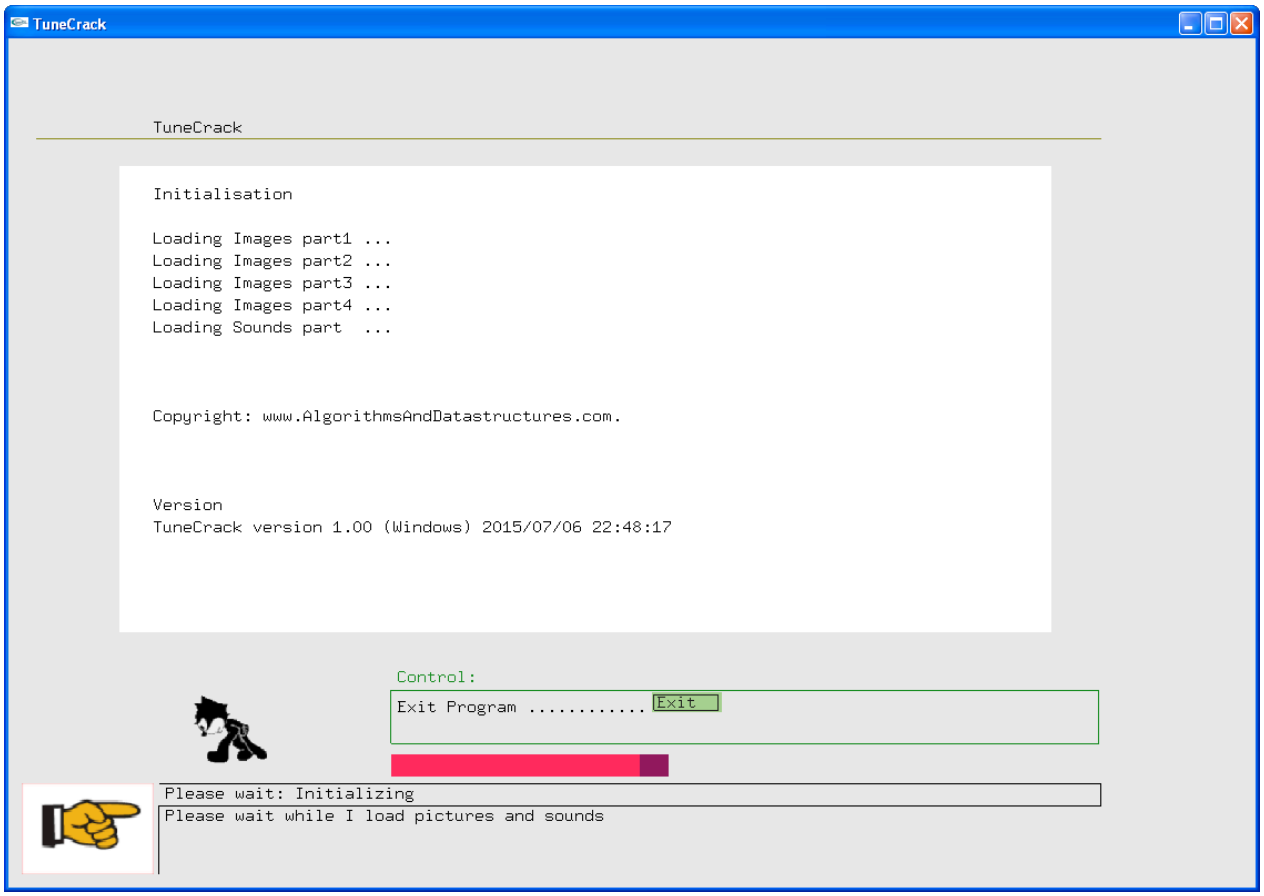
First Time Use

Macintosh: Double-click the application TuneCrack in the Applications folder:

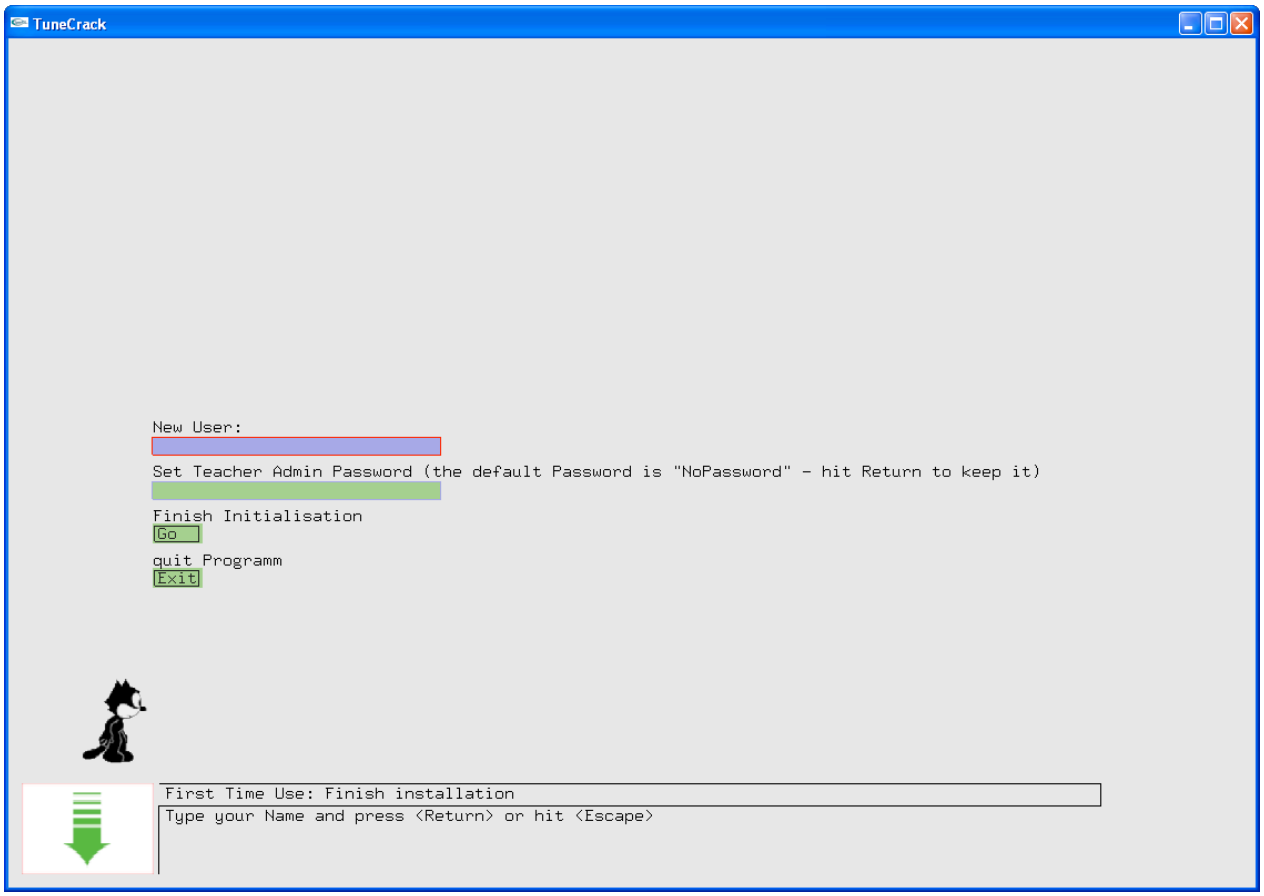


Windows: Double-click the shortcut on your Desktop:

The application starts initializing by loading images and sounds.



The first time you start the application the following dialog box appears:



First you must enter a User Name. The name may consist of a First and Last Name, separated by a blank space or a comma. Only American Standard Characters are allowed.

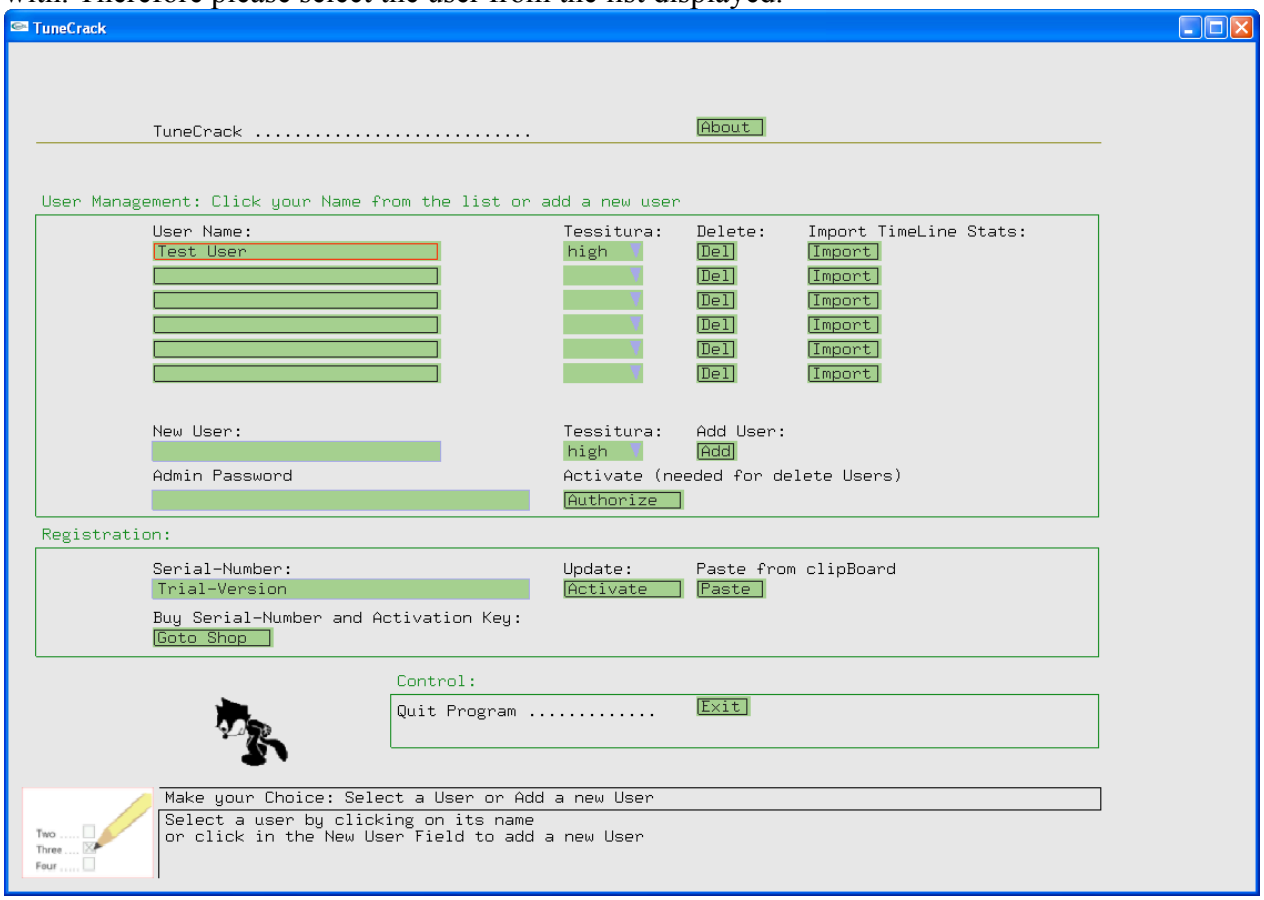
If you want a password, other than the default Admin Password “NoPassword,” change it. Please be aware that the password is case sensitive and must have at least 5 characters. If you forget or lose your password you must reinstall the application in order to delete users in the “Select User”s dialog (see below).

When you are done, click “Go” to continue.

Clicking “Exit” will leave the program in its current state, so it will ask you again for the name as when you first opened it.

Select User

In order to collect statistics for a particular user, the program must know which user it is working with. Therefore please select the user from the list displayed.



If you are not on the list, add your name by clicking in the New User field and typing it in. Select a tessitura (see next paragraph) and click “Add.” Your name should now appear and you can select it.

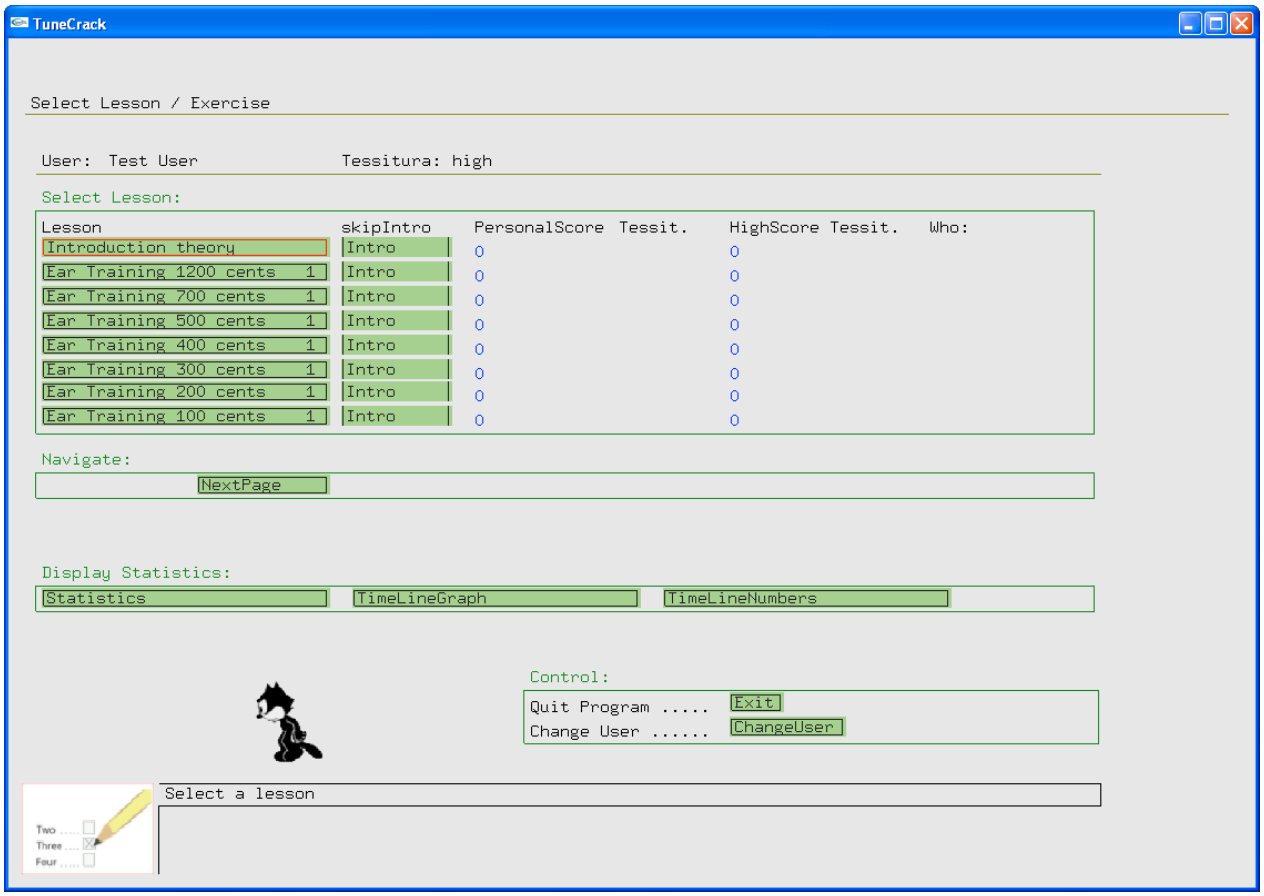
To adjust the exercises to the user’s vocal range, the user must select one, called a tessitura here. “High” designates soprano, “medium” baritone, and “low” bass. You can change the tessitura anytime by going back to this dialog box. The tessitura has no effect on the pitch recognition exercises chosen; it only displays the notes in a range suitable for your voice. If your voice spans a wide range (3 octaves or more), you may go through the exercises in all tessitura modes.

If you want to delete a user, you must enter the Admin Password and click “Authorize.” Then click the “Del” Button next to the particular user you want to delete.

The registration process is explained in the last chapter.
For now, simply select your desired tessitura and then click on your name.

Select Lesson/Exercise

After selecting your name, the Select Lesson dialog box is presented:



In the Select Lesson frame you should select the desired lesson/exercise. To the right of the lesson/exercise buttons you'll find a button that allows you to skip the explanations given for a particular lesson/exercise. Clicking a button in the column SkipIntro will change the button to read, "Skip," or if it is already on "Skip" it will be reset to "Intro."

Next to the "Skip/Intro" buttons you will see your personal high score and the tessitura in which you reached that score for a given lesson. The scores are colored as follows:

- blue: You reached less than one third of the possible points
- green: You reached the basic level
- yellow: You reached more then two thirds of the possible points
- red: You have more then 90 % correct answers
-

As an additional encouragement, the highest score of competing players is included to the right.

In the navigation frame you'll find the "PreviousPage" and "NextPage" buttons, which allow you to page through the lessons/exercises.

Clicking on the “Statistics” button will bring you to the Statistics Section, which is explained in the Statistics chapter.

The first lesson, entitled ”Introduction Theory,” is introductory and explanatory only. The lesson gives no exercises to practice, nor do you earn points.

All other lessons give exercises in which you can earn points. They are presented after the introductory lesson.

Introductory Lesson

The introductory lesson is animated and explains the concept of tuning and how the program works.

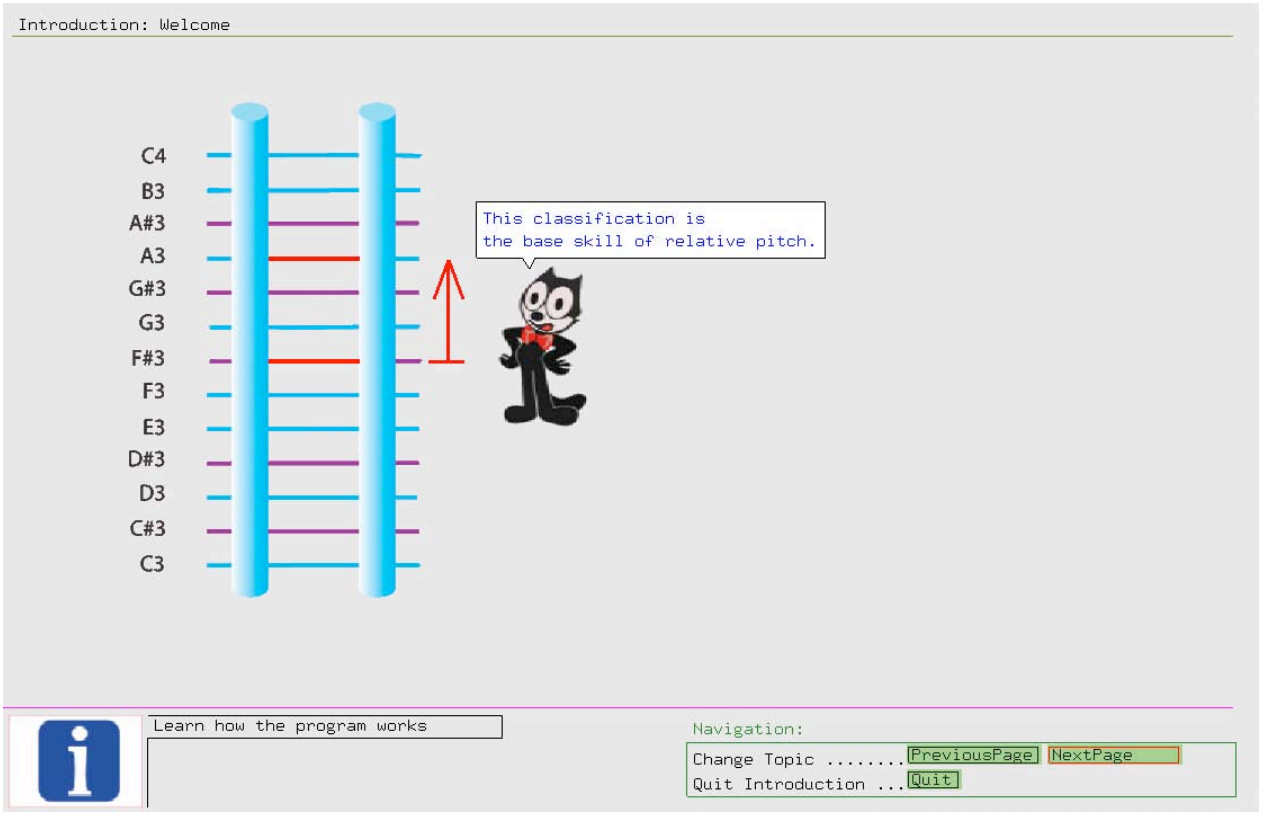
Introduction: Tuning is a relative skill

This lesson gives a short overview of what tuning is, what absolute and relative pitch have in common—i.e., where they meet—and introduces you to our methods, "Precision Listening" and "Pitch Keeper."

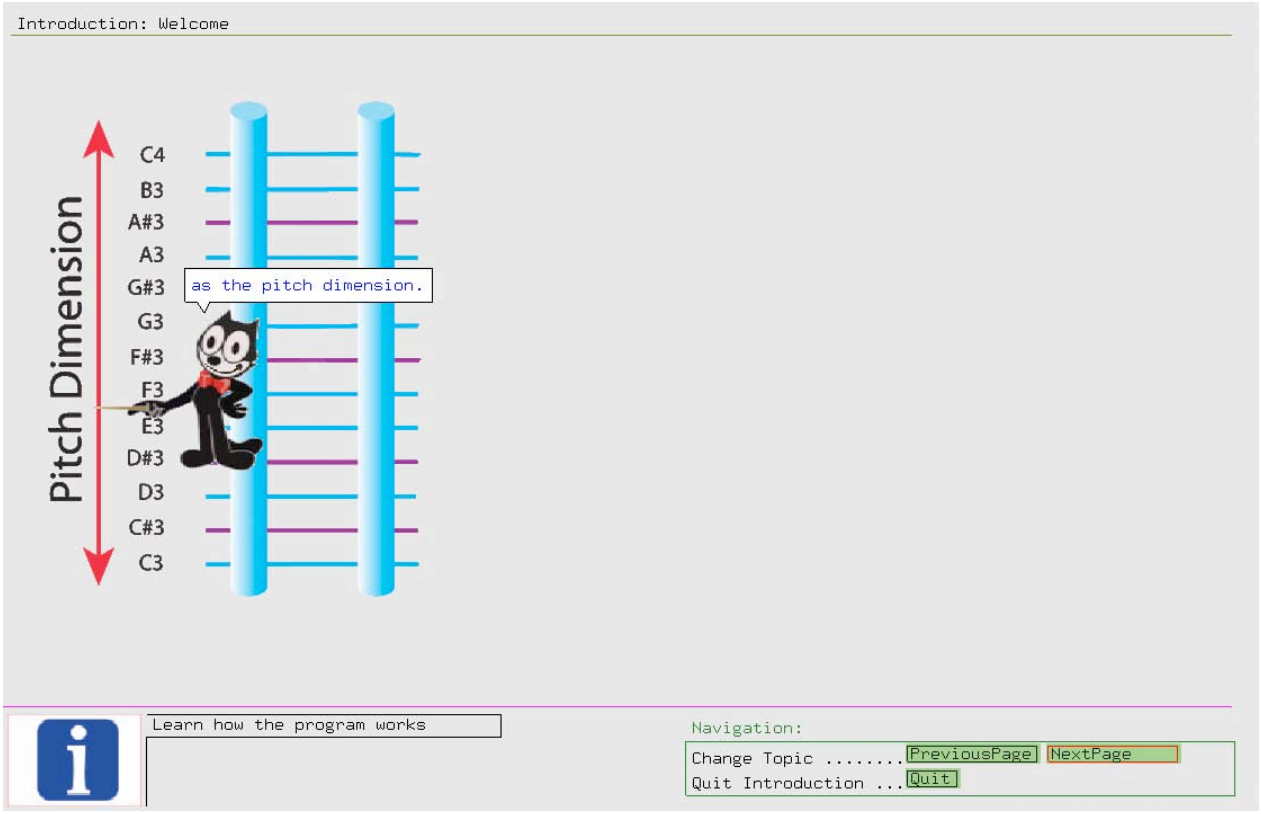
What is relative pitch?

The word "relative" is defined as follows (the top entry in a Google search): ". . . considered in relation or in proportion to something else." This implies that "relative" cannot exist without something to relate to. In the case of pitch, this means any pitch might be taken as a reference pitch, and a second pitch can be described relative to the first.

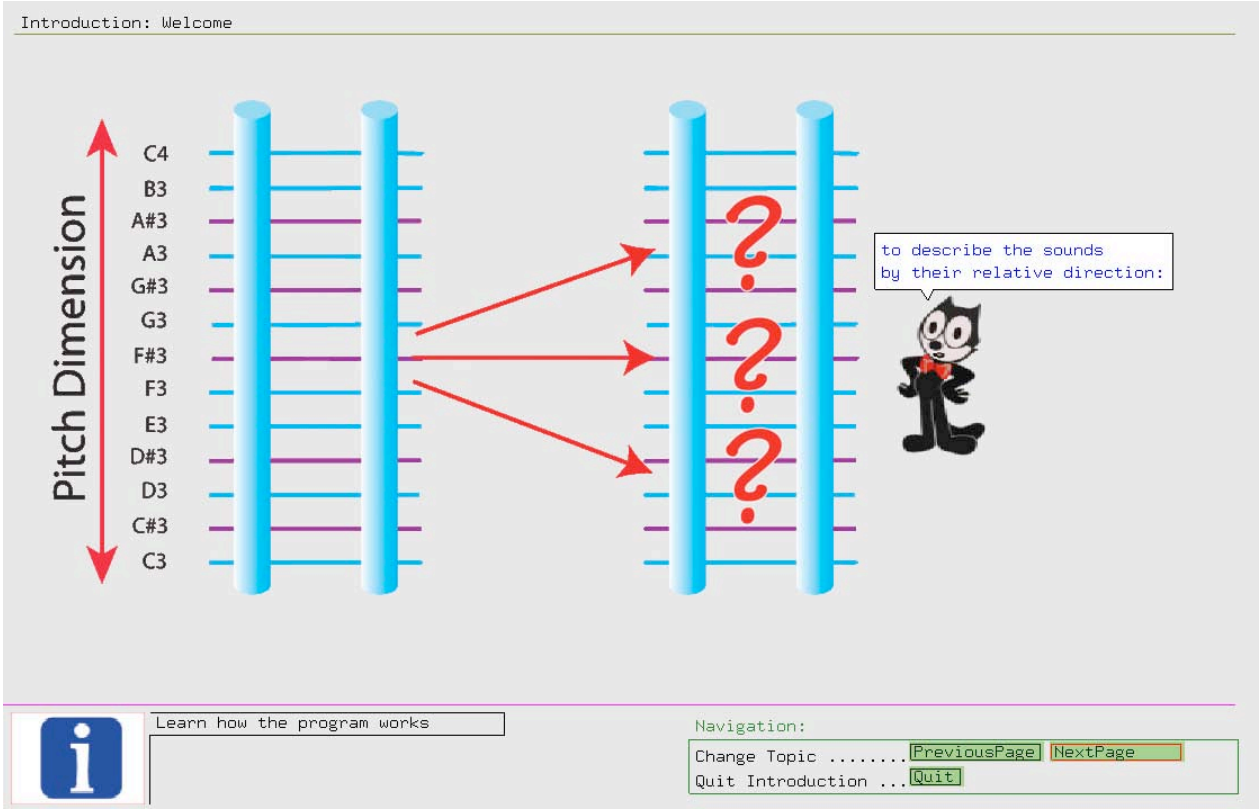
In the picture below, the first pitch played was an F3 sharp (red step, F#3). The second pitch played was higher (red step, A3). With the words "higher," "lower," or "same note," we can describe the second note relative to the first note. This classification is the most basic skill of defining relative pitch.



Going forward or backwards we have a measurable distance of some kind. Thus we can introduce the pitch dimension.

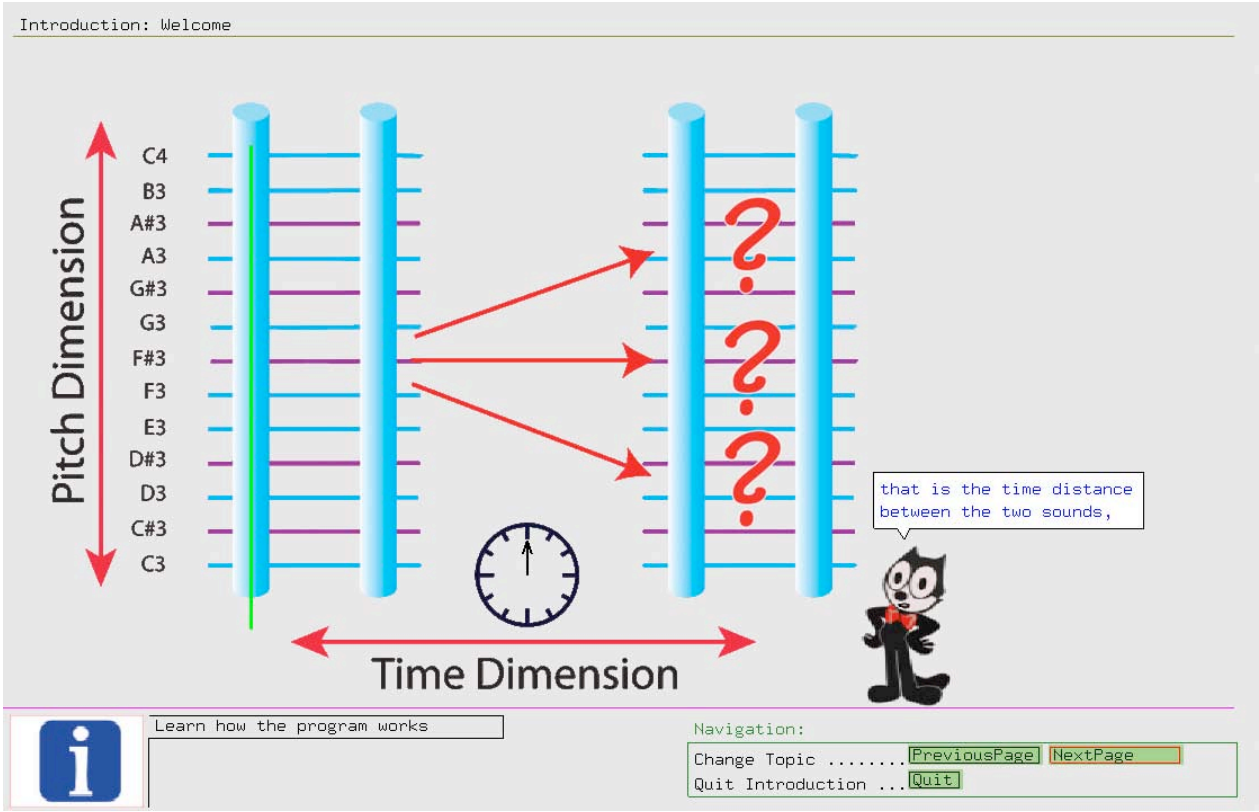


In this dimension the simplest thing we can express is the direction in which we are going: higher, lower, or same note.

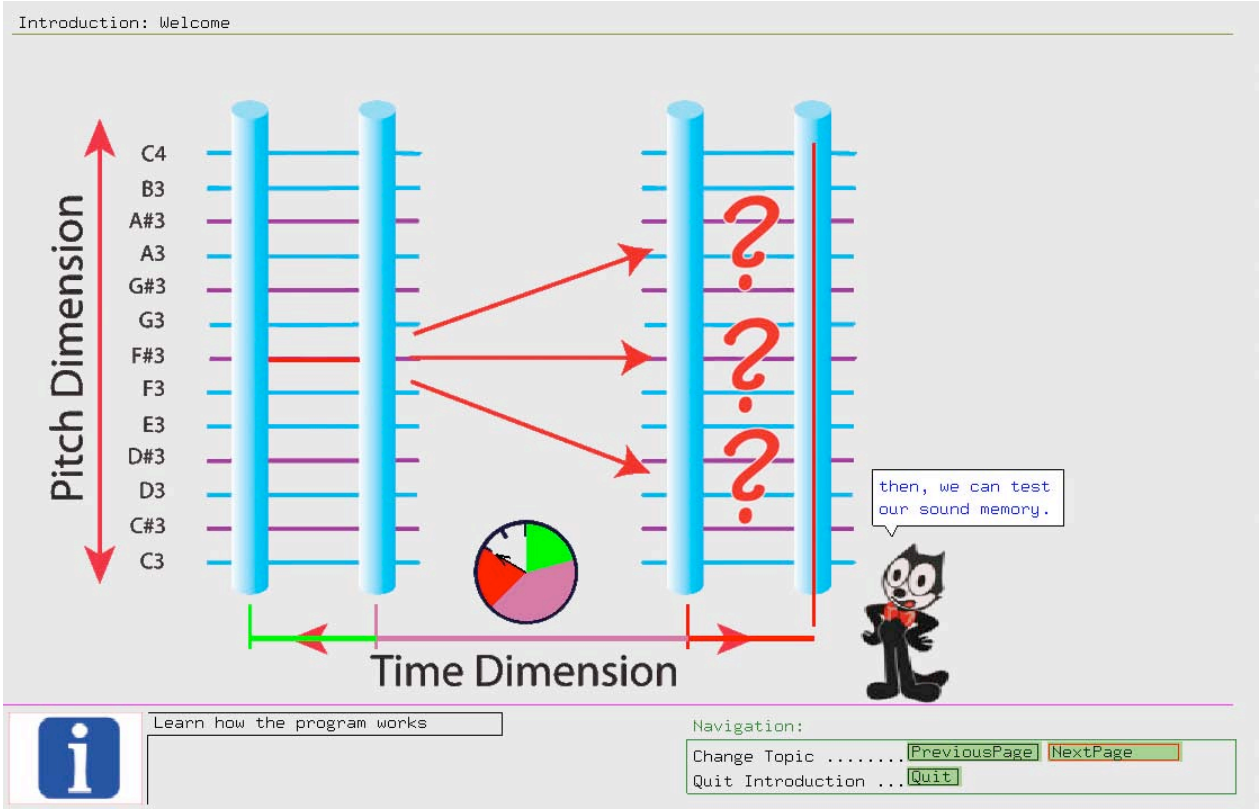


Presented with two sounds, described relative to each other in a timely fashion—one note played after the other—we can look at the time dimension.

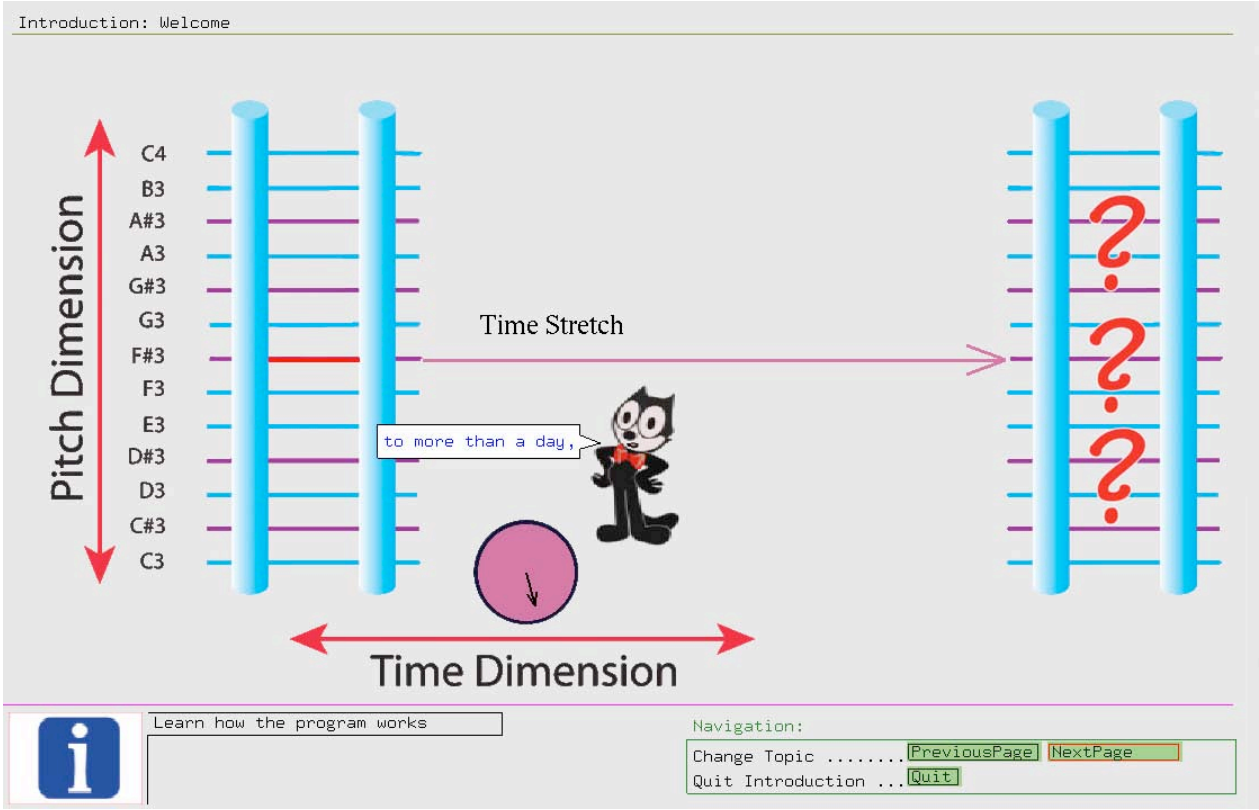
Time dimension



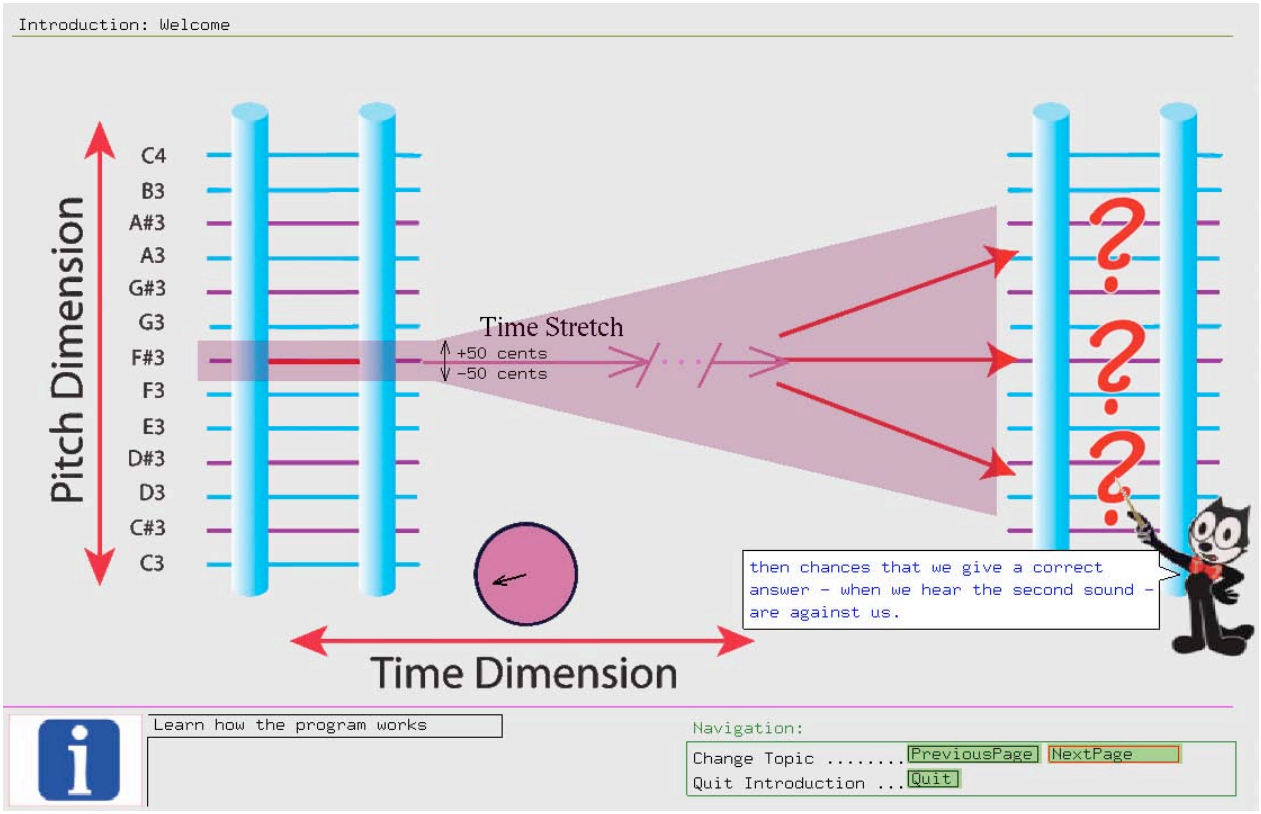
In the following picture we have colored the elapsed time on the timeline for the first note in green, the delay time between the notes in purple, and the second note in red.



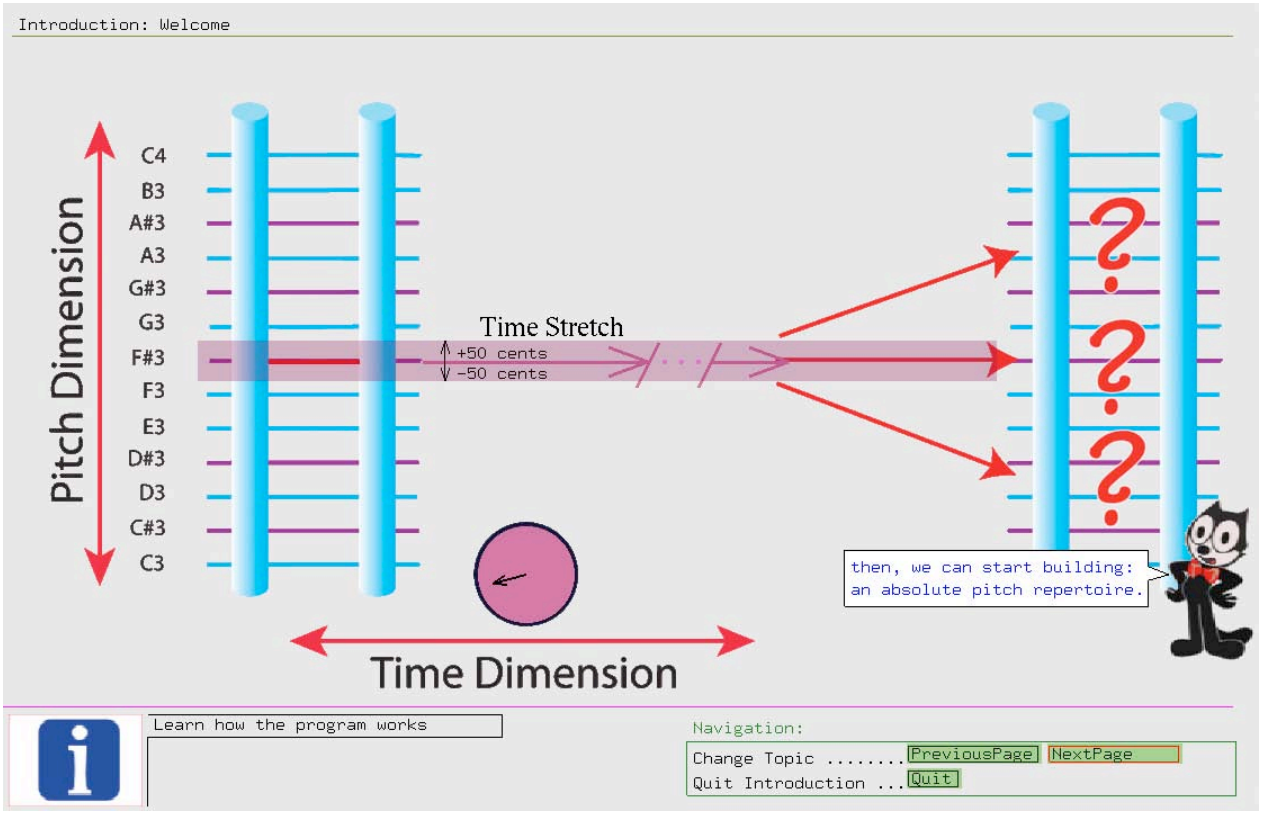
By stretching the time between the notes, we can test our sound memory. To be able to comprehend whether the second sound is higher, lower, or the same, we have to keep the first sound in memory as a reference. Therefore, increasing the time between the sounds to compare allows us to test our sound memory—or how long we can keep the first note in memory.



If we stretch the delay time between the notes to a day (or more), then we can test to see if we have absolute pitch or not. Absolute pitch is the ability to name the pitch of a note without having to listen for a reference sound. We can assume that remembering a reference sound for more than a day means having absolute pitch, because sounds are memorized and recalled with enough precision. If we cannot remember the pitch to a precision of the required 50 cents (for absolute pitch), then we likely cannot give a correct answer when we hear the second sound.

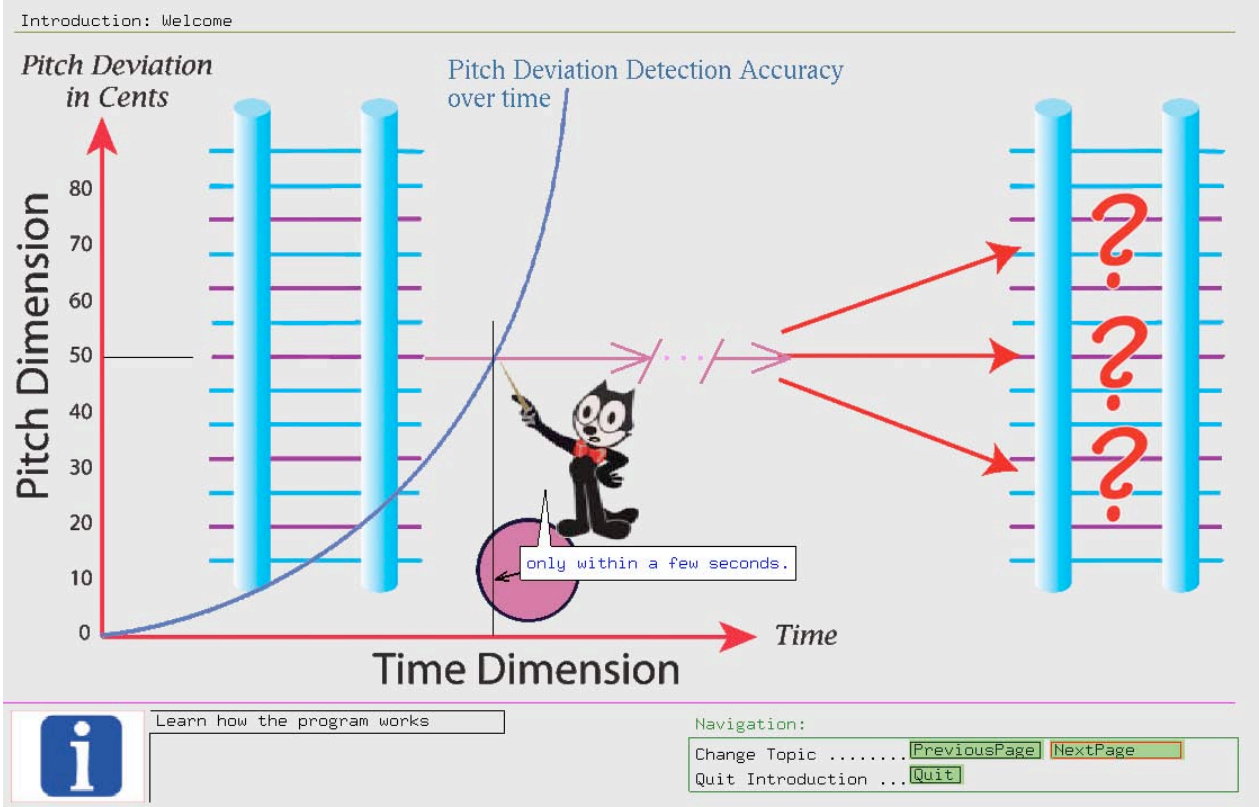


Only if we can answer the relative pitch questions correctly and consistently for a longer period, only then we can start building an absolute pitch repertoire.

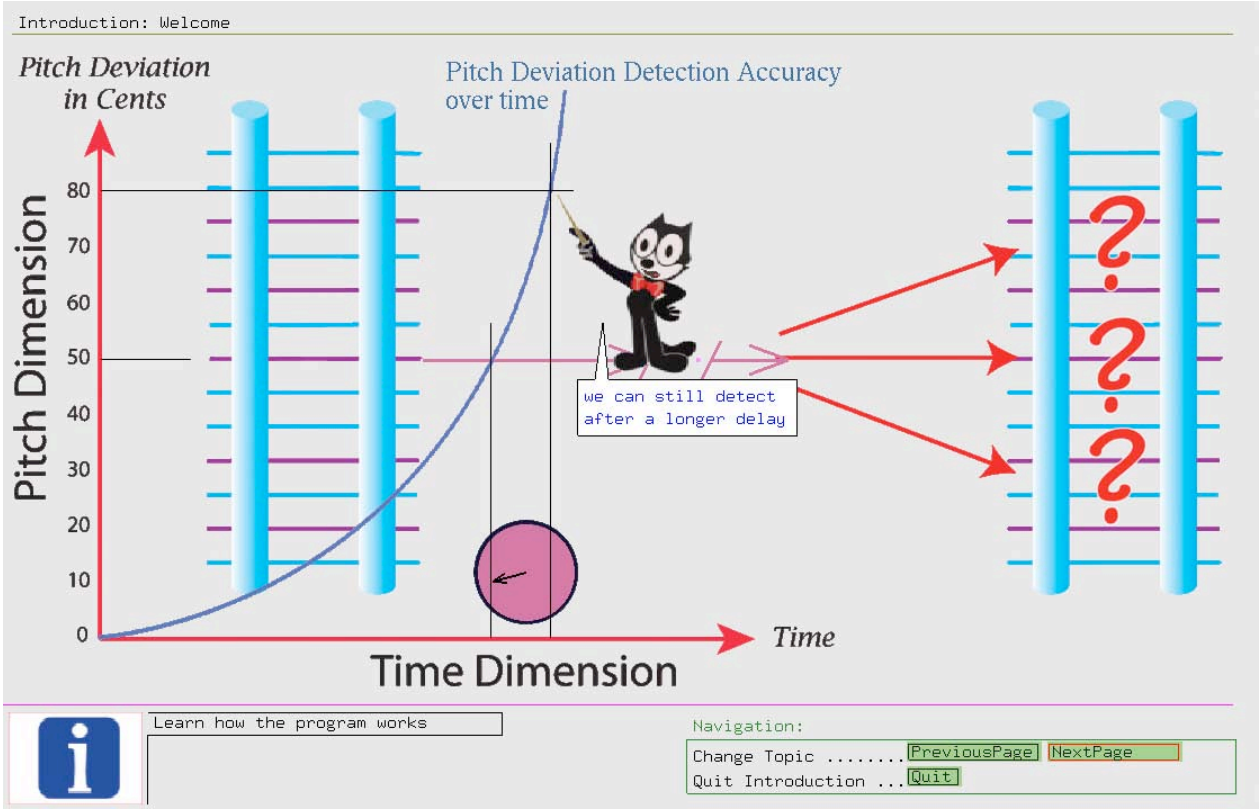

Introduction: Welcome
Pitch Dimension
C4
B3
A#3
A3
G#3
G3
F#3
F3
E3
D#3
D3
C#3
C3
Time Stretch
+50 cents
-50 cents
Time Dimension
then, we can start building:
an absolute pitch repertoire.
Learn how the program works
Navigation:
Change Topic ..... PreviousPage NextPage
Quit Introduction ... Quit

Distinguishing between relative pitch detection, accuracy, and time

If we build a pitch retention curve in relation to the pitch distances, we can observe that untrained listeners can identify the pitch dimension only within a few seconds to the precision of 50 cents.

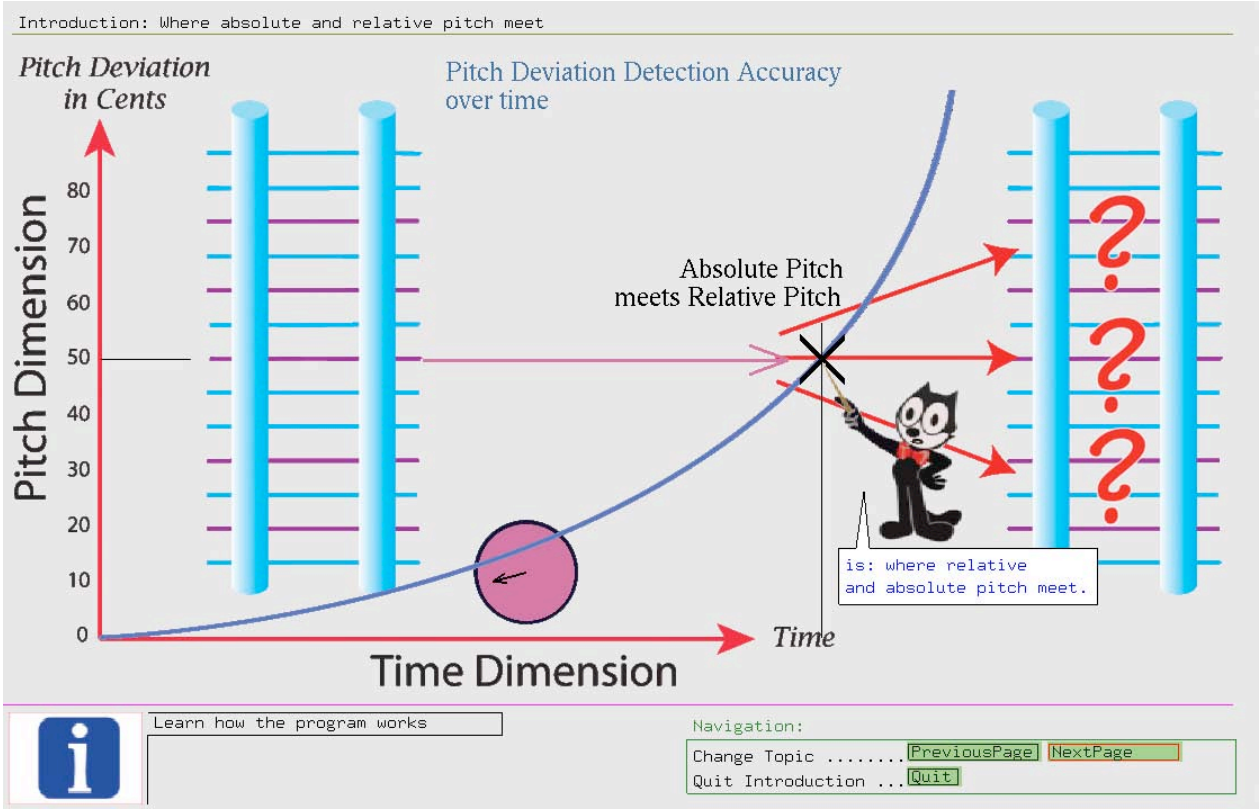


However, larger pitch deviations we can still detect after a longer delay.

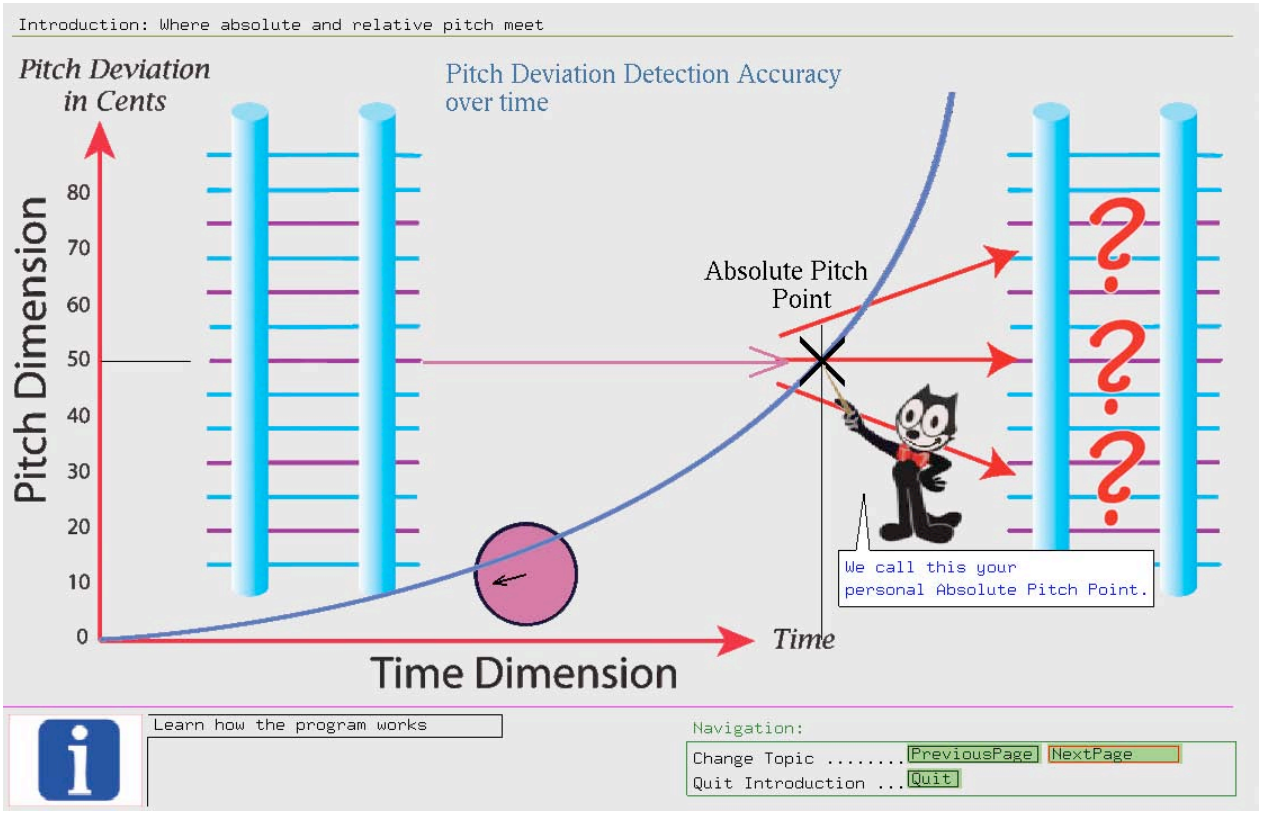


Fortunately, with training you can also increase that time for deviations of 50 cents.

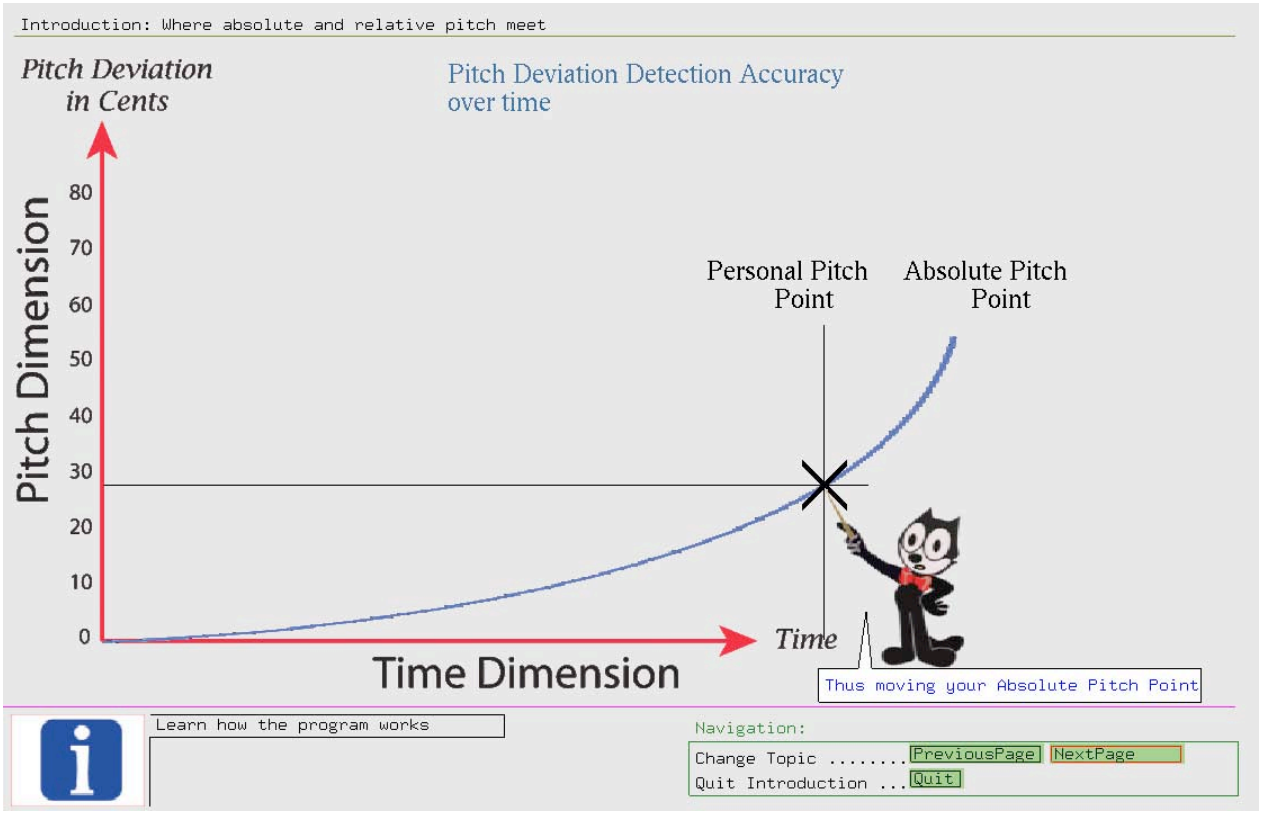
The period in which your memory can still identify the pitch dimension accurately—within 50 cents—for the second sound is where absolute and relative pitch meet.



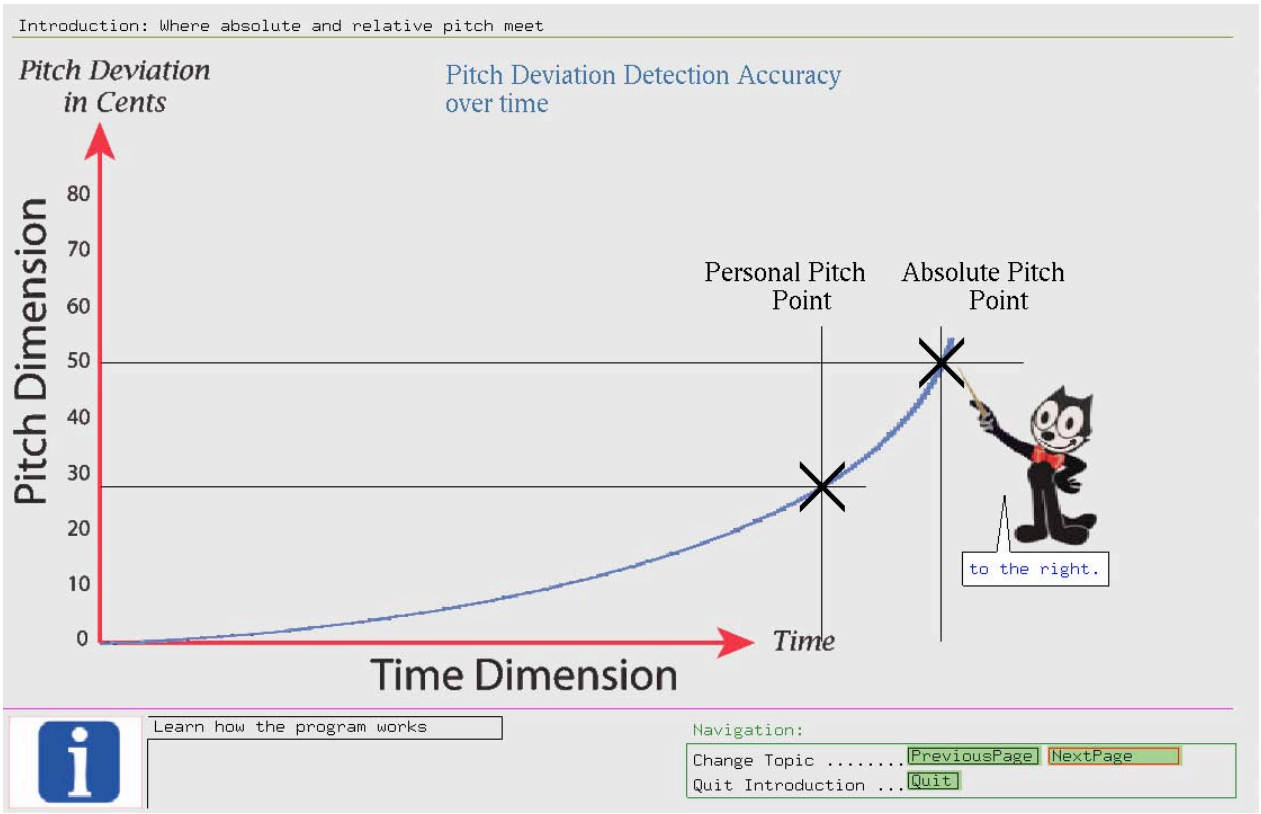
We call this your personal Absolute Pitch Point. Because the point relates to a certain time, it is not absolute pitch. However, it expresses the point in time where you fulfill the pitch dimension for absolute pitch. In this way, you have a direct and observable measure of where you are on the road to absolute pitch.



Through ear training you can push your personal pitch point to the right, and down to smaller pitch deviations.



Therefore you move your Absolute Pitch Point to the right.



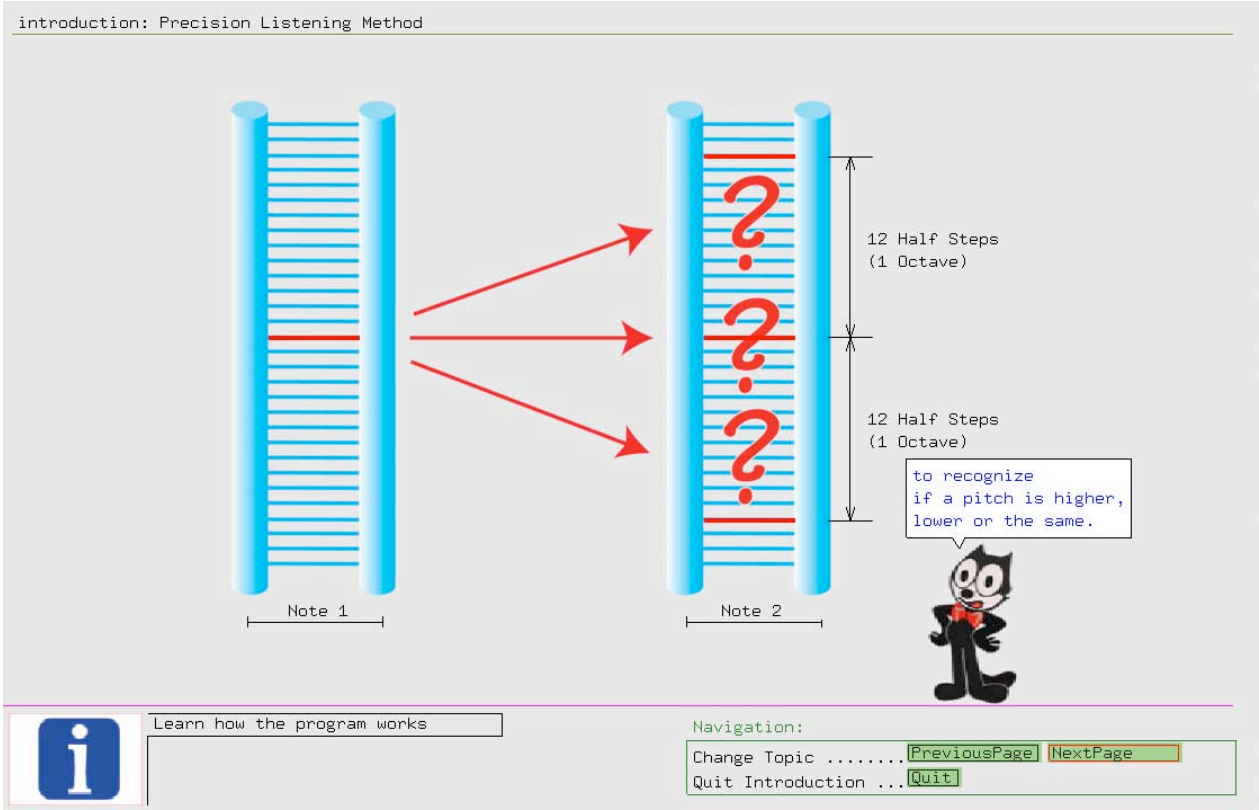
In terms of identifying the pitch dimension, it is easier to detect pitch deviations if the distance between pitches is large. Smaller pitch distances—to the cent—are more difficult to distinguish.

For the time dimension it is the other way round. A short period of time between two pitches makes it easier to distinguish them.

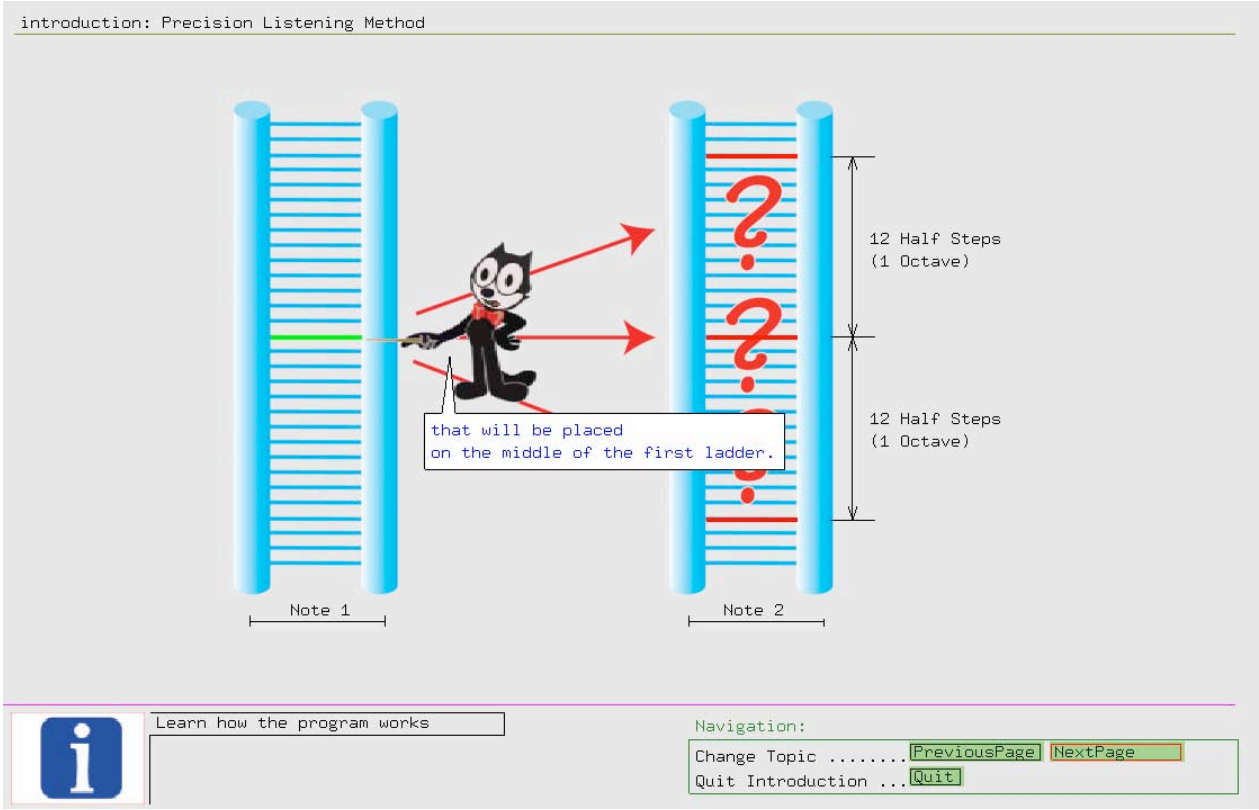
Precision Listening Method

To improve the skills in the pitch dimension, we have developed the Precision Listening Method.

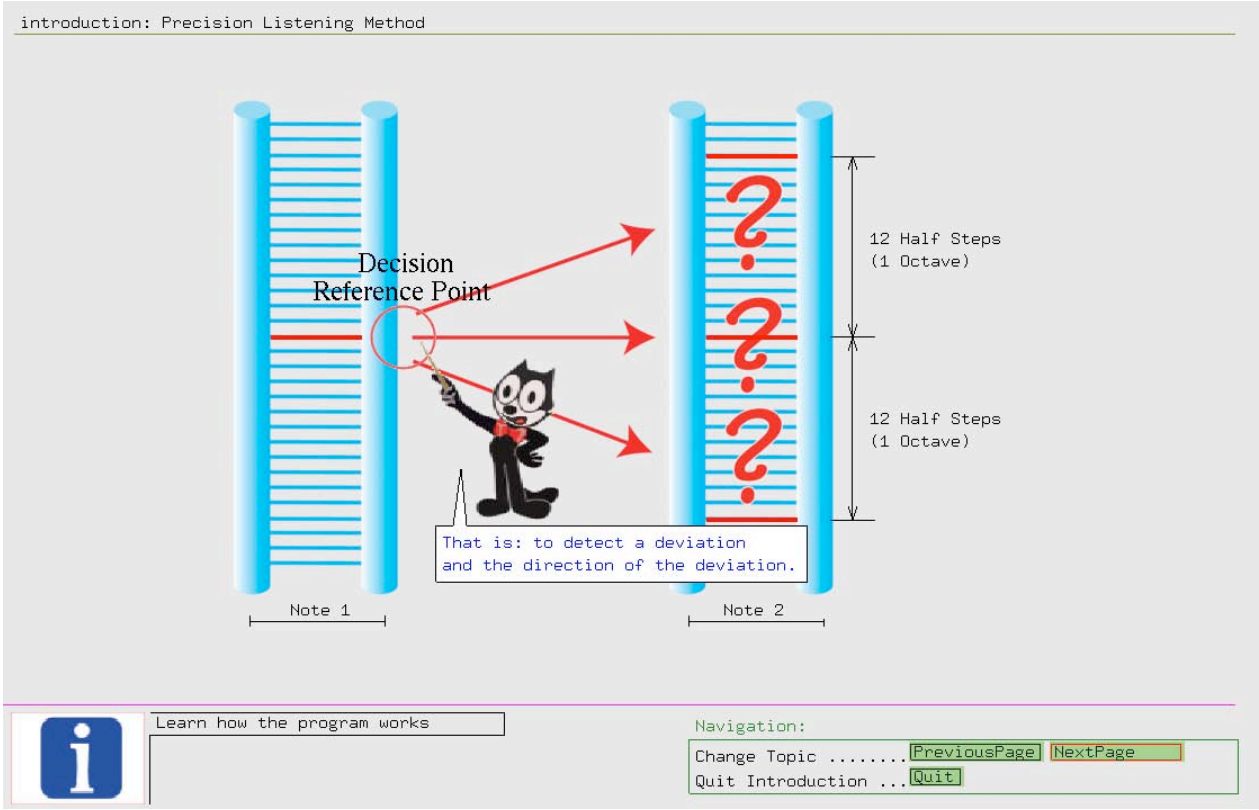
In order that everyone might easily understand the tuning skills, we start by giving pitches that are far apart. In this way everyone can do the first tuning step, which is to successfully recognize if a pitch is higher, lower, or the same as the reference pitch.



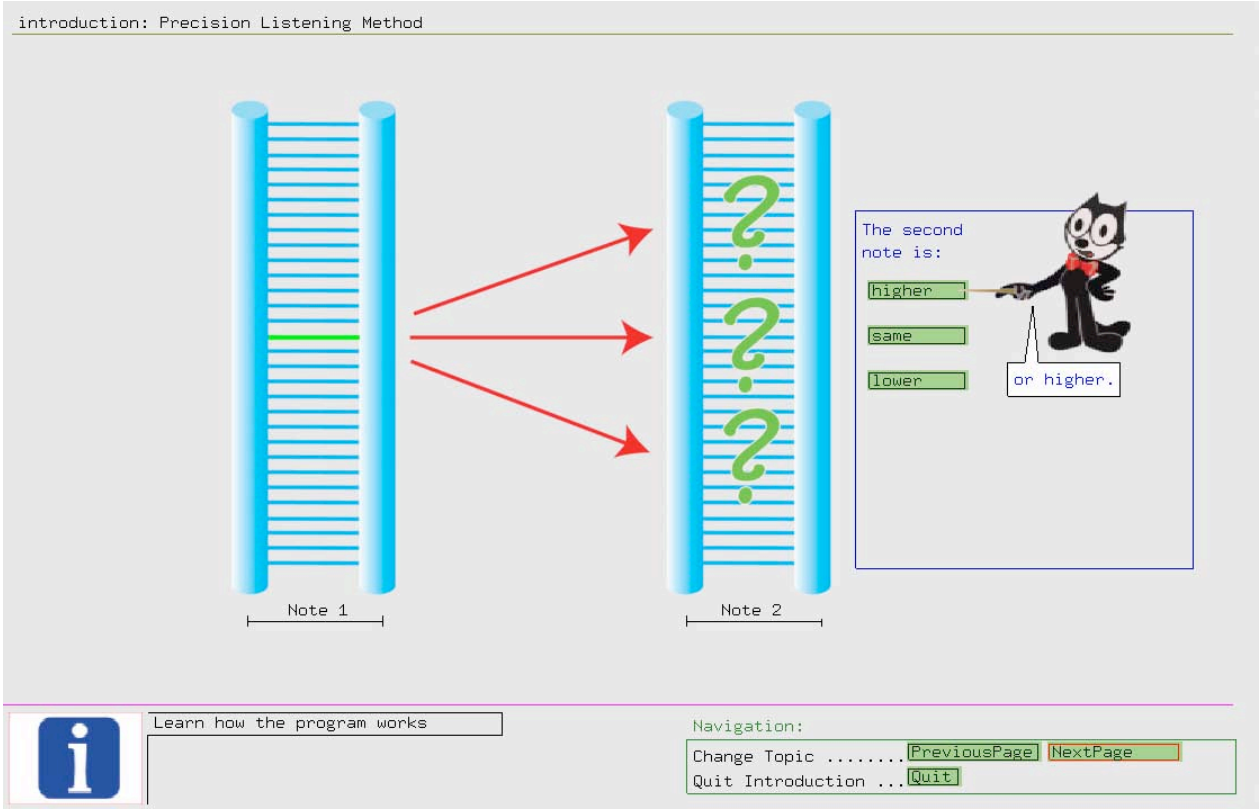
In the exercises, the first note played—the reference pitch—is placed on the middle of the ladder.



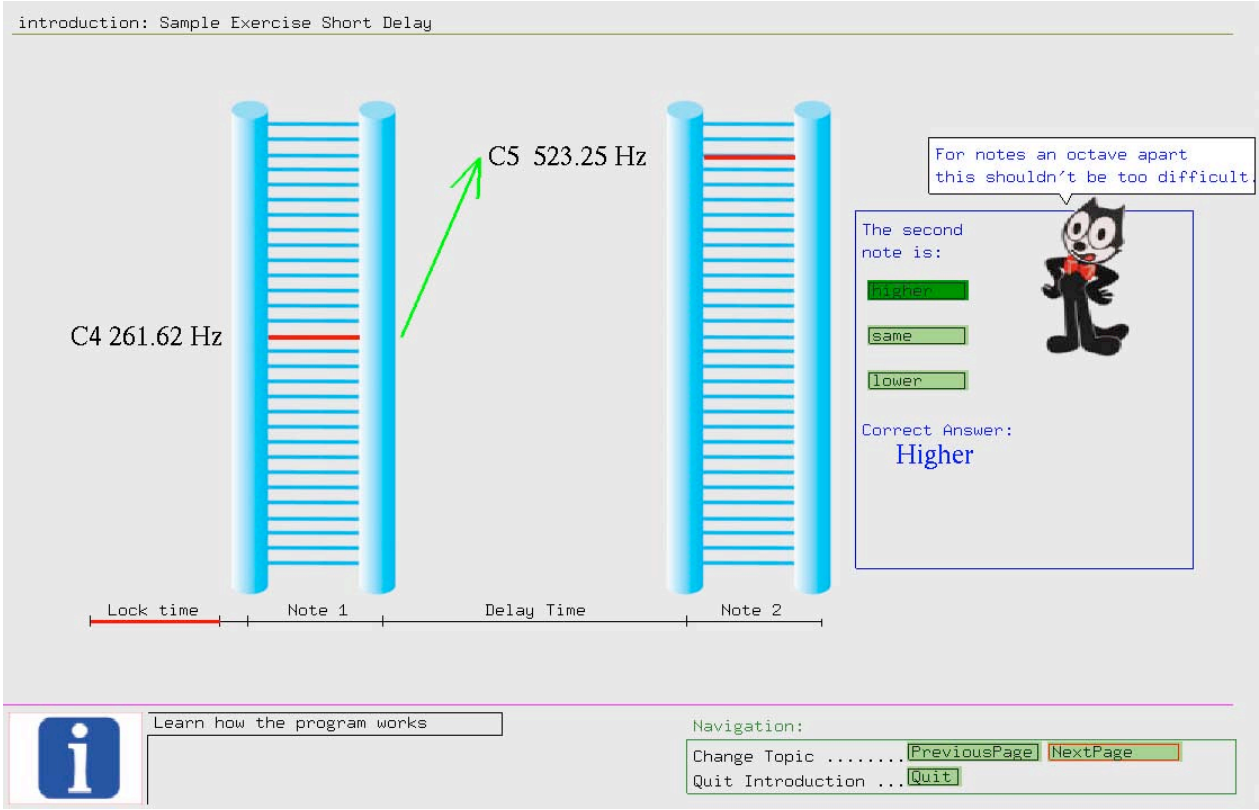
When the note finishes playing, the listener should have retained the pitch component of the sound. You need this pitch component as a reference point for deciding its relationship to the second note.



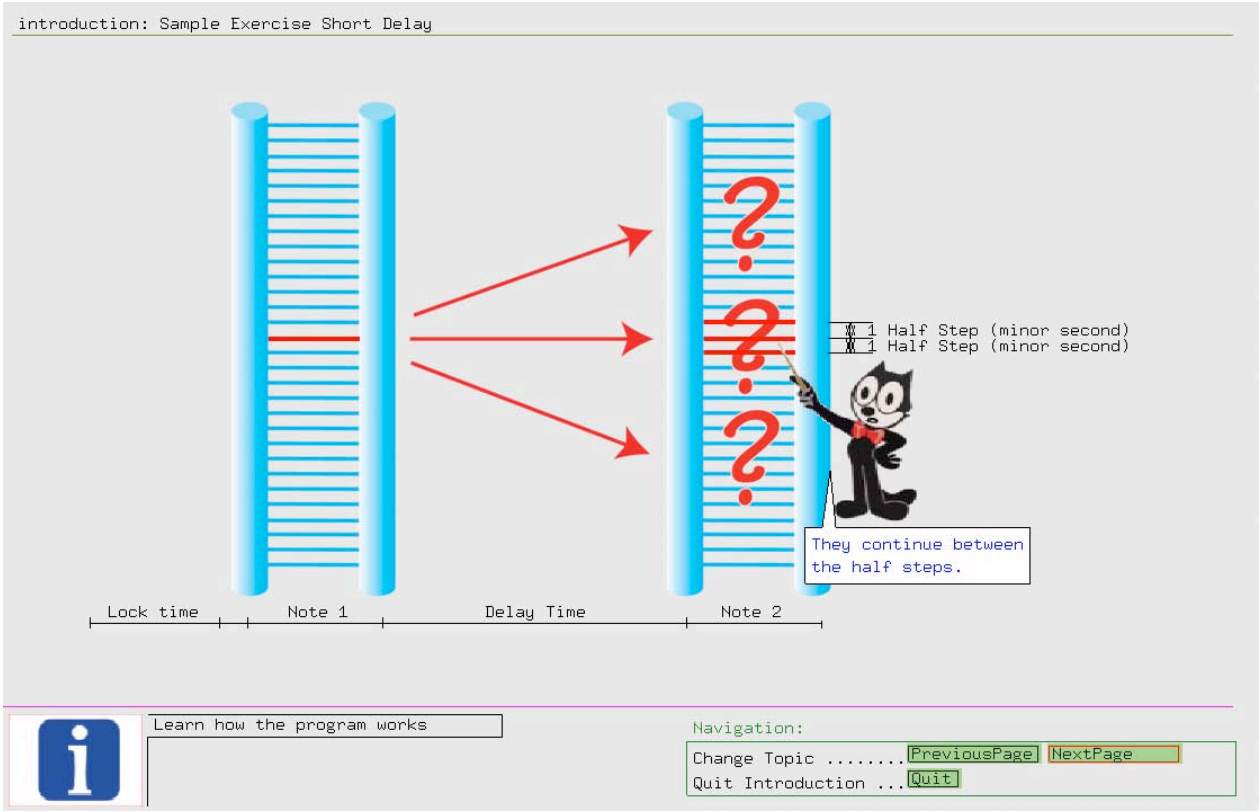
After the second note is played— in the first exercises: an octave higher, lower, or the same—you have to compare the two pitches and respond if the second note is higher, lower, or same note.



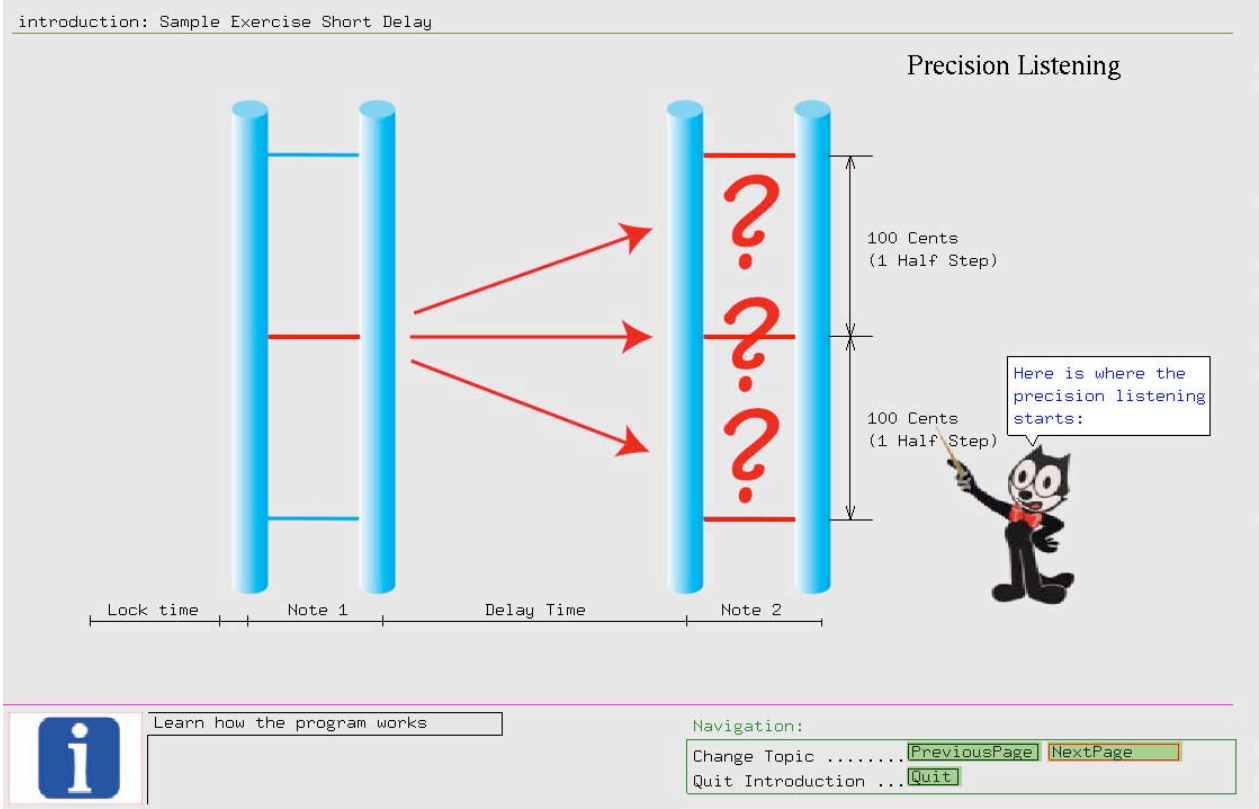
Clicking an answer button reveals the correct answer. For notes an octave apart identifying the relationship should not be too difficult.



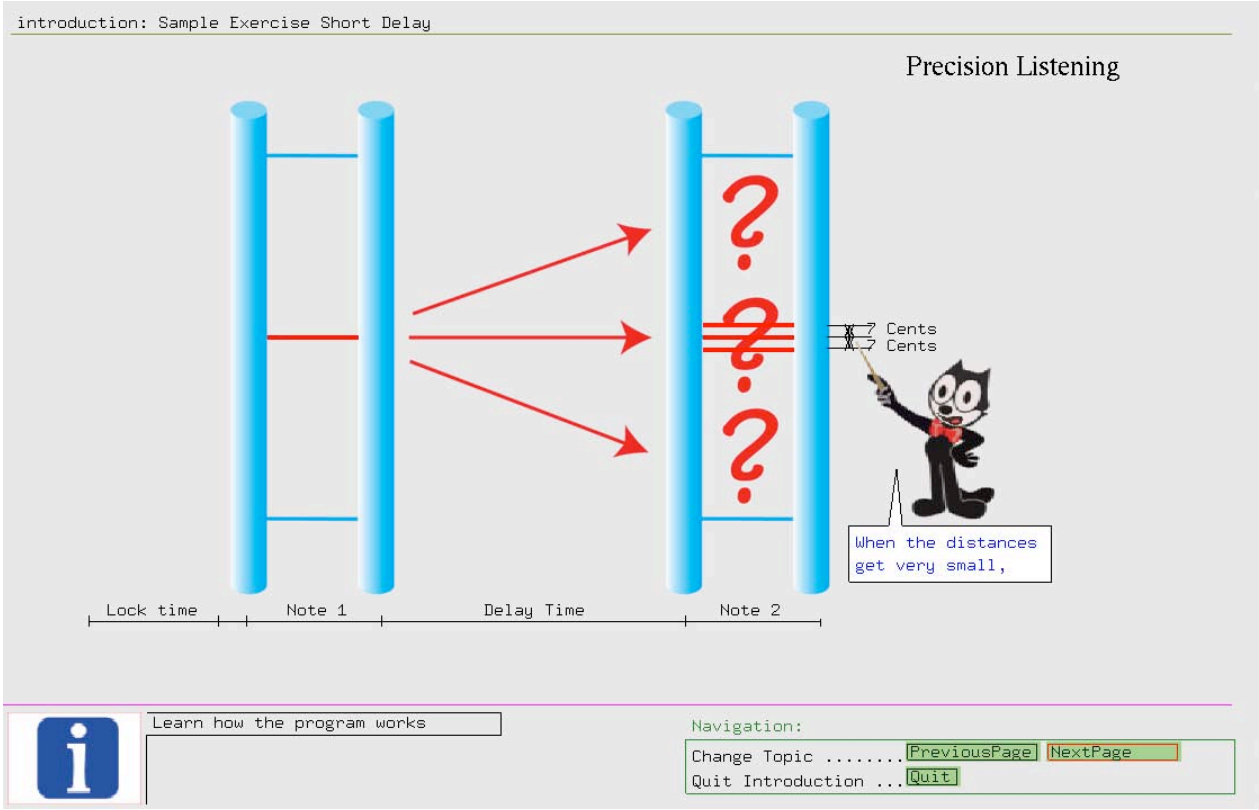
The next exercises reduce the interval distances until they are only a half step apart.



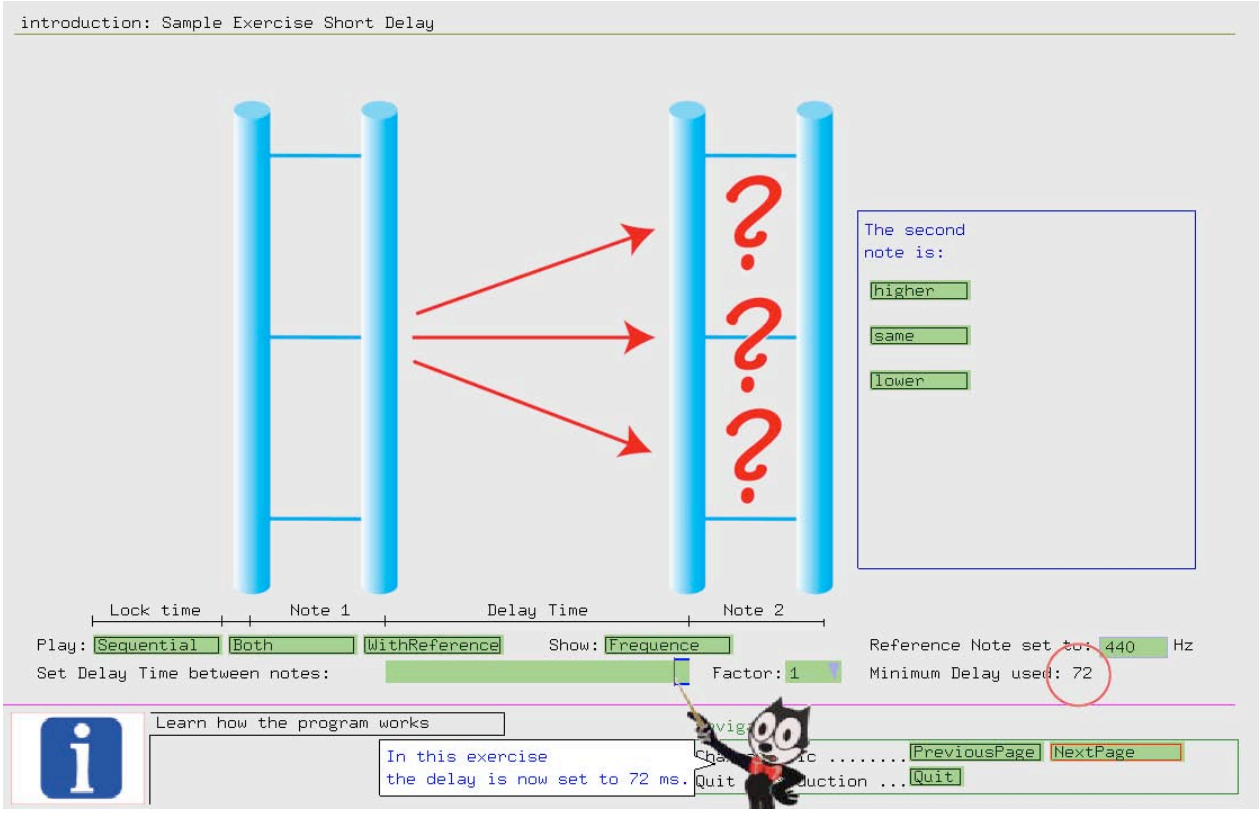
Mastering intervals is only the beginning of the Precision Listening Method. Now, the method explores the sounds *between* the half step, looking for deviations in cents, instead of simply recognizing interval differences. This is like looking at the ladder with a magnifying glass.



As the exercises progress, the deviation of the second note from the first (or reference note) will decrease, until the deviation is only 7 cents.

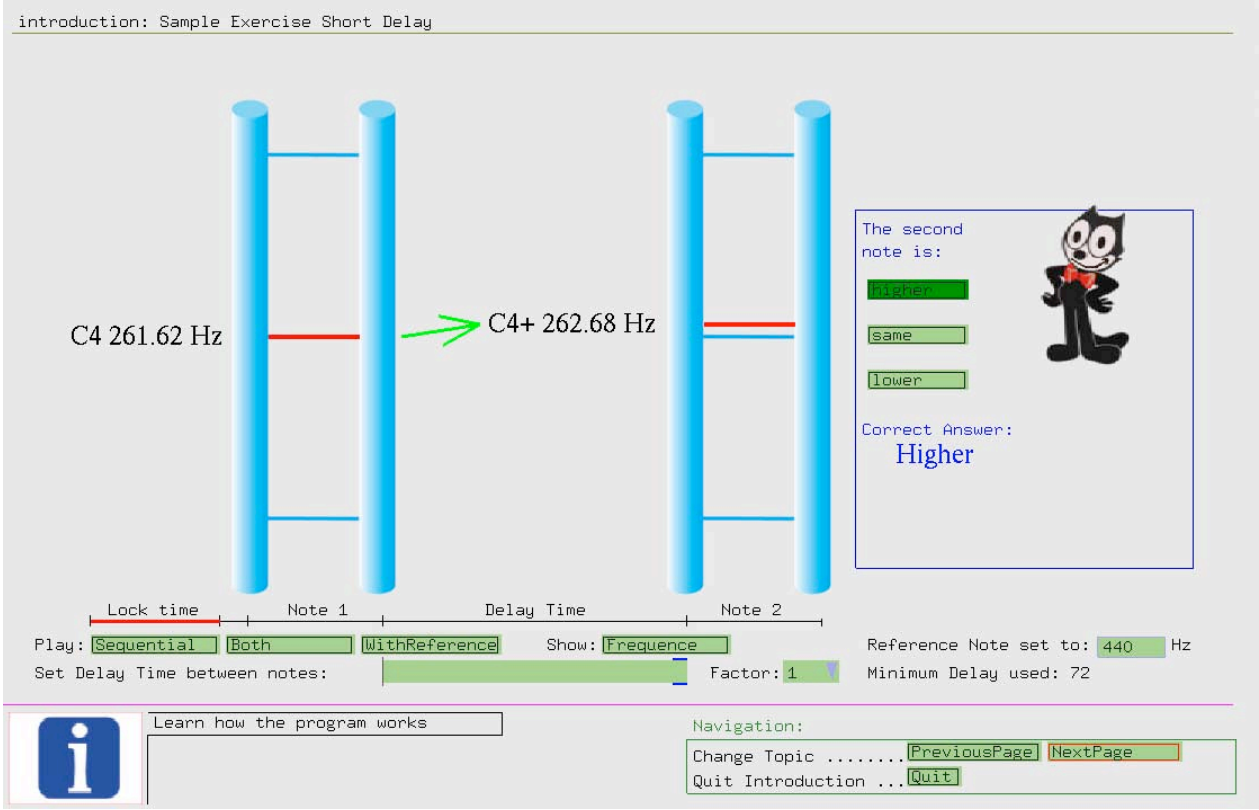


When the distances get very small, you will likely have more difficulty distinguishing between the given pitches. Therefore, we have made the Delay Slider. By moving the slider to the right, the delay time between the notes decreases.



Shorter times between the pitches make it easier to detect deviations.

In the exercise feedback answer screen the graph shows the amount of deviation from the reference note. For your convenience the frequencies of the pitches are also displayed beside the note name of the reference note.



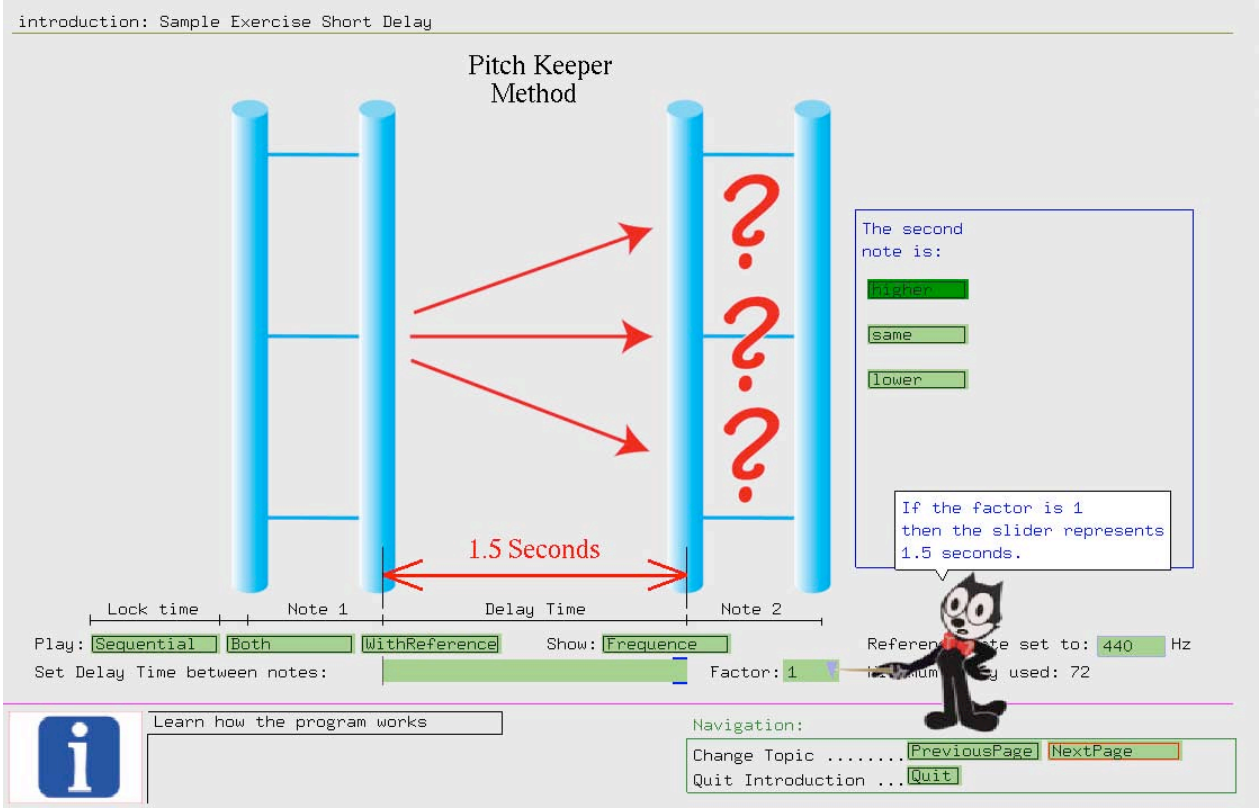
With the Delay Time Slider you enter the time dimension: you decrease the time between hearing the two sounds.

Pitch Keeper Method

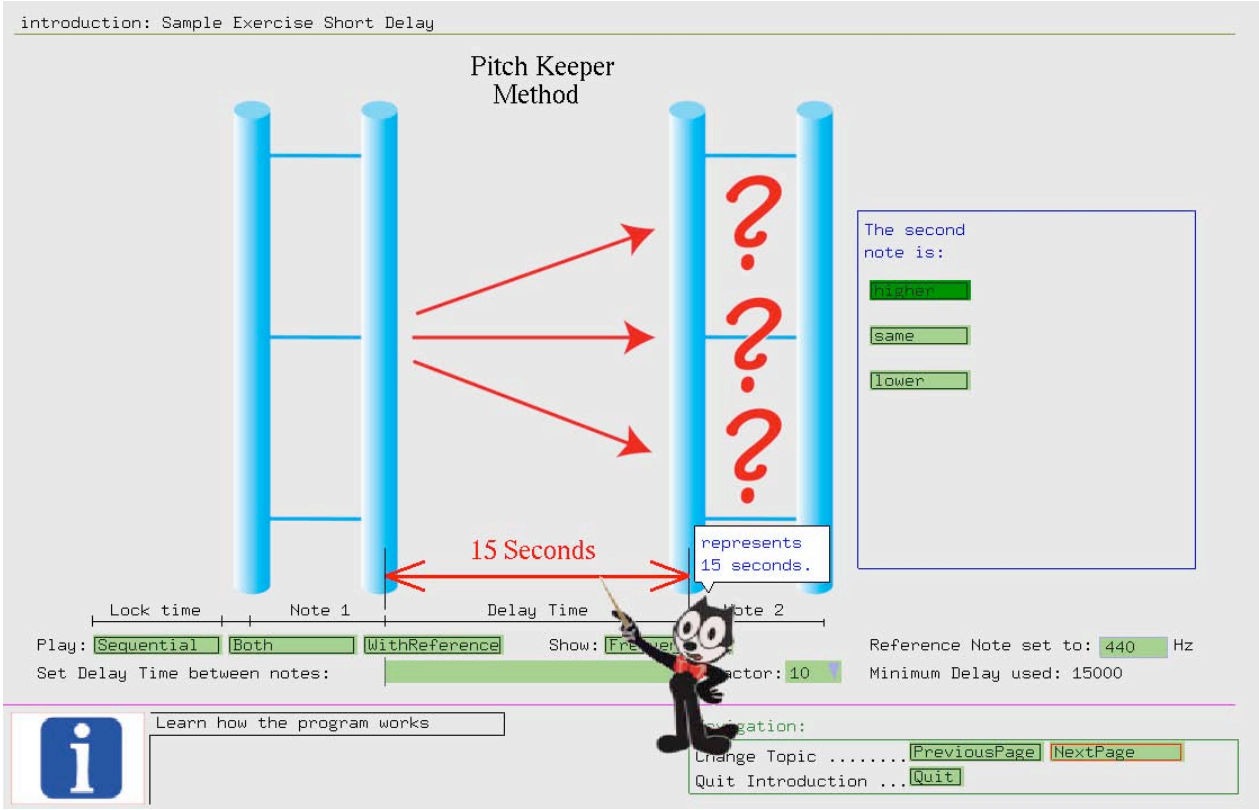
To be able to remember a sound for a longer period helps in the tuning process; as long as you can keep the reference sound in memory, you can adjust your instrument until it is in tune with the reference sound. If you lose confidence in your memory, then you must review the reference sound. Therefore, we have developed the Pitch Keeper Method to improve sound retention.

Instead of making the period between giving the pitches shorter, we increase the delay between the sounds. This forces you to find a way to store and recall the reference pitch.

Because the screen size is limited, we cannot keep stretching the ladders further apart. Therefore, we have introduced a factor parameter. If the factor is set to 1 then the slider distance represents 1.5 seconds.

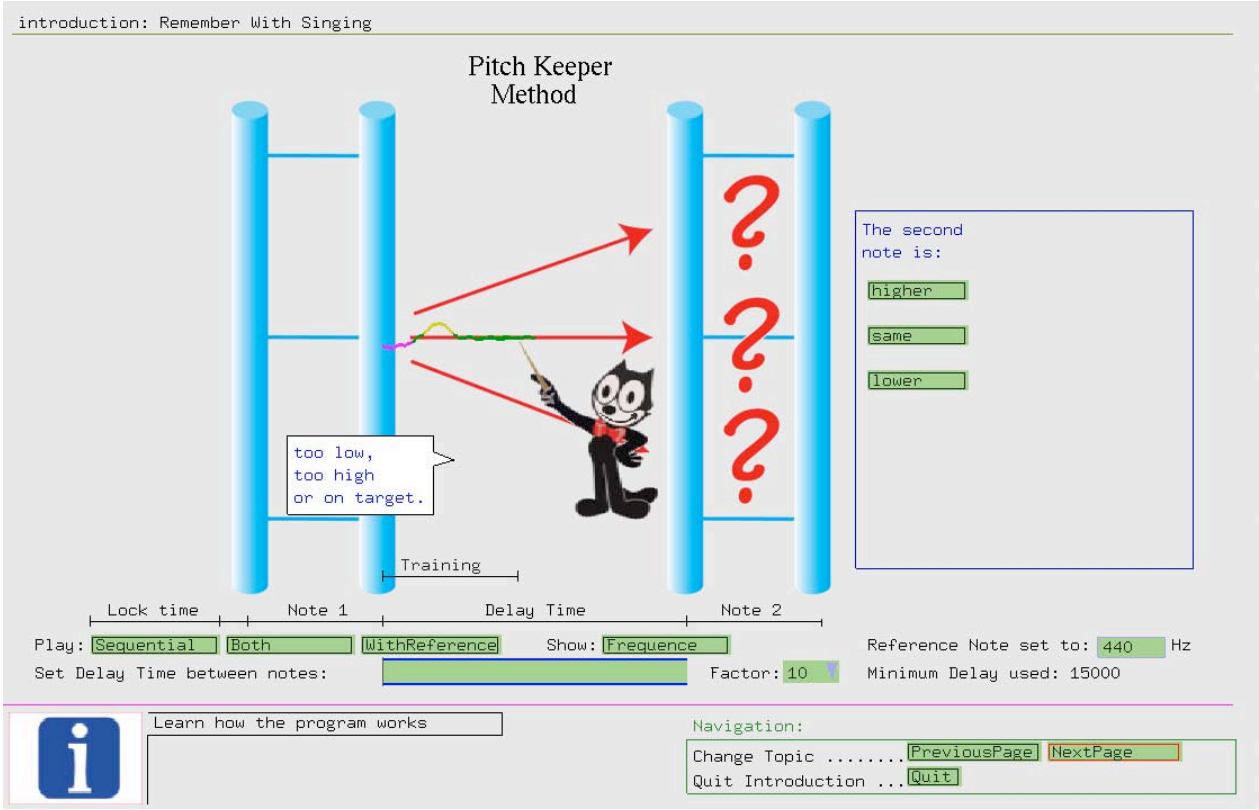


If we select 10 from the factor drop-down menu, then the time between slider endpoints represents 15 seconds.



Because remembering a pitched sound is not easy, we have to find means to experience the sound memory. Nothing is nearer to hearing a sound than producing it and we can use this relationship between hearing and executing a sound to increase the sound memory. So we encourage you to take over the pitch in your voice by singing.

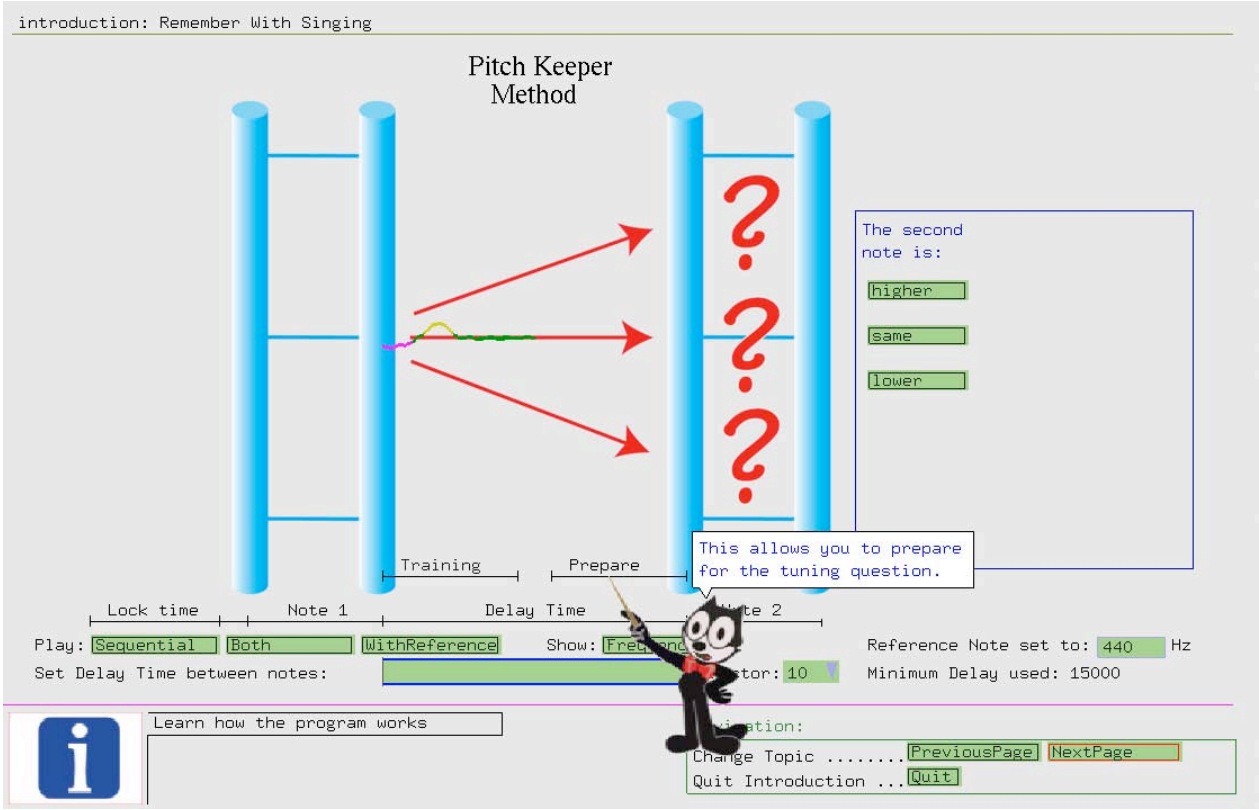
If the delay time is larger than 10 seconds, then a training bar appears on the screen. This means as soon as the reference sound has finished playing you can start singing. Since accuracy in transferring the pitch to memory is crucial, we display your sung pitch on our colored pitch line.



In this way you can be confident that you have matched the pitch by ear.

Try to keep the vocal cord muscle positions you use to reproduce the pitch in mind. This process is also called muscle memory and will help you to decide whether the second pitch is higher, lower, or same note.

Five seconds before the second sound is due to play, the program sounds a white noise. This allows you to prepare for the tuning question.

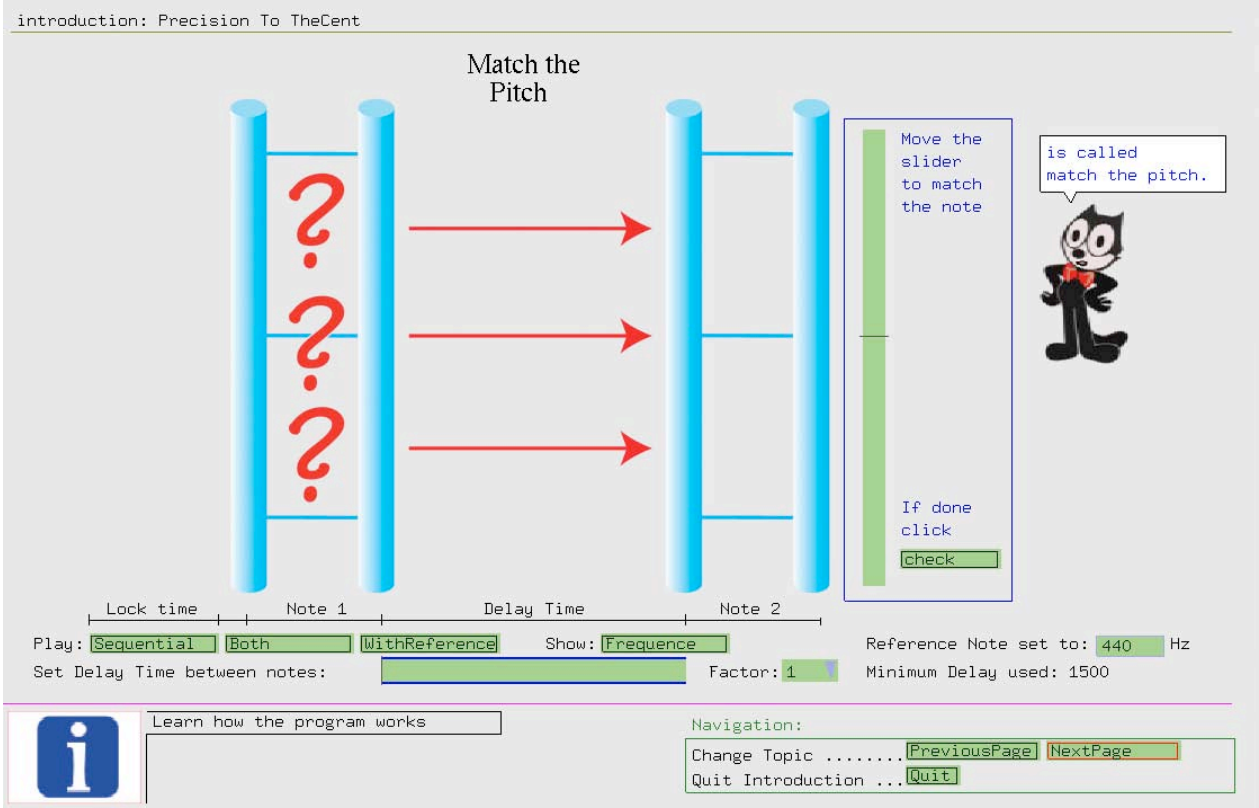


Recall the muscle positions and try to sing or hum the previously sung sound. The better you remember and can reproduce the pitch, the easier it gets to describe the second pitch relative to the first. Since white noise has no distinct pitch, you cannot use it as a reference sound to determine the second pitch. This forces you to remember the first pitch accurately.

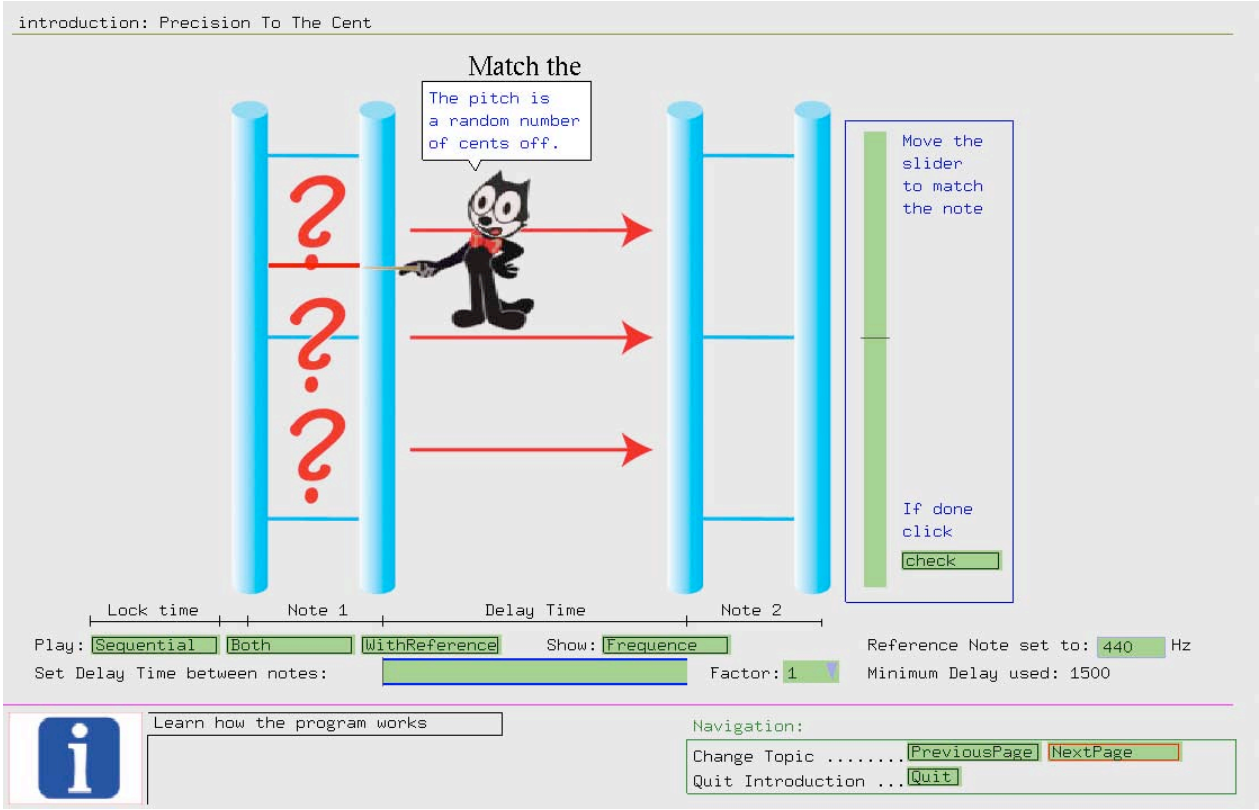
In this exercise type you have only three possible responses: lower, higher, or same note. In the next exercise type you have to answer the pitch challenge to the cent.

Match the Pitch

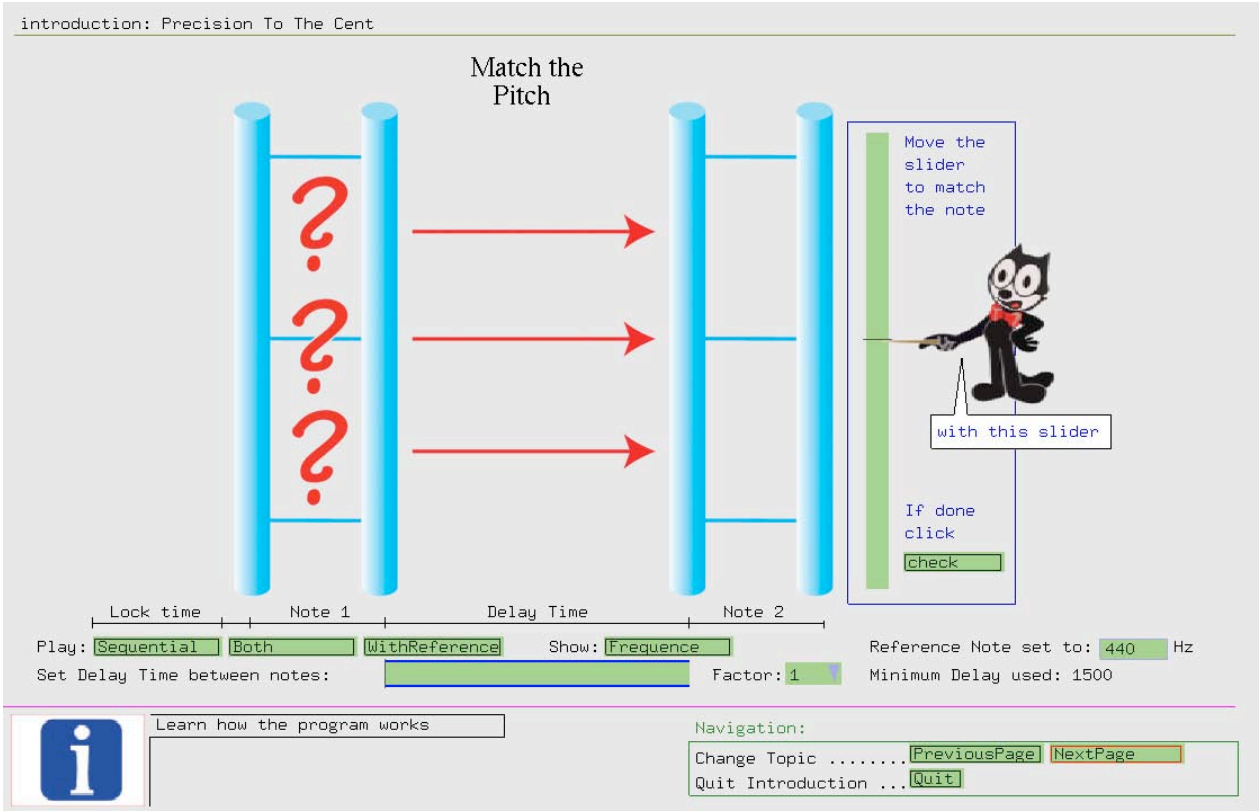
The last exercise for each delay setting is called “Match the Pitch.”



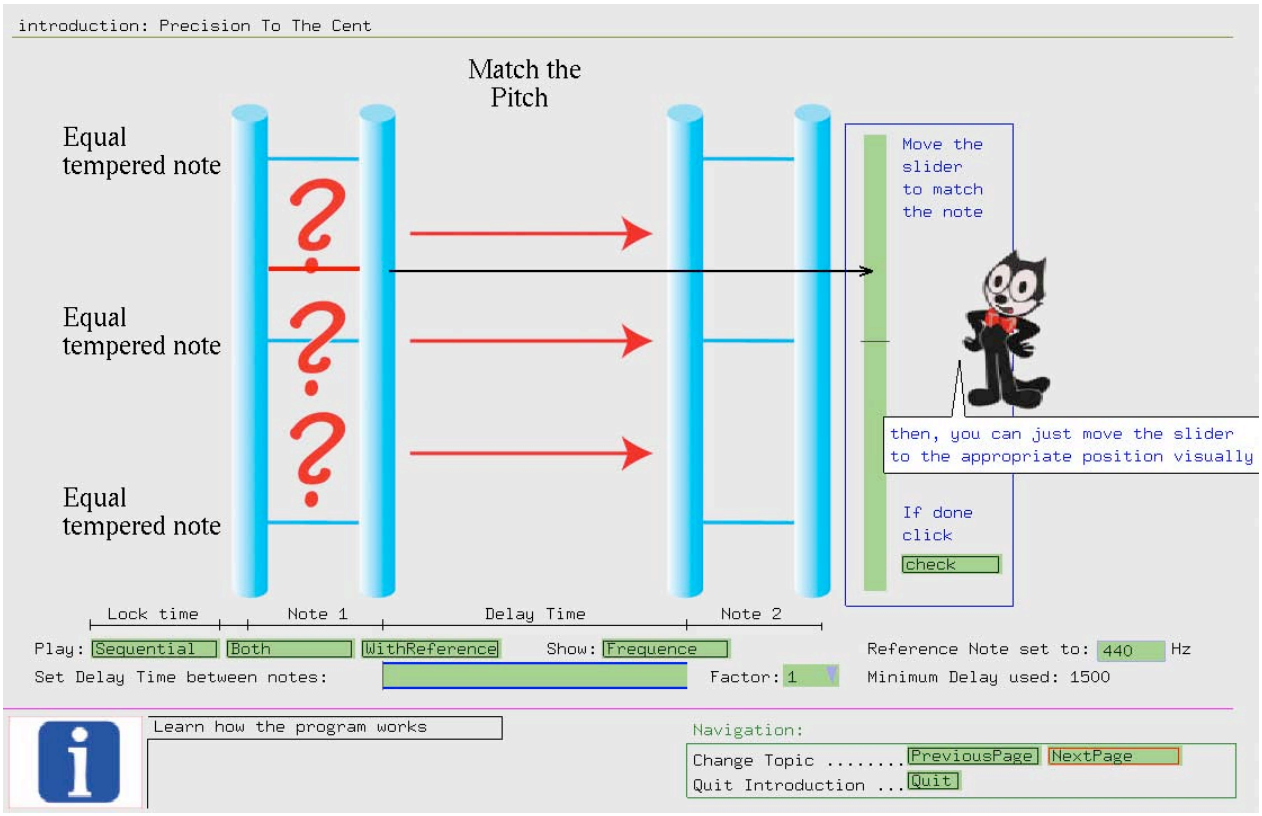
In this type of exercise the first pitch deviates from the equal-tempered notes.



Your task is to match the pitch with the slider.



If you have a good idea of where the pitch lies in between two equal-tempered notes, then you can just move the slider to the appropriate position visually.

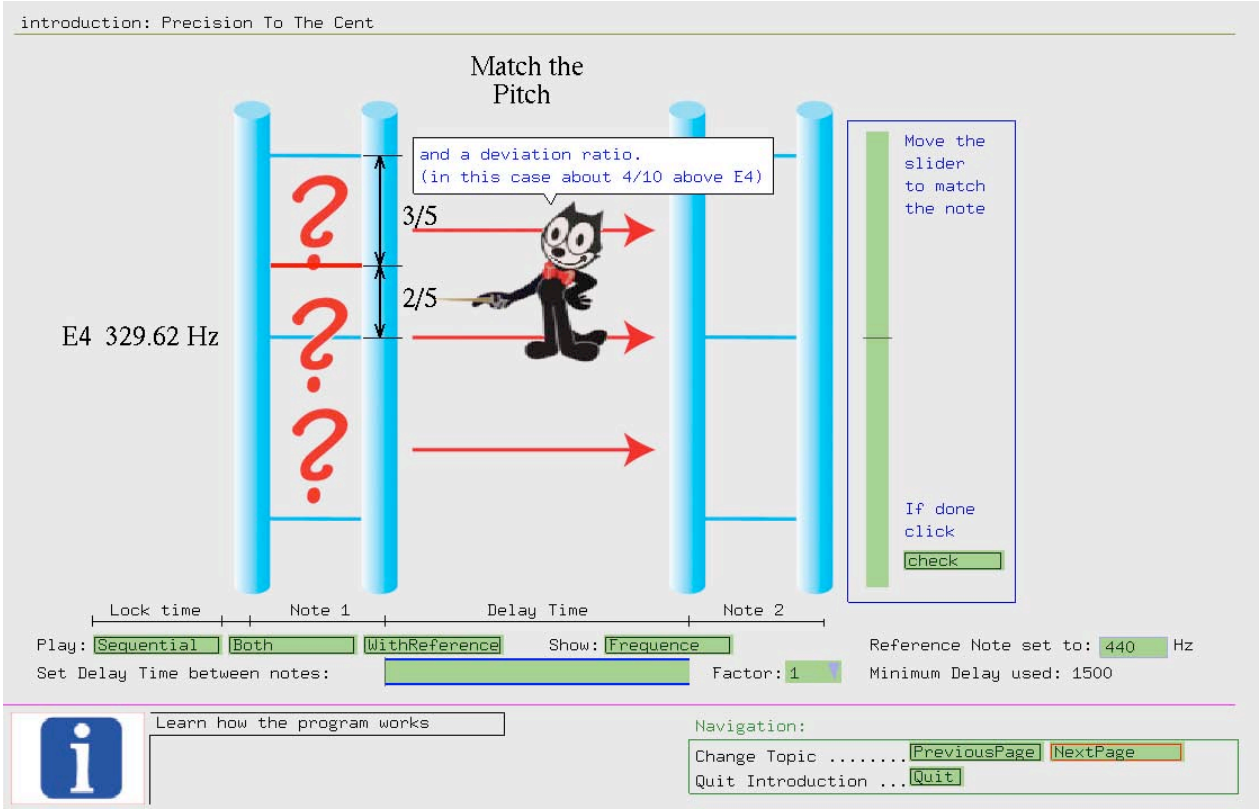


However, the idea is that you keep the pitch in your ear and then aurally match it with the slider. As soon as you move the slider, the pitch position on the slider is played. The challenge is to maintain the pitch you had heard by ear, as the slider pitches may dominate the previous pitch, or interfere with your retention of that pitch.

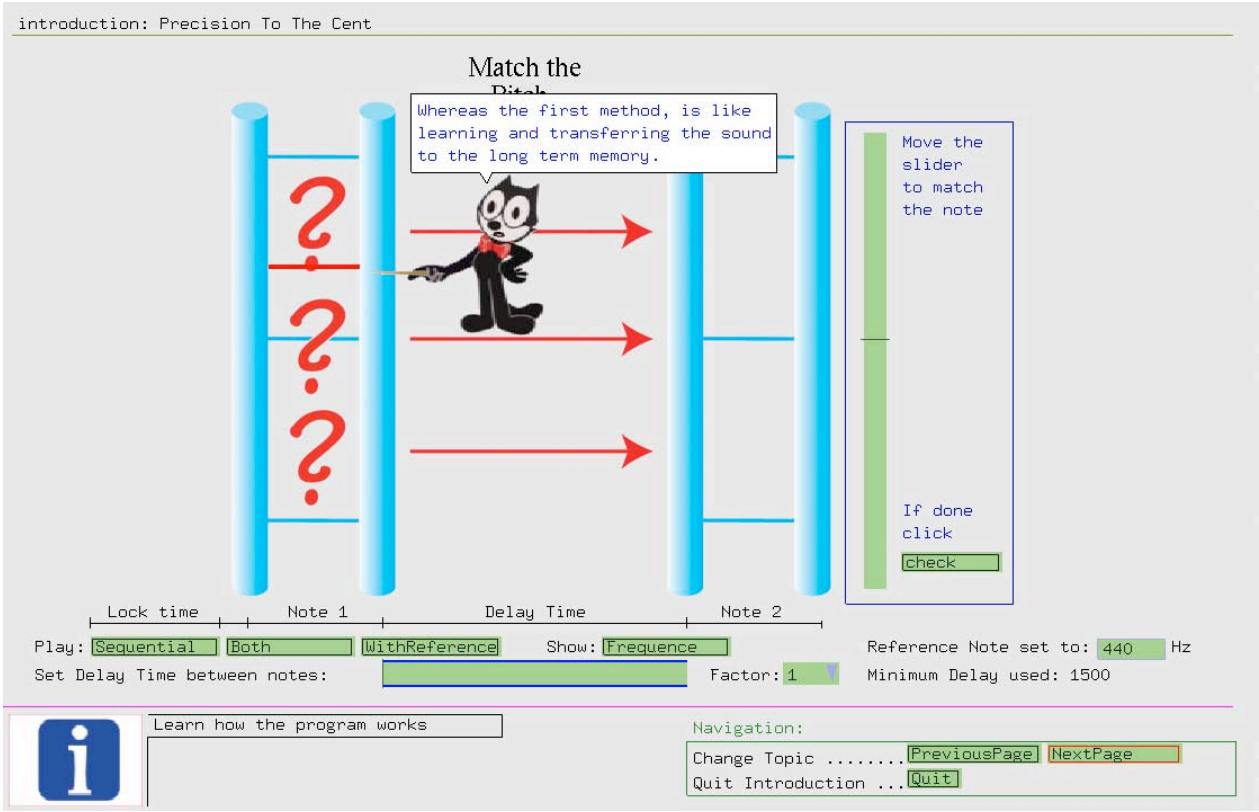
There are two possible ways to memorize a pitch that lies outside the equal-tempered scale (or any other reference point):

1. You accurately store the sound in your short-term (or muscle) memory.
2. You remember the nearest equal-tempered pitch, and the given pitch's relative deviation to it.

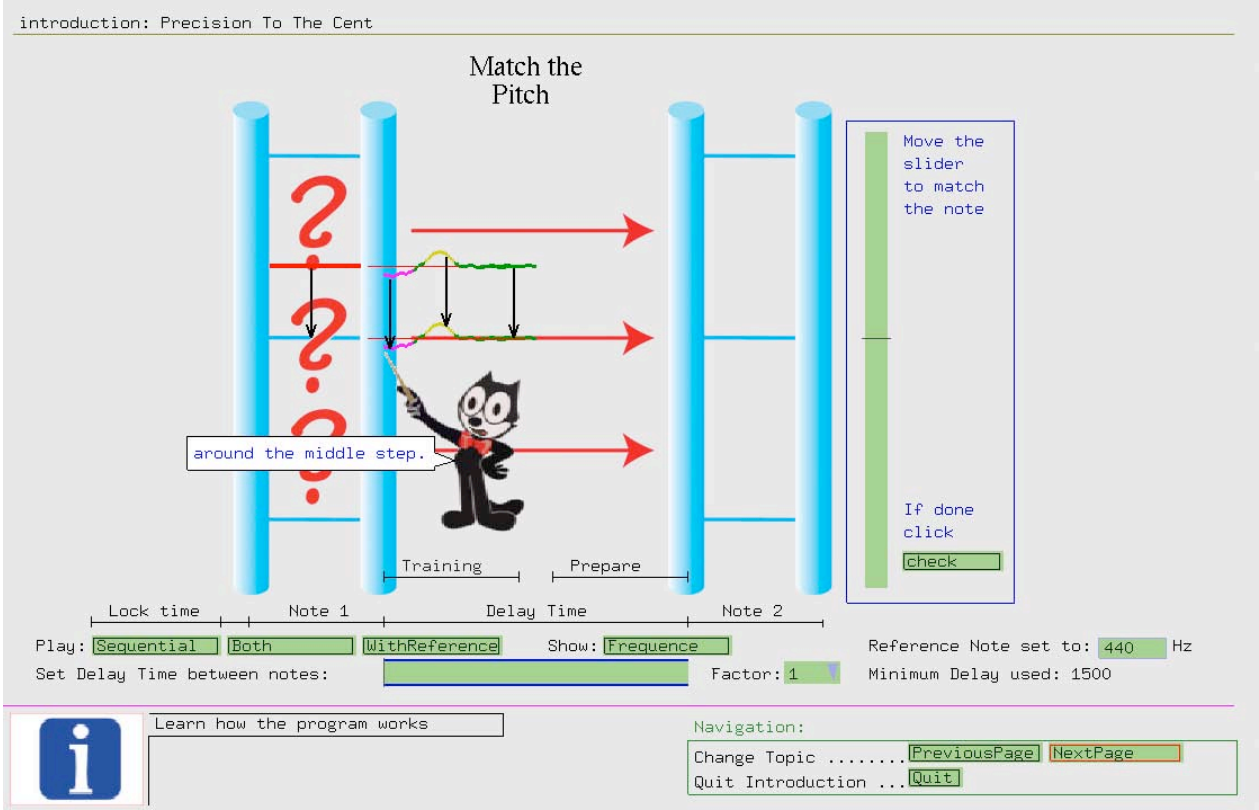
For long-term situations, the second method is essentially writing the pitch down—that is, you are abstracting the sound to a well-known pitch and a deviation ratio to the next higher or lower well-known pitch—for example 4 tenth above E4.



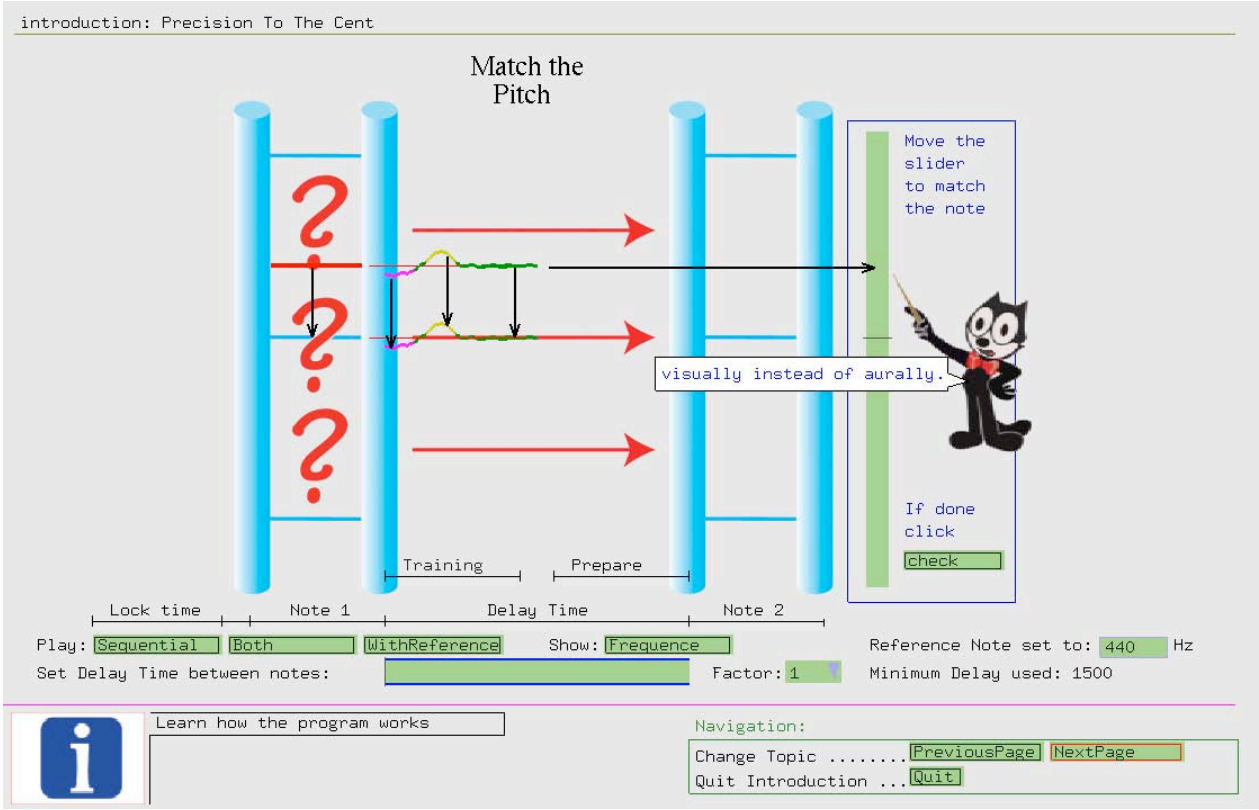
Whereas the first method is like learning and transferring the sound to the long-term memory.



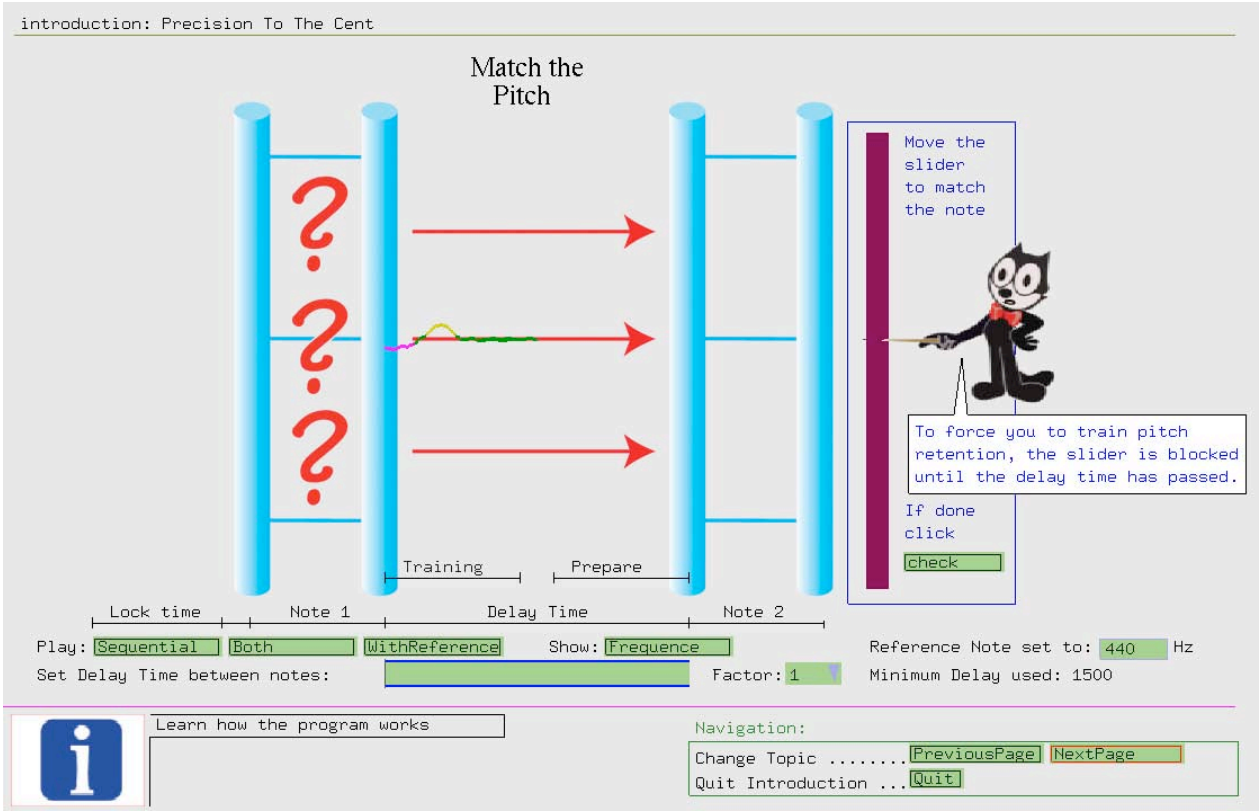
Similar to the other exercises, you can also actively sing the pitch. Attention: Keep in mind that for this exercise the colored pitch line does not display the actual pitch position. The feedback is given relative to the sounded pitch around the middle step



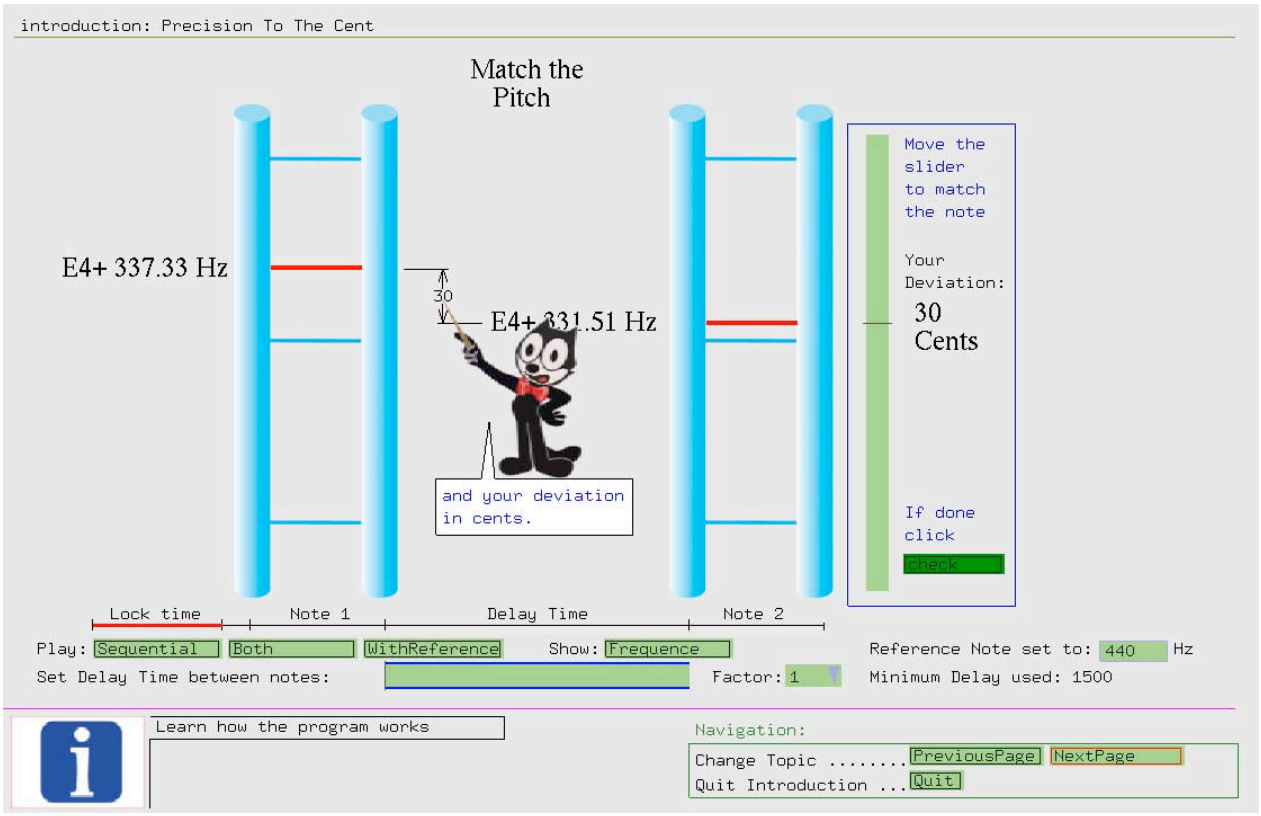
in order to prevent solving the problem visually instead of aurally.



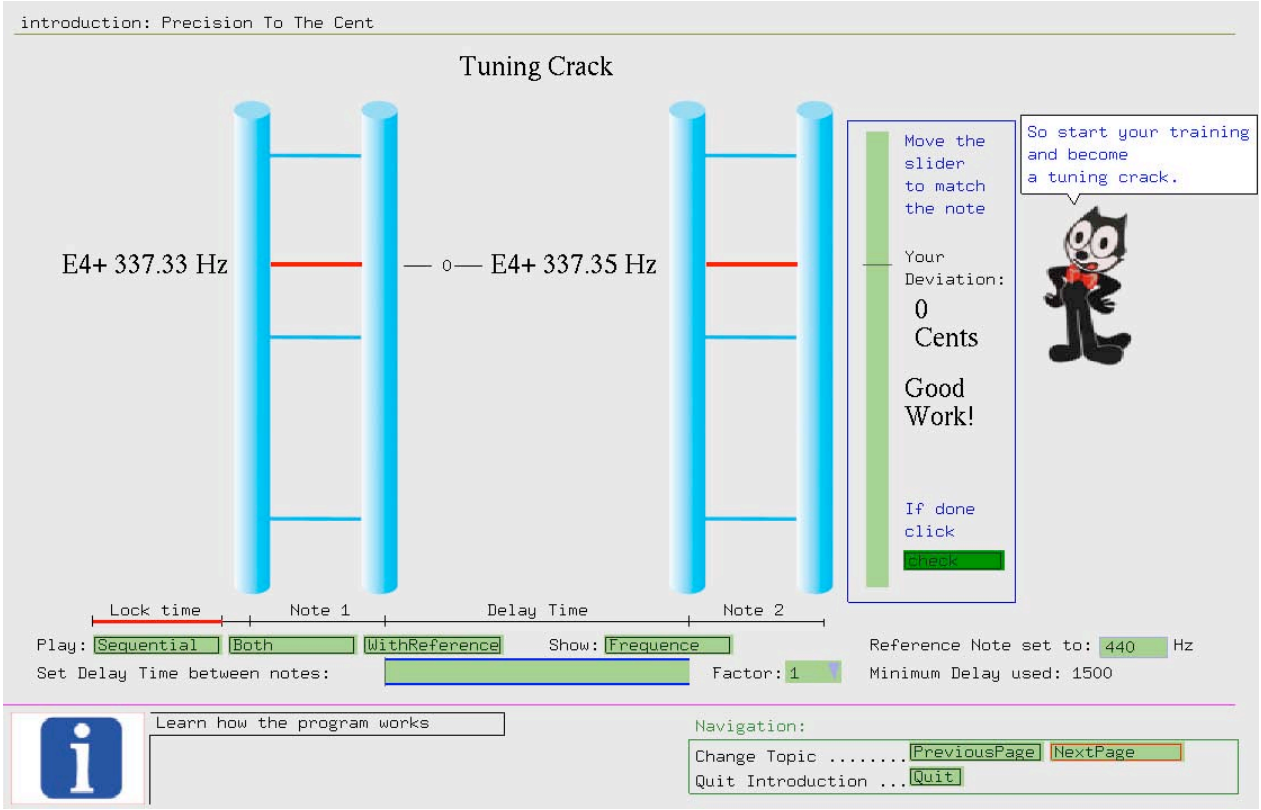
To force you to practice pitch retention, the slider is blocked until after the time delay.



After that period you can position the slider. When you think you have matched the pitch, click on “Check.” The feedback screen will reveal the sounded pitch and your deviation in cents.



If you master this task to a zero-cent deviation you can accurately tune an instrument. So, start practicing and become a tuning crack: an expert at tuning.


introduction: Precision To The Cent
Tuning Crack
E4+ 337.33 Hz
E4+ 337.35 Hz
Move the slider to match the note
Your Deviation:
0 Cents
Good Work!
If done click
check
So start your training and become a tuning crack.
Lock time
Note 1
Delay Time
Note 2
Play: Sequential
Both
WithReference
Show: Frequence
Reference Note set to: 440 Hz
Set Delay Time between notes:
Factor: 1
Minimum Delay used: 1500
Learn how the program works
Navigation:
Change Topic ..... PreviousPage NextPage
Quit Introduction ... Quit

Exercises

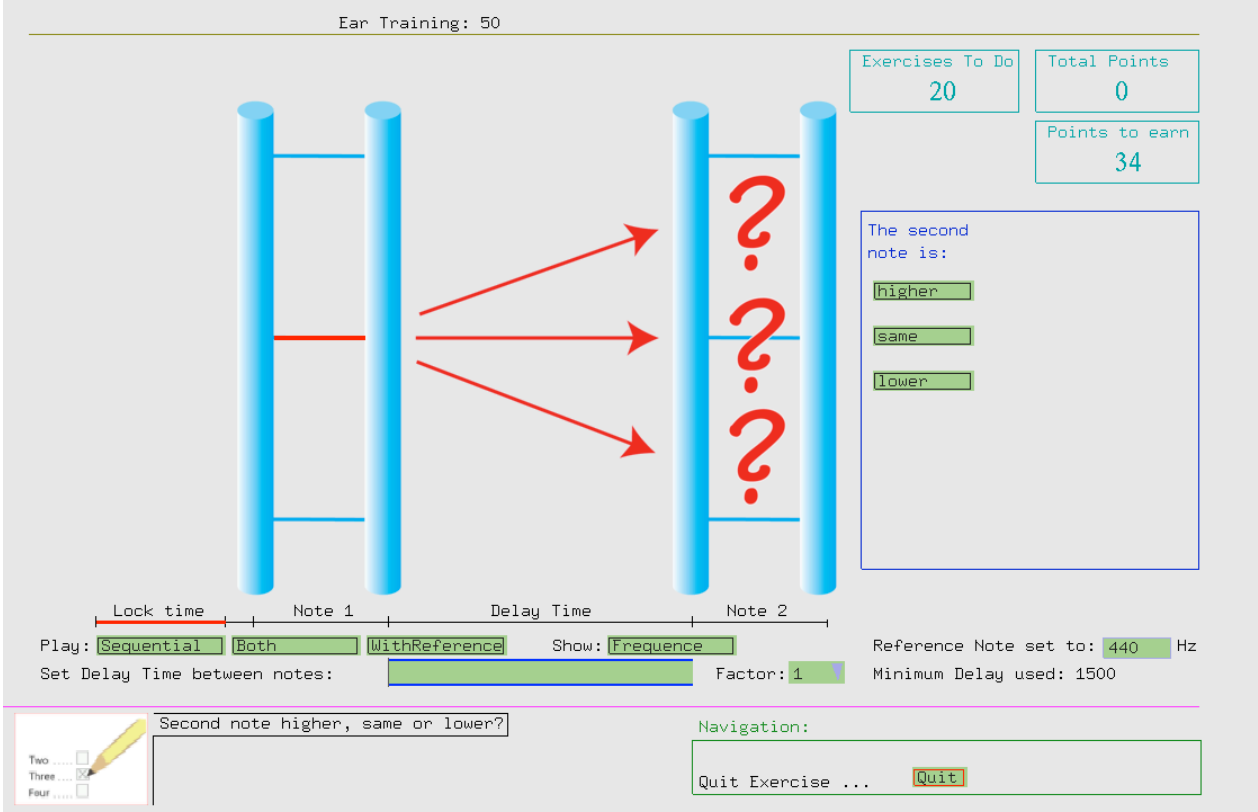
As described in the introduction, there are two types of exercises:

1. Exercises giving a choice between pitch options.
2. Exercises in matching a pitch.

In order to track your progress the exercises are ordered by difficulty level and arranged in blocks.

Exercises choosing pitch options

The first exercise block concentrates on listening to pitches. Beginning with notes an octave apart they accustom you to listening to their differences. After the exercises have reached a half-step distance between two pitches—the smallest distance in the equal-tempered system—they continue with precision listening.



When it gets too difficult to distinguish between the notes, you should use the Time Delay slider. Depending on the selected time delay, you will earn fewer or more points. However, you will still learn how to concentrate on recognizing pitch differences.

Other program buttons help you to more easily identify the notes:

The Play buttons:

- “Sequential”: will repeat the given notes. When the second note is played, this button is blocked until the delay time has passed. (Otherwise, it becomes easy to cheat with the delay time.)
- “Both”: will play the first and second sound simultaneously. Using this option reduces the amount of possible points.
- “With Reference”: will play each note together with a reference sound. Using this option reduces the amount of possible points.

The Show button:

- “Frequency”: shows the frequencies of the notes in Hertz. Using this button reduces the amount of possible points to one.

Reference Note set to field:

- With this field you can set the reference frequency played by selecting “Play with Reference.”

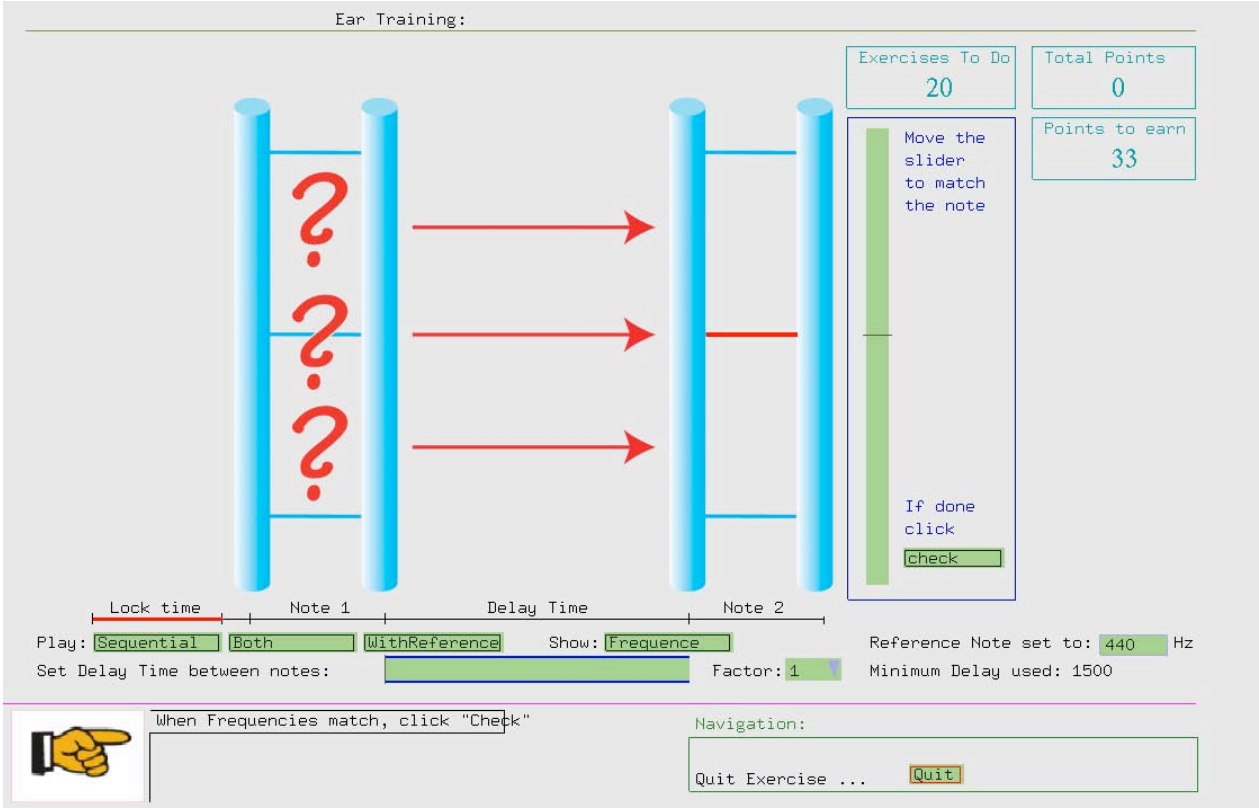
Factor drop-down menu:

- By clicking this button you can change the time delay. However, increasing the time will not give you more points, since the minimum delay used will stay as it was. Decreasing the delay allows you to listen with a shorter delay, but will also decrease the number of points possible.

If you have difficulties beyond 33 cents, don’t get stuck; continue with the next block. You can come back to the exercises later, when your listening and singing skills have improved.

Exercises by matching a pitch

The last exercise in each block is called “Match the Pitch.” This exercise tests your ear to the cent.



Instead of the buttons “Lower,” “Same,” and “Higher,” a slider and a “Check” button appear in this exercise. You must match the first given pitch with the slider. Once you have positioned the slider on your response, click “Check.” The other buttons appearing in this exercise are the same as in the “Exercises by Choice.”

For Match the Pitch exercises the pitches go beyond the equal-tempered tuning system. So be aware that these exercises are only listening exercises. This means if you want to take over the pitch by singing, repeat it on a hum instead of singing the proposed solfège syllable. This way you might more easily associate the solfège syllable precisely to the equal-tempered tuning system. It is easier to develop accuracy with a reference pitch if you have a few anchor points in mind. Remember, there are *only* 48 distinct notes in 4 octaves in the equal-tempered system. During the “Match the Pitch” exercises, stay aware of this deviation from the equal-tempered system and remember to build the pitch in relation to an equal-tempered note.

Exercises to retain a pitch

To practice improving your sound memory, the retention exercises here are also grouped in blocks.

The first block has a delay of 1.5 seconds between notes. This delay is adequate for distinguishing between half-steps.

The next block has a delay of 15 seconds between notes. If you have doubts when answering the question, lower the delay to 10 or to 5 seconds by using the Time Delay slider. Using the slider will repeat the question with the new, lower setting for the delay. When you master the question with a lower setting, try to slowly increase the delay again to 15 seconds. Once you master all intervals down to the half-step with a setting of 15 seconds, continue with the next block.

The third block has a delay of 150 seconds between the notes. Proceed the same way as for the previous block.

The last block has a delay of 1500 seconds. That is a very long time (25 mins.), you will not be sitting in front of the exercise waiting for the second note. The idea is that you do other tasks on your computer – preferably non-music related tasks (otherwise you have reference sounds) – and let the program awake you with the white noise alert. That means, you must already have found a way to store the pitch in your mind (otherwise you can't recall a pitch on demand). For this reason, the exercises in this block only test you if your retention of the pitch is precise enough. If so, chances are good that your retention will also last longer than a day.

Indeed, the problem in acquiring absolute pitch lies more in remembering a heard pitch than in simply listening to a given pitch. Because our exercises start with a delay of only 1.5 seconds, it is very likely you can remember it for this duration. Increasing this delay with a slider will show you the point where you are about to lose the sound pattern. Brought to this point, your brain will realize what you are trying to do. If you follow our advice in singing pitches out loud in order to remember them, most likely, as a solution, your brain will accept the storing of the vocal cord muscle positions by muscle memory. The pitch feedback you get helps to store the correct muscle positions.

Don't be disappointed, if this doesn't work the first time. To store muscle positions may take a trial-and-error phase. But usually the brain works for you, especially when there is feedback and a previous point that you have already mastered. If you can see where your abilities tend to lie, then it is only a question of your willingness to invest the necessary time for improving precision and speed.

Exercise scoring

The score for the exercises adjusts indefinitely according to your answers. When you start a specific level, you are given 20 exercises to complete; however, your score does not begin from zero each time. Instead the score continues from where you left off on previous exercises. There is a maximum number of points you can earn at each level, but reaching this maximum is not the goal per se. Ear training is a continuous process, just like learning a foreign language.

Once you have finished an exercise, you will automatically be transferred to the scoring screen:

In the middle of this screen you will find the score you reached for a particular exercise. The scores are colored as follows:

- blue: You reached less than one third of the possible points
- green: You reached the basic level
- yellow: You reached more then two thirds of the possible points
- red: You have more then 90% correct answers
-

Below these scores you can view your previous high score, to gain encouragement to keep on improving.

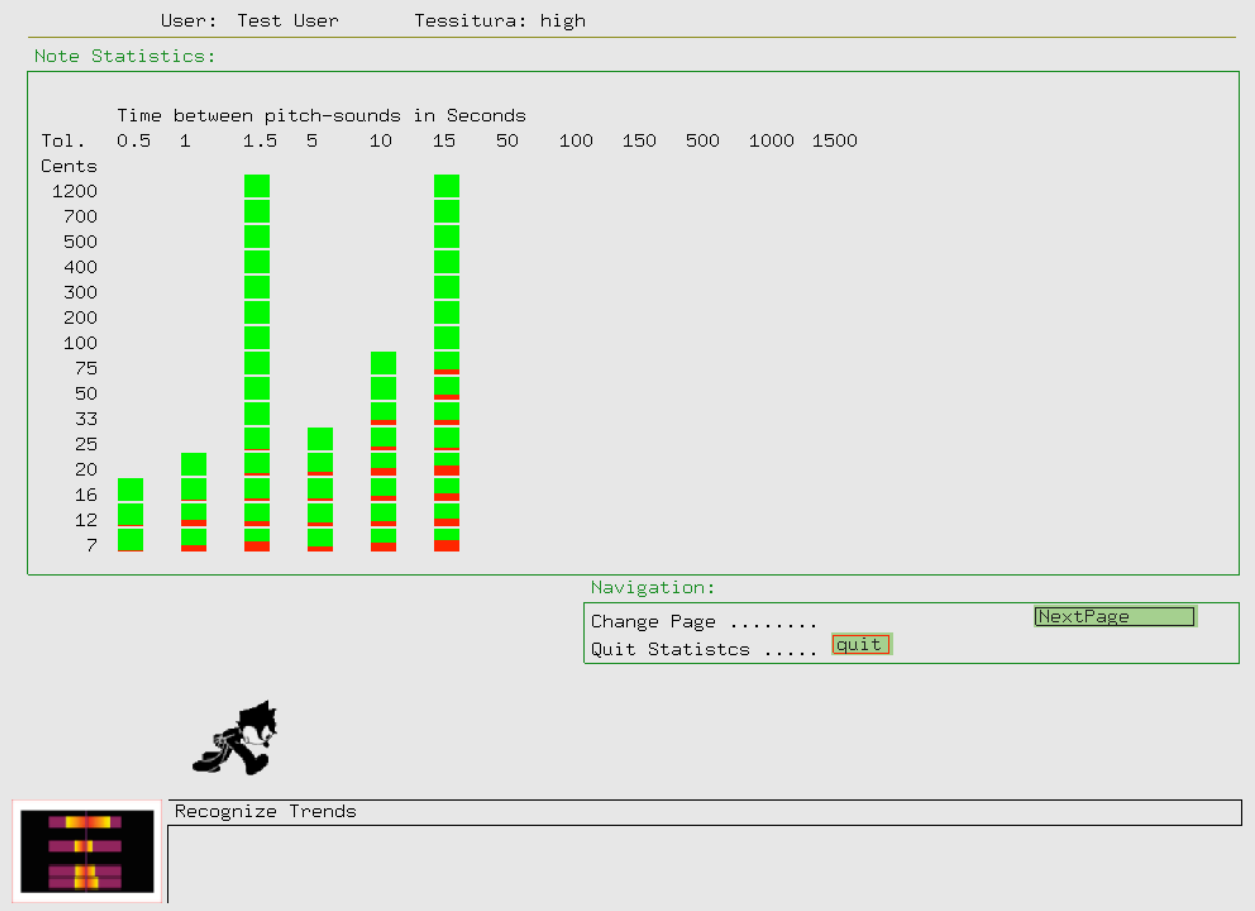
The scoring screen allows you to track your progress. If several users are using the program, the person with the highest score is also listed. Take this challenge as an invitation to improve your

skill. You can also make two or more profiles for yourself: for example, as a morning user and as an evening user. In this way you can compare your performance depending on the time of day.

Statistics

Time Delay and Accuracy overview

The program collects statistics data to help you identify your weaknesses. In the “Select Lesson” screen, instead of choosing a lesson you can see the statistics by pressing the “Statistics” button.



The first page shows an overview of how well you performed for a specific time delay and accuracy. For each delay and accuracy of a completed exercise the achieved score is shown: Each field displays the ratio total misses and total successes in a graph bar. The green part represents the successful attempts and the red part missed attempts.

Because you can use a slider to set the delay, the display for the time axis is divided into ranges. The first range is from 0 to 0.5 seconds, the second from 0.5 to 1 second, the third from 1 to 1.5 seconds, and so on.

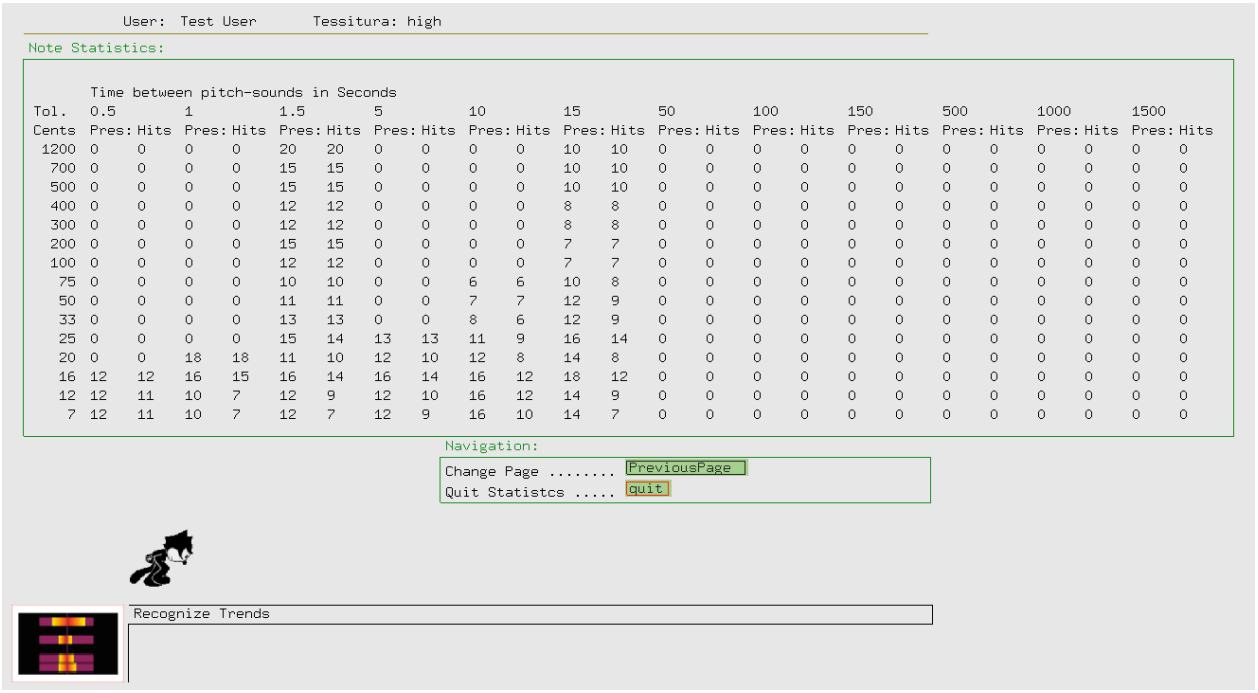
Because the exercises are grouped in four blocks and the first begins with a delay of 1.5 seconds, the overview usually looks like the above picture: For large pitch deviation – that is for octaves to half-steps – a lot of green fields mark your competence in this time delay. With smaller deviations at 1.5 seconds errors (red part) appear. As soon as difficulties arise you are advised to

use the slider and reduce the time between the notes. This usually leads to more green fields in the lower deviations of 20, 16, 12 and 7 cents for the shorter times of 1 second or 0.5 seconds.

In the above example no exercises were done for deviations larger than 25 cents for the durations of 1 or 0.5 seconds, since the person mastered these levels for 1.5 seconds.

The same applies to the next block: or the first exercises you will likely master before errors begin to occur. Again, by reducing the delay between the notes you will master the lower cent levels.

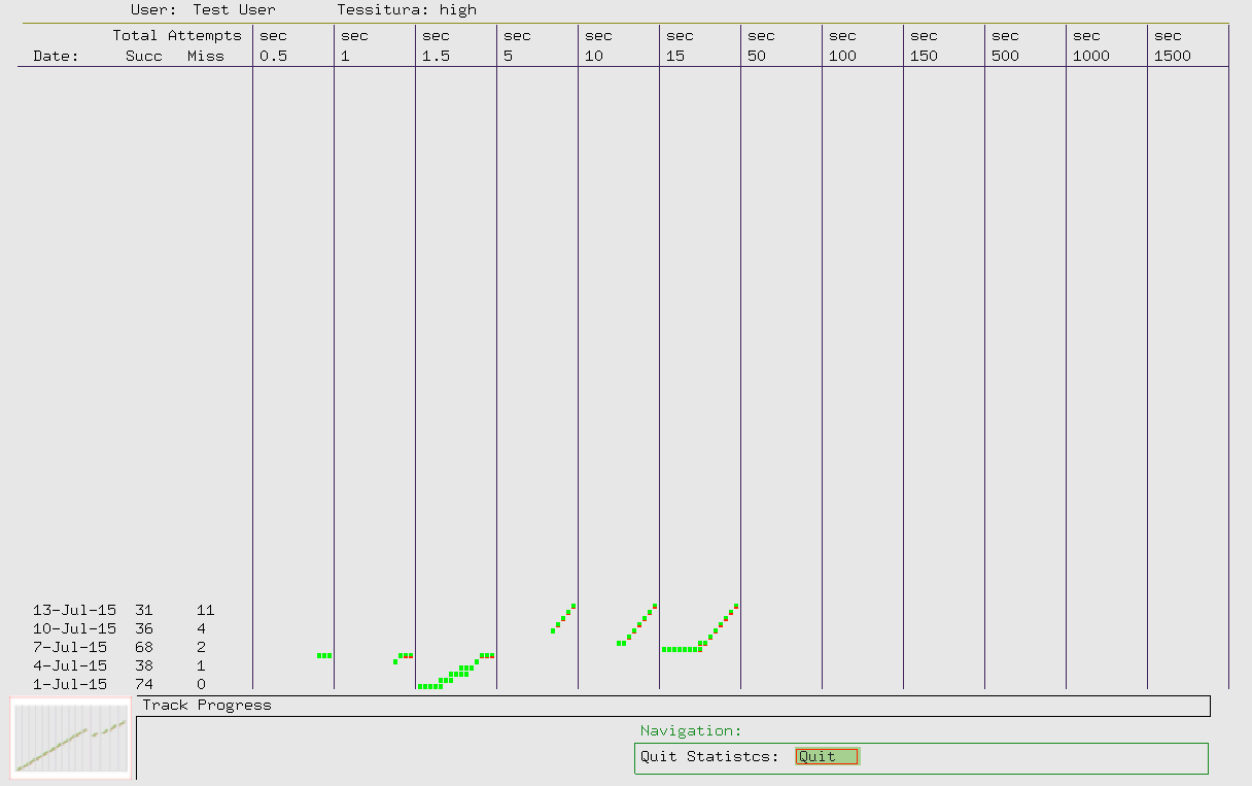
To get the actual numbers behind the graph fields, click the “Next Page” button. A numerical overview is displayed.



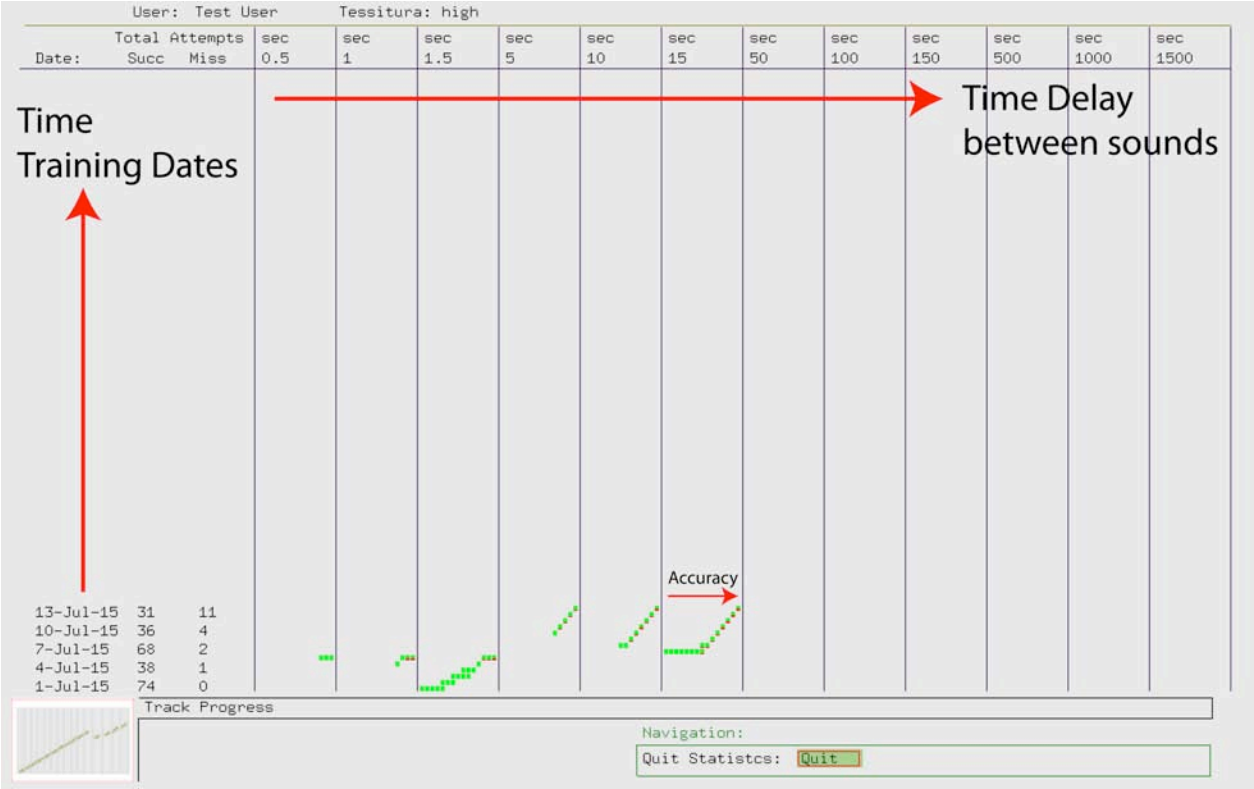
Tol.	0.5		1		1.5		5		10		15		50		100		150		500		1000		1500	
Cents	Pres:	Hits	Pres:	Hits	Pres:	Hits	Pres:	Hits	Pres:	Hits	Pres:	Hits	Pres:	Hits	Pres:	Hits	Pres:	Hits	Pres:	Hits	Pres:	Hits	Pres:	Hits
1200	0	0	0	0	20	20	0	0	0	0	10	10	0	0	0	0	0	0	0	0	0	0	0	0
700	0	0	0	0	15	15	0	0	0	0	10	10	0	0	0	0	0	0	0	0	0	0	0	0
500	0	0	0	0	15	15	0	0	0	0	10	10	0	0	0	0	0	0	0	0	0	0	0	0
400	0	0	0	0	12	12	0	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0	0	0
300	0	0	0	0	12	12	0	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0	0	0
200	0	0	0	0	15	15	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	12	12	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	10	10	0	0	6	6	10	8	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	11	11	0	0	7	7	12	9	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	13	13	0	0	8	6	12	9	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	15	14	13	13	11	9	16	14	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	18	18	11	10	12	10	12	8	14	8	0	0	0	0	0	0	0	0	0	0	0	0
16	12	12	16	15	16	14	16	14	16	12	18	12	0	0	0	0	0	0	0	0	0	0	0	0
12	12	11	10	7	12	9	12	10	16	12	14	9	0	0	0	0	0	0	0	0	0	0	0	0
7	12	11	10	7	12	7	12	9	16	10	14	7	0	0	0	0	0	0	0	0	0	0	0	0

Timeline Graph Overview

You can get an overview of your activities during the last 100 days by clicking the “TimeLineGraph” button.

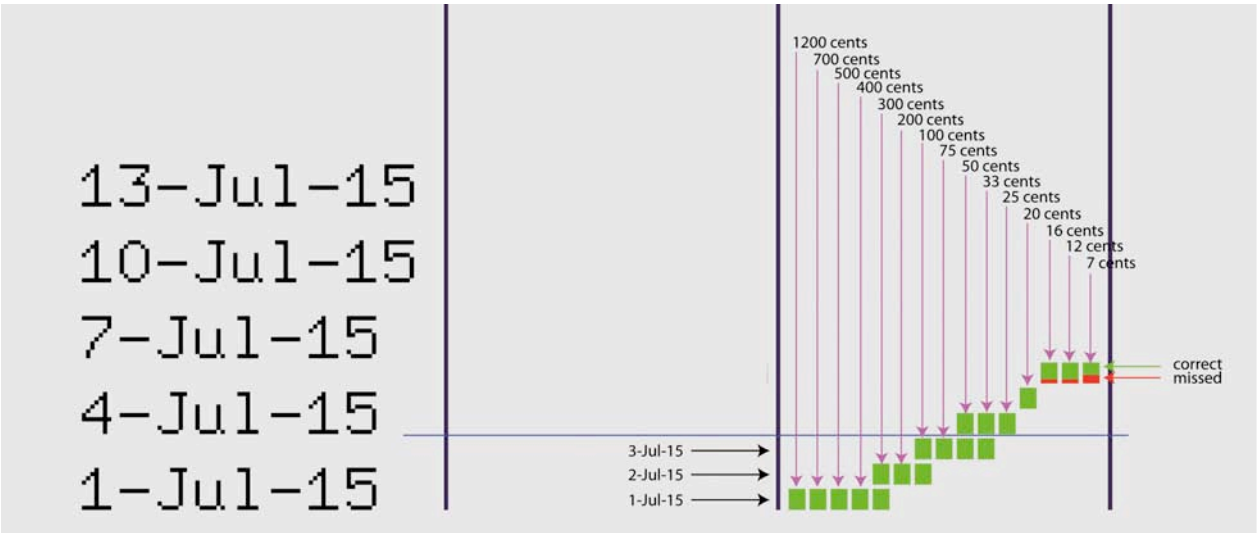


The timeline moves from bottom to top. From left to right the delay between notes increases.



Because space is limited, only every third date is displayed in the date column. However, the graphic fields represent each day. This means three dates are displayed on the graph per date line.

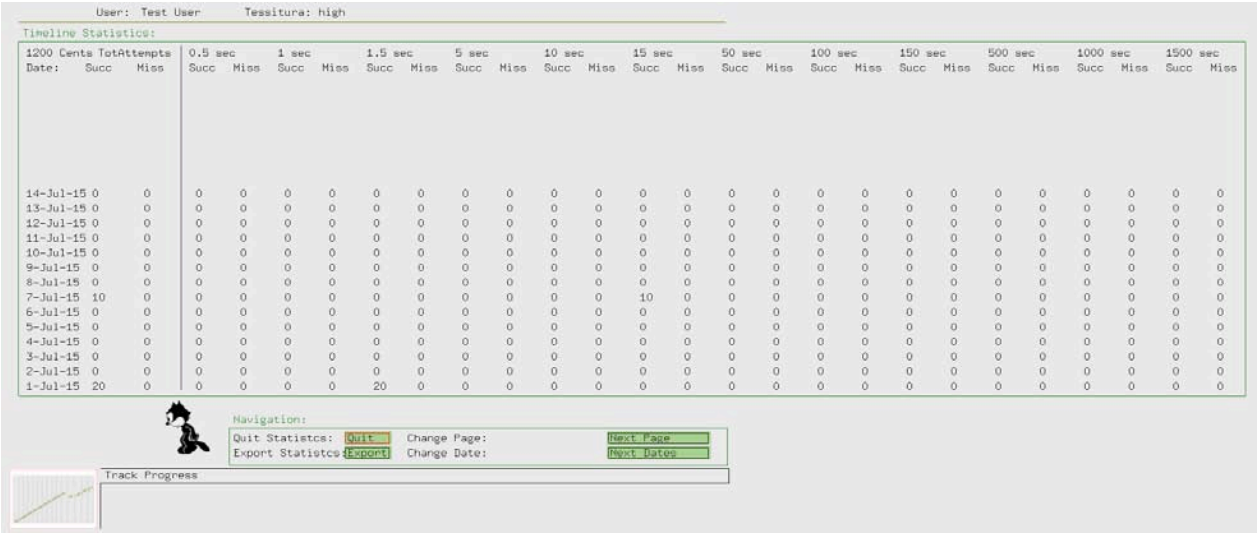
Also, within each delay range the correct and incorrect responses for each accuracy level are displayed.



With the help of this overview you can easily see how well you performed over time. The greener the picture the better your performance.

Timeline Numerical View

You can get a numerical view of your last 100 active days by clicking the “TimeLineNumbers” button.



Here, for each accuracy level, a separate page is displayed. You can go through the accuracy levels by clicking “Next Page.”

To access other dates, click “Next Dates.”

Seeing you progress over time may motivate you to continue. Don’t give up just because you reach a plateau at times. Sometimes this repetition is necessary to digest new concepts. Try smaller time intervals and allow yourself a larger accuracy range. Remind yourself what you have already reached. Repeating these intervals will increase your confidence at these levels. Continue after taking a break.

We wish you good progress using our methods.

Export option

In the Timeline numerical view, you will also find a button labeled “Export.” With this button you can export your training results. This is useful if you have to change your computer for some reason, but want to keep tracking your progress. On the new computer you can import your data and continue from where you left off.

We also very much appreciate any feedback. Sending us your exported files after 100 training days helps us to improve our methods.

We hope to get sufficient feedback to establish the concept of muscle memory and the effectiveness of our methods for acquiring absolute pitch.

Thank you in advance for any feedback you may send us!

Learning Tips for TuneCrack

Microphone settings

For pitch exercises set the input level as high as needed, so you can sing comfortably without stressing your voice.

Environment

If possible, practice in a quiet room. Use a low noise computer and have as few as necessary electrical fields in the room; e.g., turn off your mobile phone and other equipment. Be aware that long microphone cables can cause audible disturbance. Finally, the room should have fresh air.

Recognize trends

Using the statistics, see if you have a tendency to sing some notes too high or too low.

Variety and confidence

Once you have reached a certain level, try to vary the exercises. Instead of solfège syllables, sing the notes using different vowels. Mastering other sounds adds flexibility and will increase your confidence.

Finding a music teacher

If you like music and want to express yourself on an instrument, it is recommended that you take lessons. In the beginning it is particularly important to be supervised with basic things like sitting comfortably, good posture, handling the instrument correctly, having a good sightline to the score, and relaxed execution. If you learn these things incorrectly, they can become big hindrances to making progress later when pieces get more difficult.

Practice times

As with learning another language, it is recommended that you practice in several short sessions rather than one long one. We also suggest taking a break every 15 minutes or so. Your experience will be enriched if you do an exercise in the morning, repeat it around mid-day, and then another time in the evening. You may find that your perceived recognition and performance, is different at various times of the day.

FAQ

What do I get for my money?

Your payment allows you continued use and access to all lessons on the computer where the software was installed. There is no warranty on the software, but we will try to fix any errors. If you discover a software fault, please notify us. However, tracking down errors on machines other than ours is very complicated; therefore, please use the software in the trial mode first.

Operating system changes may render the program unusable, and we give no guarantee that we can fix the program if used with another system/operating system version.

What happens if I do not register after 100 days?

You would be breaking the rules, but we hope you will not. Many people will try this program for free, and they are allowed to do so for 100 days. If you still want to use the program after 100 days, it would seem that the software is useful to you: therefore paying is only fair.

Where do I get support?

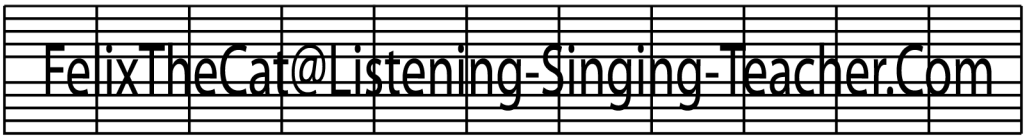
There is no telephone support hotline, but we are interested in improving the product. If you find errors or experience program crashes, let us know. Tell us also about documentation errors, sound errors, or any other suggestions for improvement of the program. If the program stops unexpectedly, see the system console log for error messages. If the problem can be documented by a recording, export the recording and send it along with an error description to the address given below.

Troubleshooting tips

Check to see if you can download a newer version with the same major version number. If so, back up your old version before installing the newer one and try reproducing the error.

If no pitch curve is displayed, check the sound control panel to see that the default input device is working correctly. If the input level is too low, increase it with the slider. If this does not work, you may have a microphone not suited for that input channel. Expensive microphones often need special pre-amplifiers. The input channel must support microphones; line-in input channels require a higher voltage signal than what is provided from standard microphones. There may also be a separate control panel for your digitizing device to adjust the sensitivity; check your hardware manuals. If you hear a lot of background noise, make sure nothing else is disturbing the audibility. If there are clicks, chirps or audible hissing, you might have unshielded microphone cables picking up electro-smog, or the microphone itself picking up a grumble from the 50/60 Hz power outlets. Try to reposition the microphone/cables. Make sure that the volume level display is in the correct range. If it is quiet the sound control panel should show zero input-level indicator lights (otherwise some electrical interferences are around).

Send all the information (e.g. Computer Model, RAM, graphic card, audio equipment) that might be helpful in resolving the problem to:



Can I print the statistics?

Unfortunately, this version does not contain a print feature. You must make hardcopies of the windows by pressing the Print button. (For Macs, use the application grab from the utilities folder—or press Command-Shift-3.)

Why the elaborate licensing terms? Is the use of software all at my sole risk?

In today's world, where everybody can sue everybody for everything, one has to be cautious. If you are a super soprano and can break glassware just by singing, please do not blame Listening Singing Teacher for your destroyed property; we will not pay for it in such circumstances. Even worse, if you are a bass who could destroy Jericho (Jericho was brought down by sound-waves, according to the Bible). Hopefully you do not live in New York City…

Software by its nature is complex, and computers are configured in different ways (some have problems of their own, so even the order in which you install the software may be important), so we cannot predict the behavior of the program. Therefore the risks of downloading, installing, or running the software are yours. If you fear that this software will destroy your computer or data, do not download, install, or run it. We cannot guarantee that the server from where you download the software is secure from hacking or that, during the transmission, no manipulations were made.

Do I have to be online to use the software?

No. You only have to be online to download the software and activate the serial number.

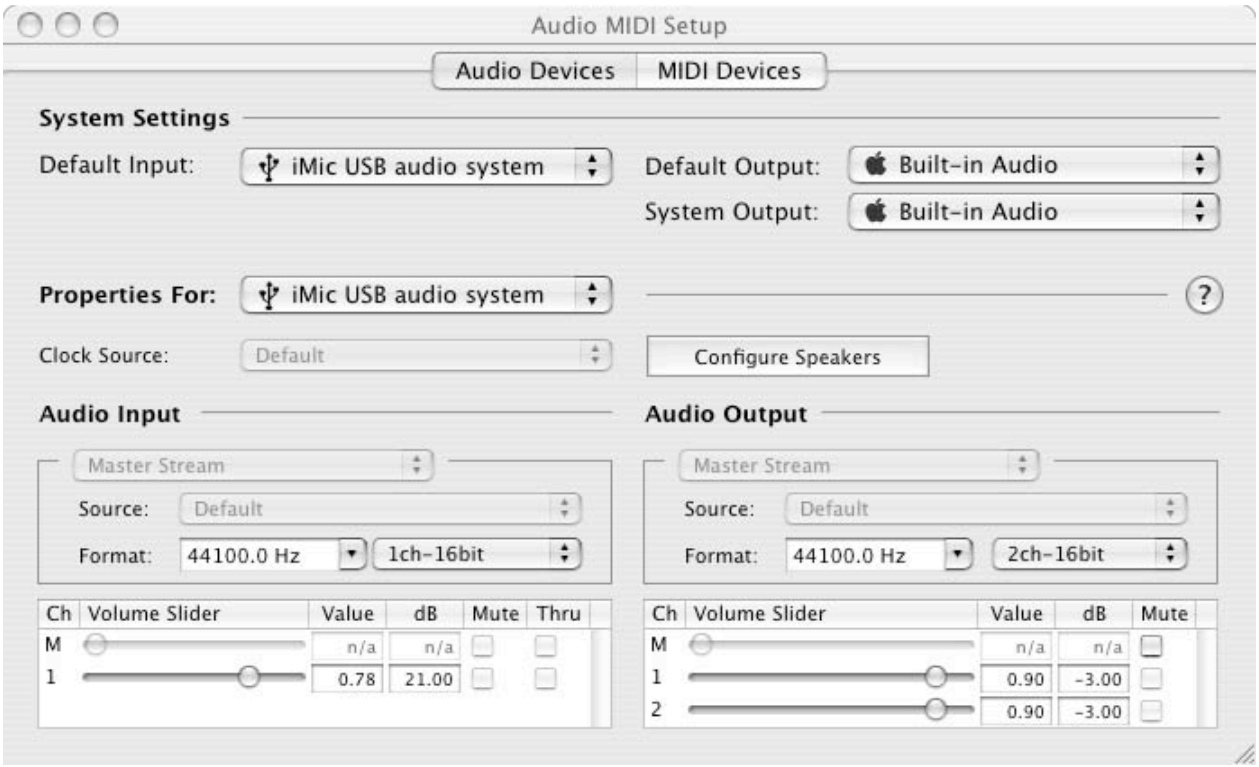
No sound for low notes

If you set the instrument to "Sinus," you need a good headset to hear the low notes. Mediocre loudspeakers can have difficulty reproducing frequencies below A2 (110 Hz). The Flute option has more overtones and thus will be easier to hear.

Microphone Input level too low, distortion or audio device not supported (Macintosh)

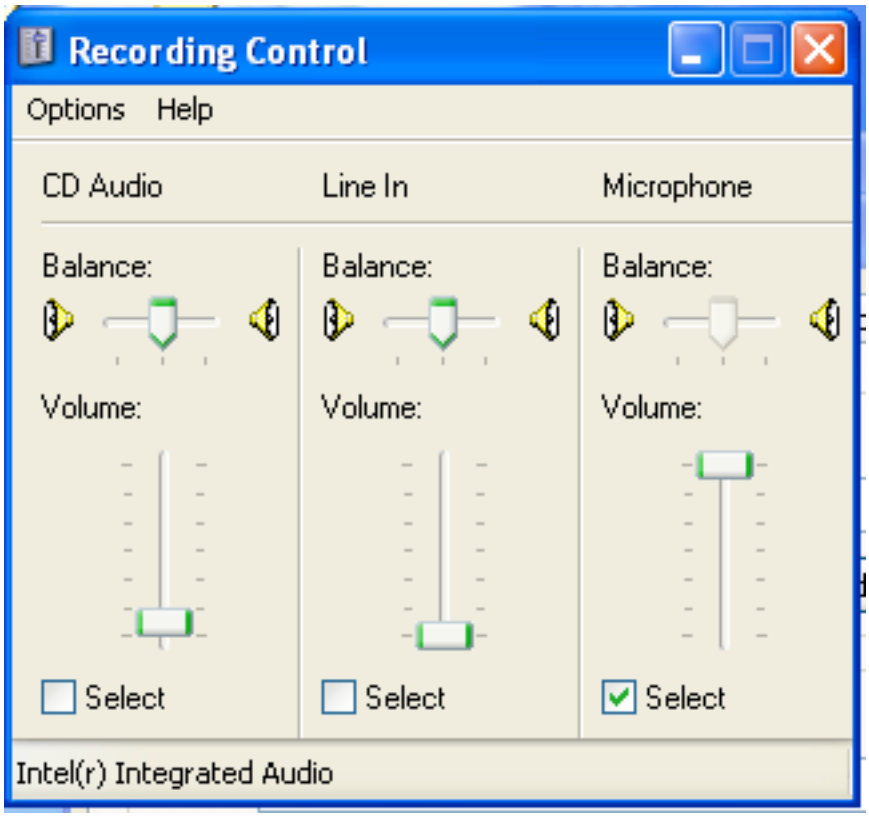
In the applications Utility Folder open "Audio Midi Setup," and Select the "Audio Devices" tab. From the "Default Input" drop-down Menu choose your microphone and in the "Properties For" also choose your microphone (see below). Drag the slider on the bottom of "Audio Input" to the right. Also make sure that the selected format is 44100.0 HZ and one channel 16 Bit (1ch-16 Bit).

Other audio applications (e.g. GarageBand) may reset the input level, the frequency, or the 16-Bit setting to 8 Bit. Be sure to check and set the following settings correctly:



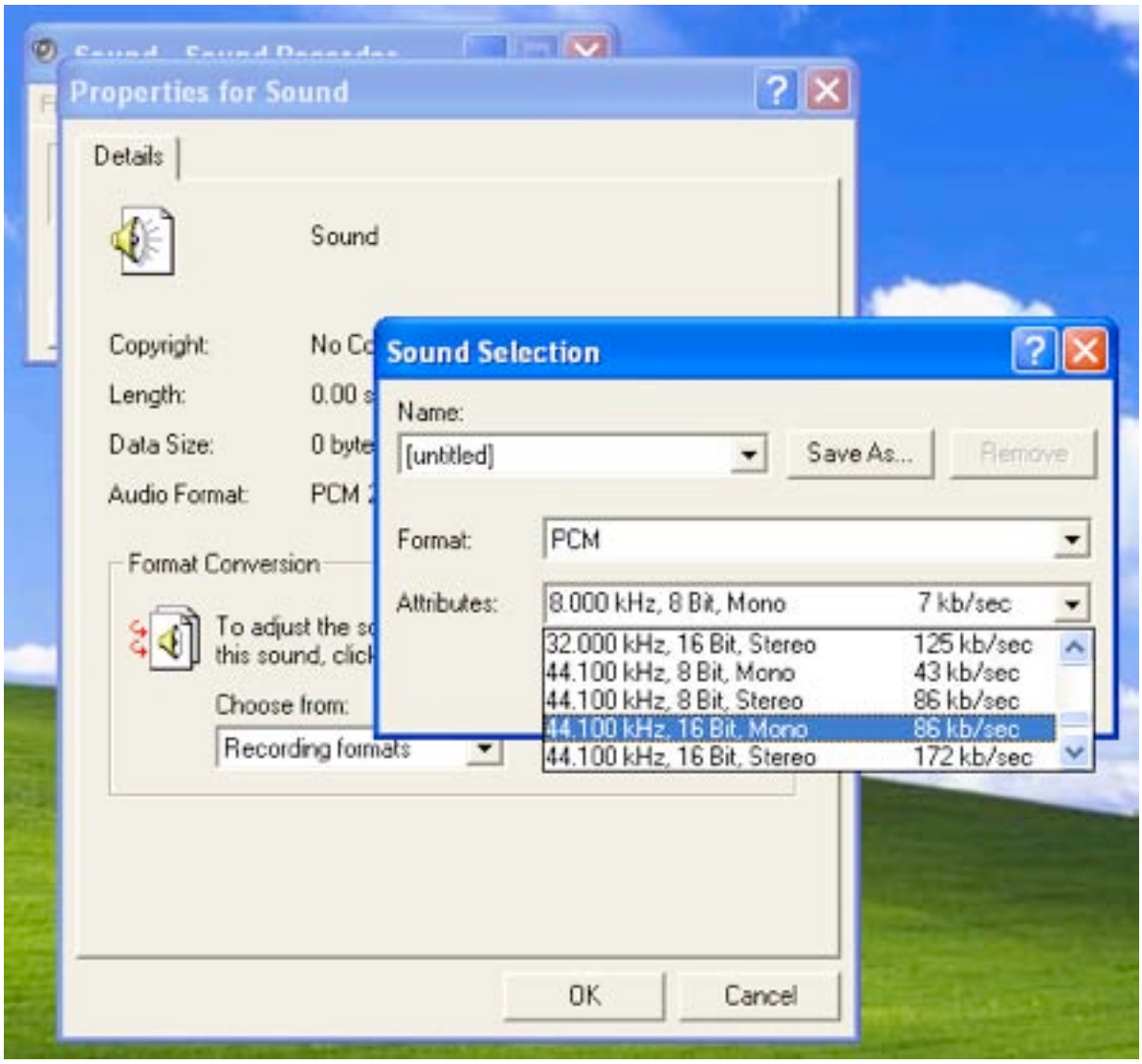
Microphone Input level too low, distortion or audio device not supported (Windows)

In the control panel choose “Sounds and Audio Devices.” Click on the Audio tab. Under Sound recording set the volume for the microphone to the maximum.



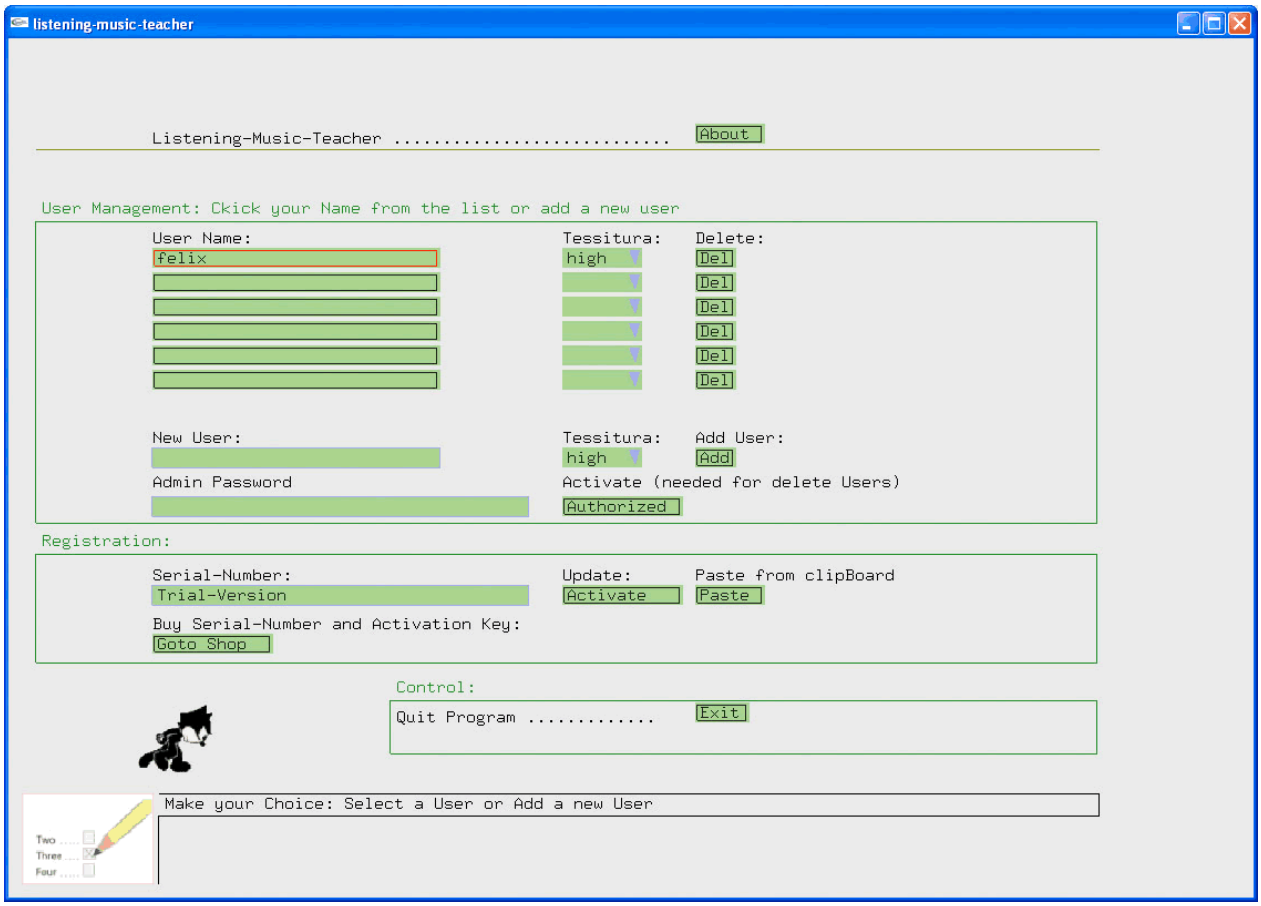
Also make sure that the Format is set to 44.100 kHz and 16 Bit Mono. Make a Test Recording with the “Sound Recorder” (Click on “Start” —> “All Programs” —> “Accessories” —> “Entertainment” —> “Sound Recorder”).

In the Sound Recorder, under the “File” menu, click on “Properties.” Under “Choose from” select “Recording formats” and click “Convert Now.” Set the Format to PCM and select “44.100 kHz 16 Bit, Mono.”


Properties for Sound
Details
Sound
Copyright:
Length:
Data Size:
Audio Format:
Format Conversion
Choose from:
Recording formats
OK
Cancel
Sound Selection
Name:
[untitled]
Save As...
Remove
Format:
PCM
Attributes:
8.000 kHz, 8 Bit, Mono 7 kb/sec
32.000 kHz, 16 Bit, Stereo 125 kb/sec
44.100 kHz, 8 Bit, Mono 43 kb/sec
44.100 kHz, 8 Bit, Stereo 86 kb/sec
44.100 kHz, 16 Bit, Mono 86 kb/sec
44.100 kHz, 16 Bit, Stereo 172 kb/sec

Registration

The fields for registration are in the “User Select” dialog box in the Registration frame.



The fields of the Registration frame are defined below:

- Serial Number:
  Here you can enter a serial number manually. Normally you do not have to enter a number, because during the ordering process the serial number will be entered automatically. If you reinstall, you must enter the serial number again. We recommend that you paste the serial number from the order-confirmation email with the button labeled “Paste.”
- Update:
  This button reads either “Activate” or “Deactivate.” If the product is not registered, you must go through an activation process by entering the serial number and then pressing “Activate.” The activation process requires an active Internet connection. If the Button reads “Deactivate” then the product is registered. Deactivation may allow you to transfer the program to another computer. However, be aware that no warranty guarantees this process functions (e.g., the other computer may have an unsupported OS; see License terms).

- Paste from ClipBoard:
  This button allows you to paste the serial number from the clipboard. You must first mark and copy the serial number in the email, then return here to paste the serial number. You must still activate the serial number by pressing “Activate” (see above).
- Go to Shop:
  If you use the product more than 10 hours you must buy it, or else delete it. To continue using the product, click on “Go to Shop” and follow the instructions.

License Agreement

License

The software, the documentation and any accompanying files are licensed to you by AlgorithmsAndDataStructures F. Rudin, Hombergweg 3, CH-4433 Ramlinsburg, Switzerland.

By installing the software you are agreeing to be bound by the terms of this Agreement. If you do not agree to the terms of this Agreement, do not install the software and delete the files belonging to this software.

Permitted uses

The license allows you to download, install and use the software on a single computer. You are allowed to use a limited (only a limited number of lessons are available) version of the software for 100 days for testing and learning purposes free of charge. After 100 days you must buy a serial number to be entitled to use this software further or else delete the software and all accompanying material and copies. Payment permits continued use of this version of the installed software on this computer and access to all lessons. There is no warranty on the software. The tracking down of errors on other machines than ours is far too complicated. If you discover a software fault, please notify us.

Restrictions

You are not allowed to redistribute, rent, lend, or lease this software. Purchase of a license restricts use to the computer you installed the software on. If you sell or give away the computer the software is installed on, you are required to remove the installed software from the computer prior to transfer of the computer to another person. Remind you: Part of the software is from esellerate, MindVision Software, USA, which contains cryptographic code, which is subject to export laws.

You are not allowed to disassemble, decompile, “unlock,” reverse engineer, or in any manner decode the software.

CD Delivery

When ordering the product you may be presented with an eCD option. This option allows you to order a physical CD with the download item on the CD. This service is provided to you by esellerate, Lincoln, Nebraka, 68507. The version on the CD may differ from the trial version you may have downloaded. In case you have downloaded the trial version some time ago, it may be a newer version, or in rare cases it may be an older version (check the version numbers).

The CD cost is nonrefundable. If you receive a CD that is damaged or defective, it will be replaced at no charge.

Copyright

The license issuer, AlgorithmsAndDataStructures, owns this software, documentation and any accompanying files. You are not allowed to redistribute this software, documentation or any accompanying files. You are allowed to make personal copies for your own use only.

You may make copies for backup and archival purposes, provided that the original and each copy are kept in your possession.

Web Sites are allowed to make links to the owner's site (e. g. direct download links to the author's site).

If you have a valid license, then you may install and use the software on any computer owned by you, presumed that the license transfer process works. However, you have no claim that such a transfer works (Hardware or Operating Release changes or software errors may make this impossible). In addition the license permits you the use of the software on a maximum of three computers -you own - at a time. If you wish to use the software on more than three computers at the same time, you must license an additional serial number.

This software contains codes, which are dependent on third party products and libraries. For those parts the following copyrights apply:

1. OpenAL on Macintosh

Copyright (c) 2004, Apple Computer, Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. Neither the name of Apple Computer, Inc. ("Apple") nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY APPLE AND ITS CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL APPLE OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

2. OpenAL on Windows

During the Installation you will be asked to accept the licence terms of Openal.

3. Glut32.dll (Windows only)

Glut32.dll is under LGPL (GNU Lesser General Public License):

```
                GNU LESSER GENERAL PUBLIC LICENSE
                     Version 3, 29 June 2007

 Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
 Everyone is permitted to copy and distribute verbatim copies
 of this license document, but changing it is not allowed.


  This version of the GNU Lesser General Public License incorporates
the terms and conditions of version 3 of the GNU General Public
License, supplemented by the additional permissions listed below.

  0. Additional Definitions.

  As used herein, "this License" refers to version 3 of the GNU Lesser
General Public License, and the "GNU GPL" refers to version 3 of the
GNU
General Public License.

  "The Library" refers to a covered work governed by this License,
other than an Application or a Combined Work as defined below.

  An "Application" is any work that makes use of an interface provided
by the Library, but which is not otherwise based on the Library.
Defining a subclass of a class defined by the Library is deemed a mode
of using an interface provided by the Library.

  A "Combined Work" is a work produced by combining or linking an
Application with the Library.  The particular version of the Library
with which the Combined Work was made is also called the "Linked
```

Version".

The "Minimal Corresponding Source" for a Combined Work means the Corresponding Source for the Combined Work, excluding any source code for portions of the Combined Work that, considered in isolation, are based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL.

You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions.

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license
document.

4. Combined Works.

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the

portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

```
    a) Accompany the combined library with a copy of the same work based
    on the Library, uncombined with any other library facilities,
    conveyed under the terms of this License.

    b) Give prominent notice with the combined library that part of it
    is a work based on the Library, and explaining where to find the
    accompanying uncombined form of the same work.

  6. Revised Versions of the GNU Lesser General Public License.

  The Free Software Foundation may publish revised and/or new versions
of the GNU Lesser General Public License from time to time. Such new
versions will be similar in spirit to the present version, but may
differ in detail to address new problems or concerns.

  Each version is given a distinguishing version number. If the
Library as you received it specifies that a certain numbered version
of the GNU Lesser General Public License "or any later version"
applies to it, you have the option of following the terms and
conditions either of that published version or of any later version
published by the Free Software Foundation. If the Library as you
received it does not specify a version number of the GNU Lesser
General Public License, you may choose any version of the GNU Lesser
General Public License ever published by the Free Software Foundation.

  If the Library as you received it specifies that a proxy can decide
whether future versions of the GNU Lesser General Public License shall
apply, that proxy's public statement of acceptance of any version is
permanent authorization for you to choose that version for the
Library.
```

4. OggVorbis

Copyright (c) 2002-2004 Xiph.org Foundation

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- Neither the name of the Xiph.org Foundation nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE FOUNDATION
OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

5. Third party Libraries

This product is linked with libraries from Apple Inc., California, USA; MindVision Software, Lincoln, USA; eSellerate, Lincoln, USA; and the Free Pascal Organization (www.freepascal.org). You are not allowed to extract the codes of these libraries and use them in any way without the permission of their holders. However, you may download the libraries from their sites by agreeing to their terms and conditions.

Music and Sounds

Musical excerpts belong to their creators and are included in the product only for demonstrational and educational purposes. You are not allowed to use these materials in any other way.

Sounds are either from MIDI or own recordings. Applause sounds courtesy of J. Fairba and Mike Koenig.

Images

Images are creations of AlgorithmsAndDataStructures and may be based on freely available images on the Internet, which are believed to be in the public domain. However, the arts created by AlgorithmsAndDataStructures (e. g. Felix the cat in the Banner) may not be used outside this context.

Warranty disclaimer

Software development is a very complex matter and the environments in which the software can be running are endless and sometimes not fully imaginable in advance by the creators. Therefore,

this software is provided „AS IS“ and with „all faults“. You expressly acknowledge and agree that the use of software from AlgorithmsAndDataStructures is at your sole risk. AlgorithmsAndDataStructures expressly disclaims all warranties and/or conditions, express or implied, including, but not limited to merchantability and fitness for a particular purpose, regarding the software. AlgorithmsAndDataStructures does not warrant, guarantee or make any representations regarding the use or the results of the use of the software in terms of its correctness, accuracy, reliability or otherwise.

Some countries or states do not allow the exclusion of implied warranties. In this case you are not entitled to use this software, if you can see yourself doing a dispute in such a matter. If you order from such a country or state the payment will be regarded as an unconditional donation. The reception of a serial number does not imply any grant of rights.

Limitation of liability

Under no circumstances, including negligence, shall AlgorithmsAndDataStructures, or its developers, directors, officers, employees, or affiliates be liable for any consequential, incidental or indirect damages (including damages for loss of business profits, business interruption, loss of business information, and the like) arising out of the use or inability to use the software. You are also responsible for your health or other users health (e. g. children) of users using this software. Regarding this software this means, you are not allowed including, but not limited to, to stress your voice in such a way that damage to your voice or any other thing may occur. Singing needs a lot of attention, you should not be singing and doing an activity in parallel, which may harm you or others (e. g. driving a car needs your full attention).

Some jurisdictions do not allow these limitations or exclusions. In this case you are not entitled to use this software, if you can see yourself doing a dispute in such a matter. If you order from such a country or state the payment will be regarded as an unconditional donation. The reception of a serial number does not imply any grant of rights.

Return Policy

In case you purchased the product by an error, you can return the product within 30 days from the purchase date. In this case a restocking fee will be applied to recover all the costs we (and our resellers) have to bear.

If you have ordered an eCD, remember that the CD cost is nonrefundable. If you receive a CD that is damaged or defective, it will be replaced at no charge.

Privacy Policy

We do not collect personal information for any purpose other than to respond to you and for legal purposes (e. g. proof of sale/purchase). We do not get credit card or other payment account

information of customers from our resellers, which do the financial transactions for us. We will not share or sell the information you give us, unless required by law.

Controlling law and severability

This license shall be governed by the laws of Switzerland and the Kanton Baselland. Place of jurisdiction: Liestal BL, Switzerland.

In case of a dispute the German version of this license is significant.

This license constitutes the entire agreement between the parties.

This license text is version 1.7 and is effective as of September 1, 2014. Newer versions of the documentation and software may have a different license agreement. In this case this version is not applicable to versions, which come with a different license agreement.