

SEMANTIC EMAIL

- A USER MANUAL

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INTRODUCTION

“Semantic Email is a type of semantic web application, in which the information is exchanged through emails.”

The semantic email system demonstrated in this manual is an attempt to build a data exchange system with automatic data processing ability so that information can be inferred from data and corresponding decisions and actions taken without human intervention.

SYSTEM CAPABILITIES

The system has the capability of,

- a. sending out requests to required people (participants) for gathering data,
 - b. collecting responses from all the participants,
 - c. notifying the administrator of discrepancies in data submitted by participants (data violating the pre defined rules), and
 - d. entering valid data into the database
- All the above actions correspond to one schema.

Any number of such schemas can be defined, developed and put into use any number of times before deleting.

SYSTEM REQUIREMENTS

HARDWARE REQUIRMENTS

The **minimum system hardware requirements** for the project are as follows,

- **Processor Speed** : 200 MHz
- **RAM** : 16 MB
- **Hard Disk Drive** : 60 MB (or more...depends on the size of database to be supported)

SOFTWARE REQUIRMENTS

The **software requirements** of the project are,

- **OperatingSystem** : Microsoft Windows 95
- **Compiler and Run Time Environment**: JDK 1.3.0 & JRE 1.3.0
- **Database Management System** : Microsoft Access
- **Microsoft Excel**
- **Tomcat 4.0 (or any other web-server supporting Java Server Pages)**

The following are necessary for a project rebuild...

- **Java 2 Enterprise Edition (J2EE)**
- **JAR (Java Archive) files supplied in the *jars* directory.**

INSTALLATION

The over all installation includes six main steps...

1. Unzip the contents of '*ProjectSE.zip*'.
2. Setup the JDK and JRE.
3. Set the required constants.
4. Setup the ODBC data source.
5. Setup the web-interface and the response directory.
6. Setup J2EE and the CLASSPATH to include all required Java Archive (JAR) files.

SETUP THE JDK AND JRE

This is as simple as any other software installation – download the setup and run it and set the necessary options whenever asked for. All the required setups can be found at <http://java.sun.com>.

JDK 5.0 and JRE could be found at

<http://java.sun.com/j2se/1.5.0/download-netbeans.html>

After setting up the JDK, set the PATH variable to include the java bin directory. It can be done as follows.

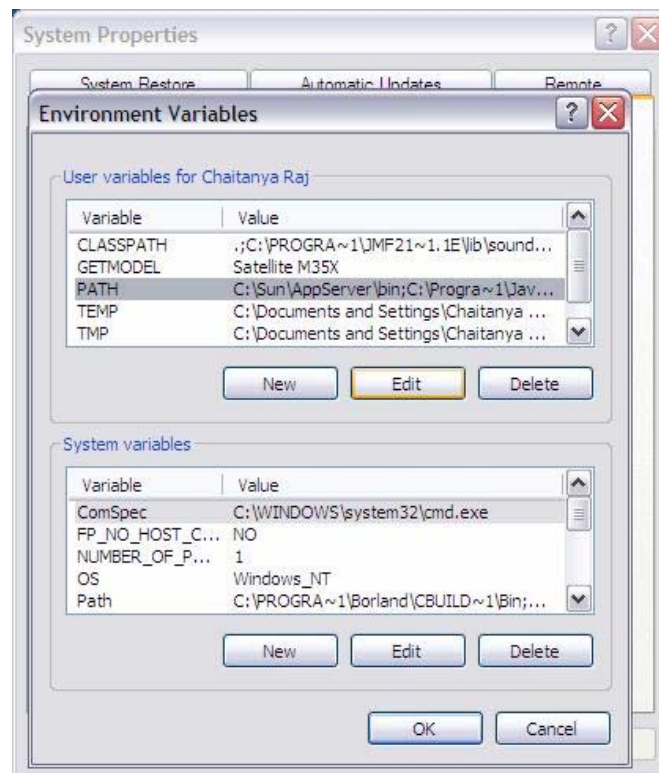
- a. Right click *My Computer* (on desktop or *Start Menu*) and select *Properties*.



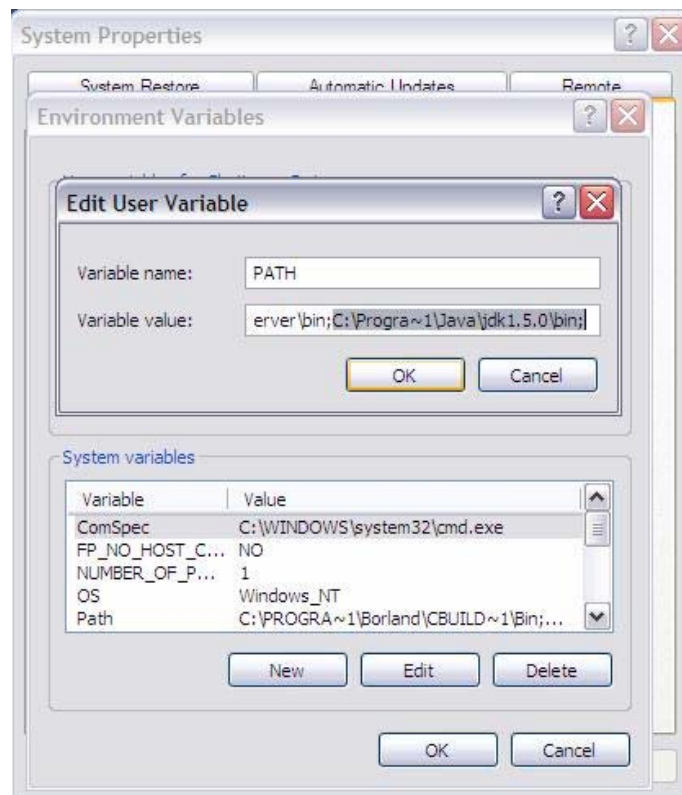
b. Click on the *Environment Variables* in the *Advanced* tab.



c. In the *User Variables*, select the *PATH* variable and click on *Edit*.



d. Append the path java *bin* directory to the *Variable Value* field and click *OK*.



SET THE REQUIRED CONSTANTS

Before installing, you need to know ...

- a. The web-server hosting directory.
- b. The IP of the system.
- c. The port number used by the web-server
- ... and choose
- d. The directory for collecting the participants' responses.

Setting the Web Hosting Directory

If Tomcat web-server is being used, the hosting directory would normally be the *webapps\ROOT* directory in the actual Tomcat installation directory.

Know the absolute path of web-hosting directory and set it as follows...

1. Open *SemanticEmail/commons/Constants.java* with a notepad.
2. Find the lines

```
// ----- SET WEB HOSTING DIRECTORY HERE -----
```

```
"C:\\Program Files\\Apache Group\\Tomcat 4.1\\webapps\\ROOT\\"
```

3. Replace the second line with the absolute path of the web hosting directory with each ‘\’ replaced with a ‘\\’.

For example, if Tomcat installation directory was *C:\Apache\Tomcat4*, the hosting directory is *webapps\ROOT* in the Tomcat directory, the absolute path of the web hosting directory would be

C:\Apache\Tomcat4\webapps\ROOT

So the line,

```
"C:\\Program Files\\Apache Group\\Tomcat 4.1\\webapps\\ROOT\\"
```

Should be replaced with the line,

```
"C:\\Apache\\Tomcat4\\webapps\\ROOT"
```

Setting the Host Address

Two things are needed here,

- a. The system IP
- b. The port number used by the web-server. (Tomcat uses 8080)

Know the URL of the web-server and set it as follows...

1. Open *SemanticEmail/commons/Constants.java* with a notepad.

2. Find the lines

```
// ----- SET HOST ADDRESS HERE -----  
"http://localhost:8080/";
```

3. Replace the second line with the URL of the web-server on your system.

For example, if the system IP is 161.12.103.41, and Tomcat is being used, the URL would be,

http:// 161.12.103.41:8080/

So, replace the line

"http://localhost:8080/";

with

"http:// 161.12.103.41:8080/";

Sometimes, router (of a subnet) through which the system has been connected to the web can be set to direct all incoming requests to one web-server on this system automatically. In such cases the port number of the web-server need not be appended to the system IP to get the URL. Refer to the *Network Administrator* to get URL of the host address (URL) of the web-server running on your system in such cases.

Setting the Response Directory

You need to decide where he wants to collect all the user responses (excel files) submitted either through emails and collected EmailInterface; or through web-interface and set it as follows,

1. Open *SemanticEmail/commons/Constants.java* with a notepad.
2. Find the lines

```
// ----- SET RESPONSE SUBMIT DIRECTORY HERE -----  
"C:\\SemanticEmail\\";
```

3. Replace the second line with the absolute path of the directory decided upon, with each ‘\’ in the path replaced with a ‘\\’

For example, if the decided directory is,

D:\Responses\September

Replace the line

"C:\\SemanticEmail\\";

with

"D:\\Responses\\September";

Finalizing the Changes

After making the necessary modifications, the constants need to be finalized (the file *Constants.java* needs to be recompiled and all the old copies of it replaced). For this simply run the batch file

SemanticEmail\commons\RecompileConstants.bat

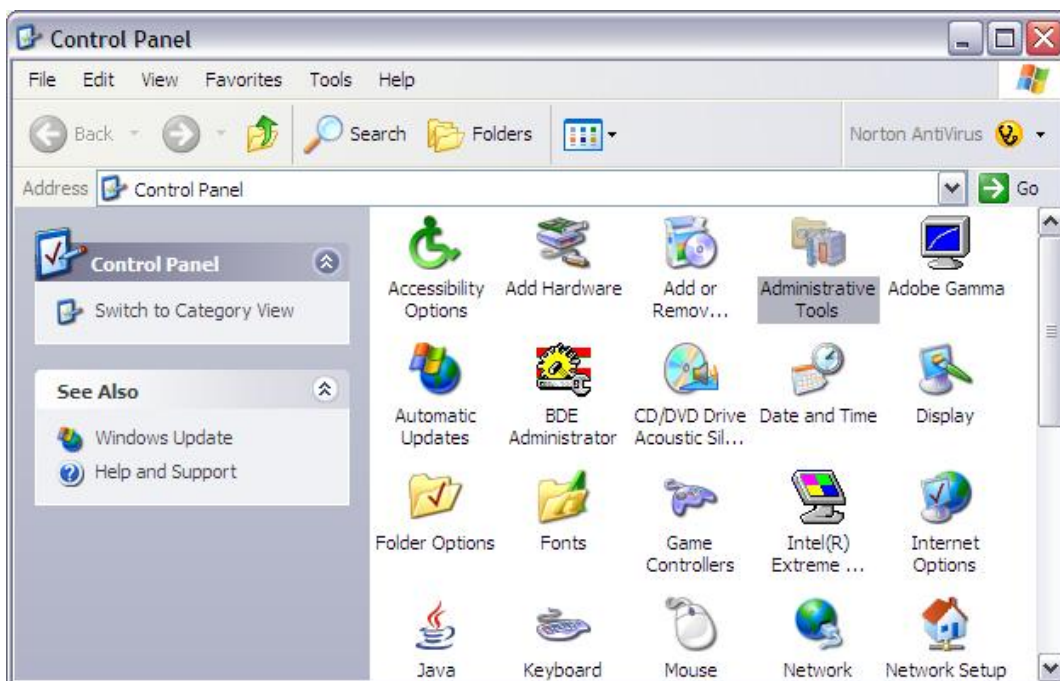
If any anti-spyware/script-blocker notice pops-up on running this batch file, just approve the running of the script and re-run if necessary.

SET UP THE ODBC DATA SOURCE

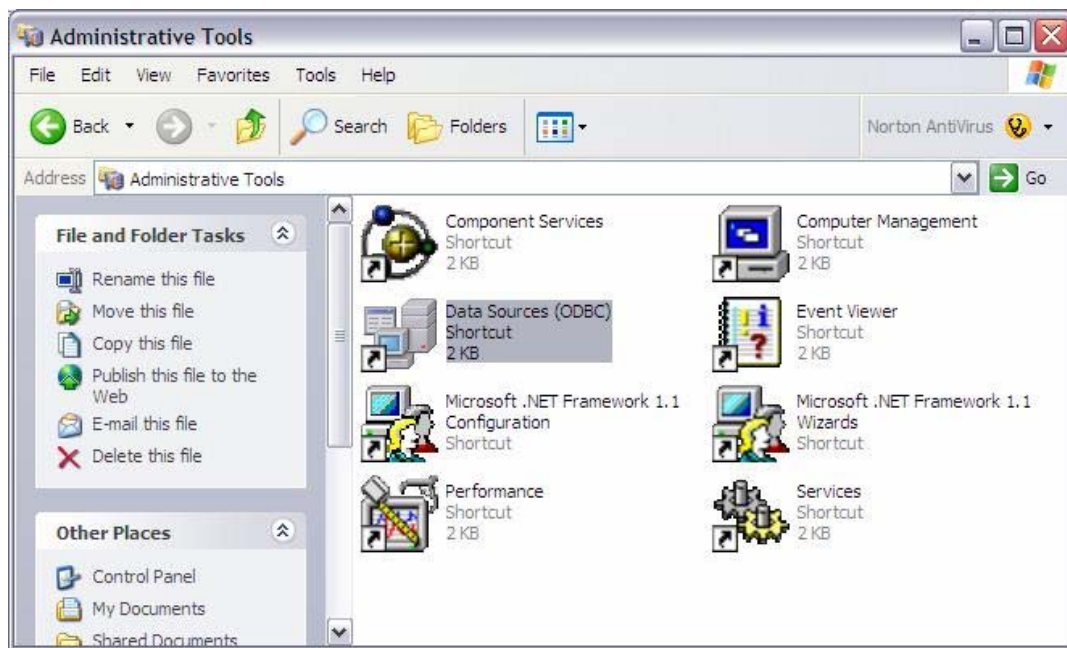
The project directory has a file *SemanticEmail.mdb*, which is the database, in it. Move it to a chosen location (where it could lie peacefully, undisturbed !) if you think it is necessary. This location is needed to set up an ODBC data source connected to the database *SemanticEmail.mdb*. (It requires reconfiguring the data source whenever the location of this file needs to be changed).

After choosing a location for the database and moving it there, Add a new ODBC data source with the name '*SemanticEmail*'. To add an ODBC data source

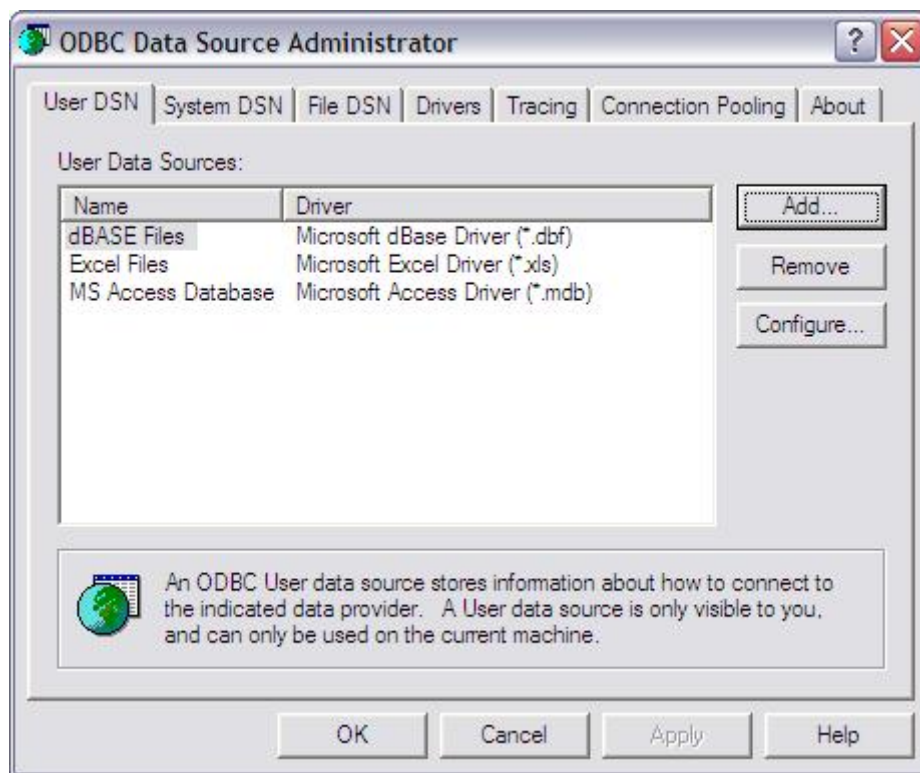
1. Choose the **Administrative Tools** icon from the Windows **Control Panel**.



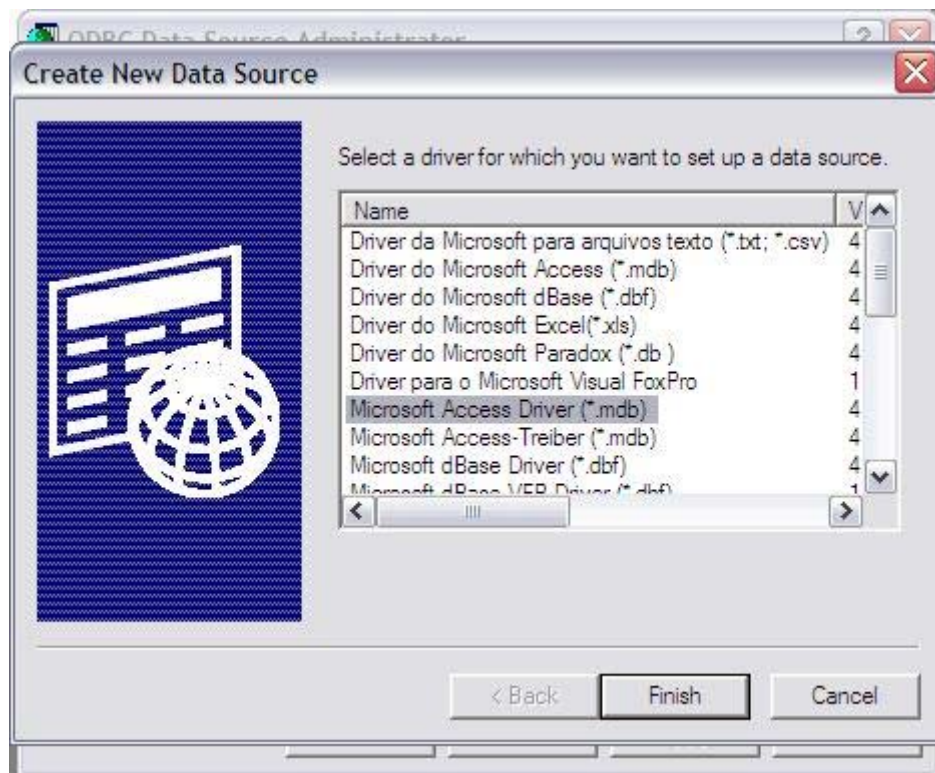
2. Choose the **Data Sources** shortcut.



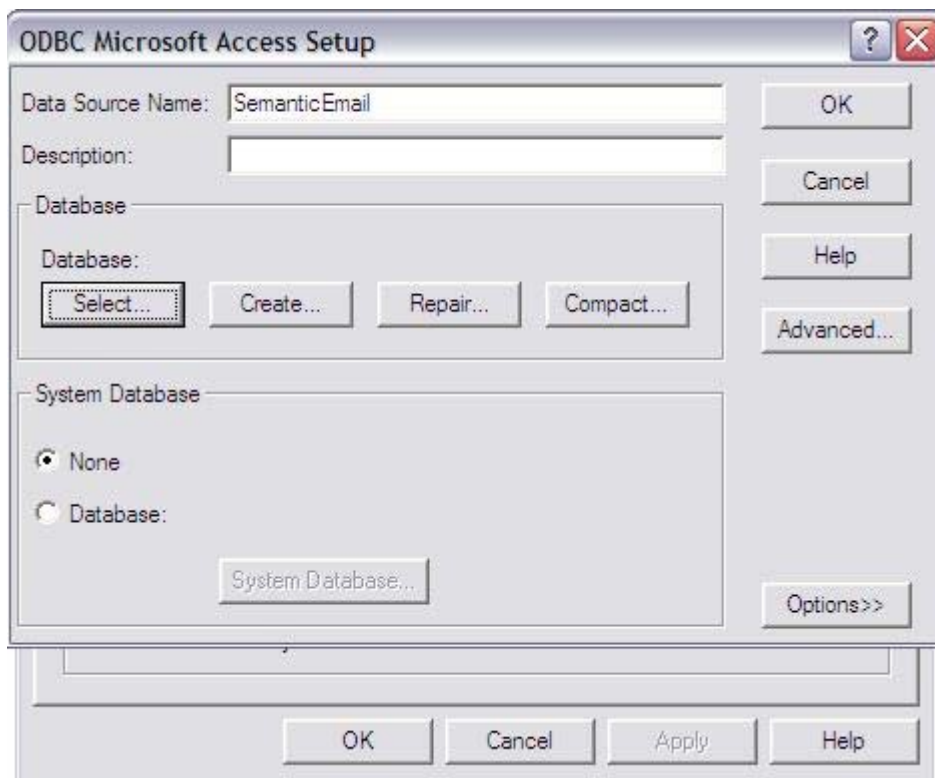
3. In the **ODBC Data Source Administrator** dialog box, click **Add**,



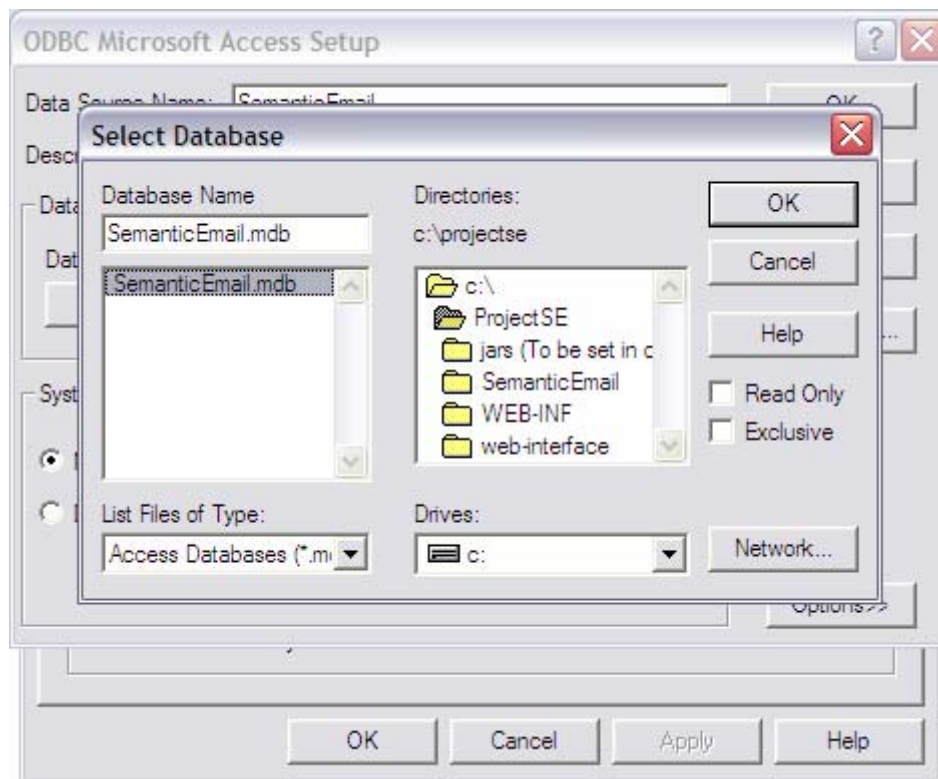
4. Select the **Microsoft Access Driver** from the **Installed ODBC Drivers** list and choose **OK**.



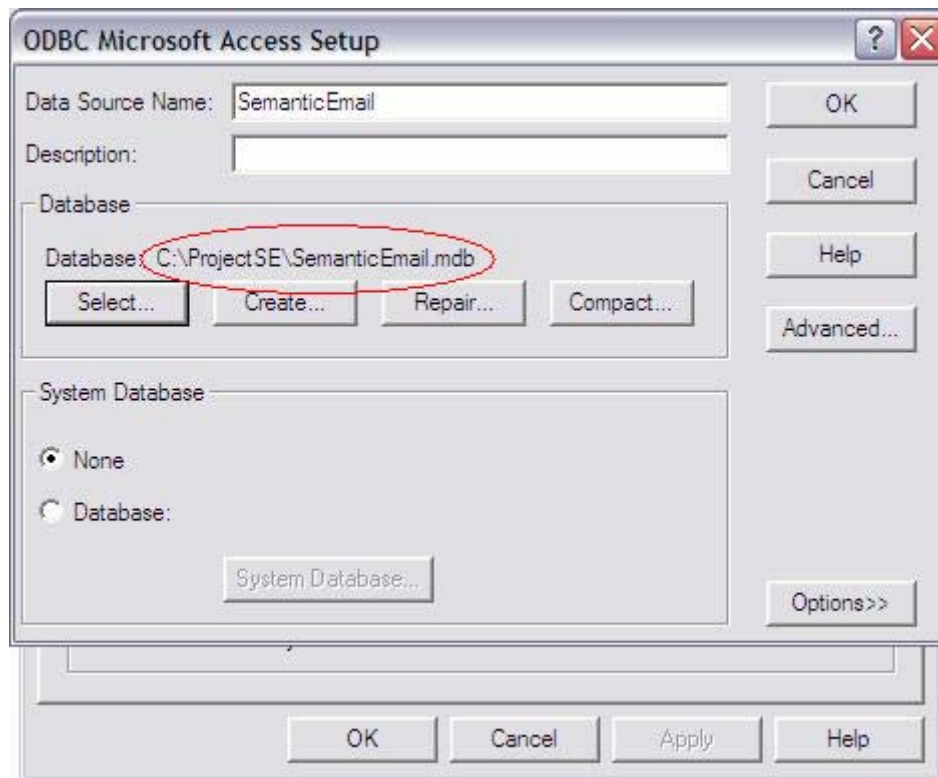
5. Enter Data Source Name as *SemanticEmail*



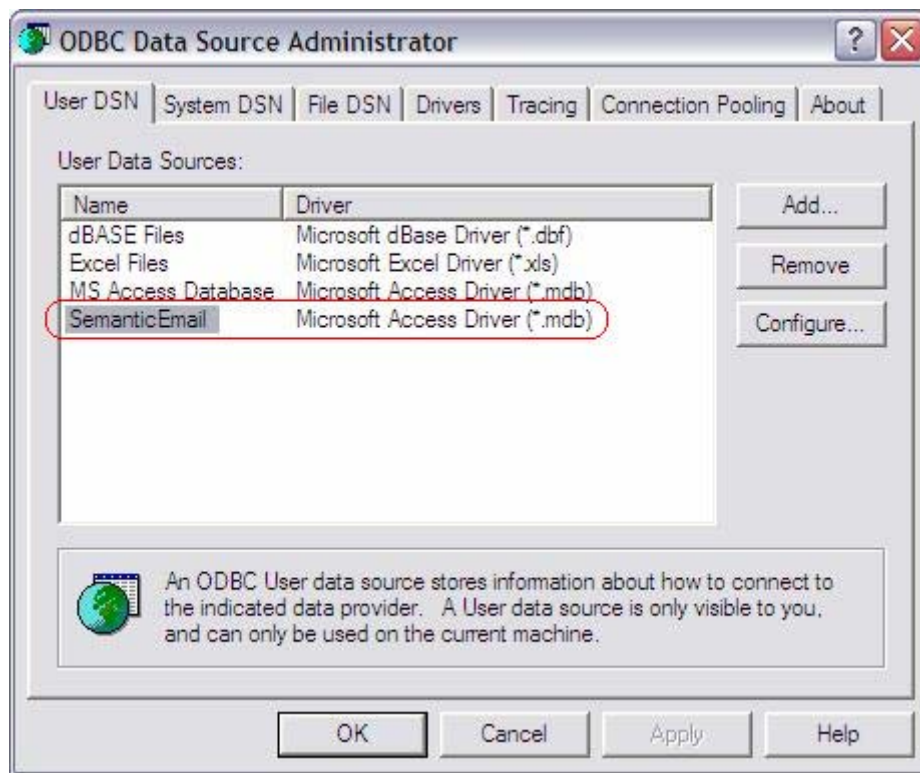
6. Select database (absolute path of *SemanticEmail.mdb*) and select OK.



7. Check the database path and select OK again.



8. A new Data Source is added to the list...



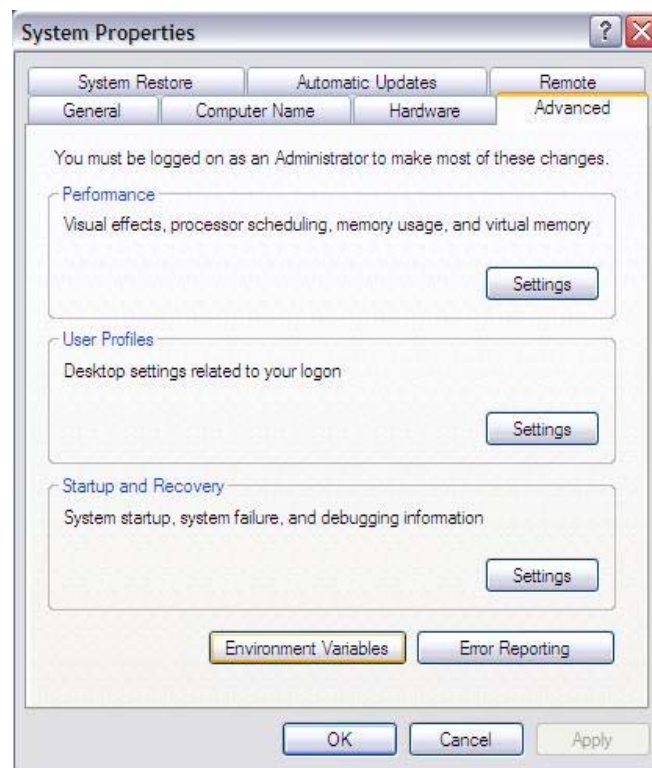
SETTING THE CLASSPATH

After adding the data-source, set the CLASSPATH variable to include all the JAR files in the directory *jars*.

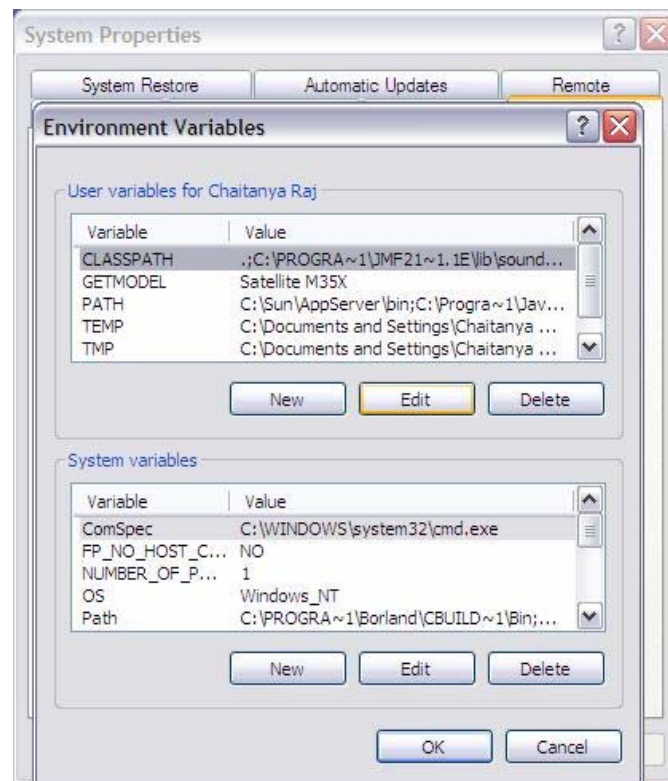
- a. Right click *My Computer* (on desktop or *Start Menu*) and select *Properties*.



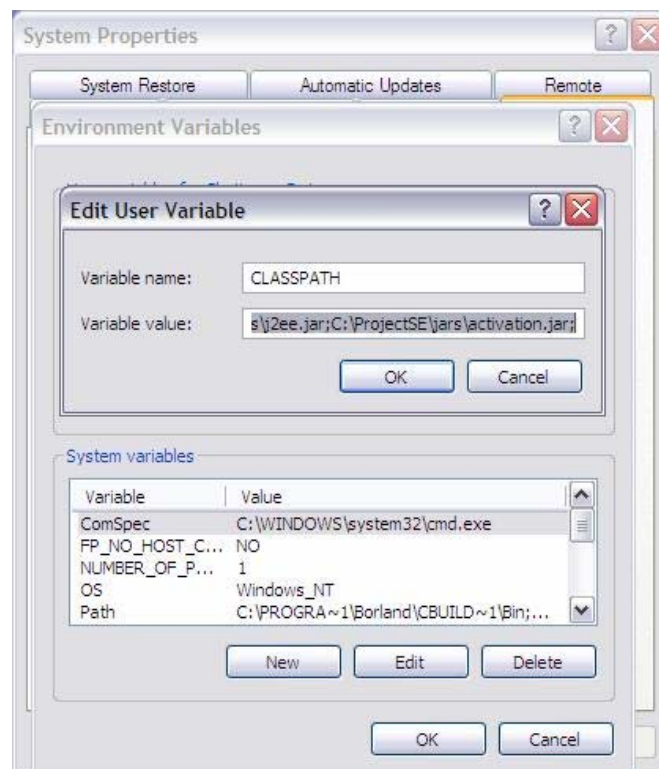
b. Click on the *Environment Variables* in the *Advanced* tab.



c. In the *User Variables*, select the *CLASSPATH* variable and click on *Edit*.



d. Append the path java absolute file paths of each of the '.jar' files in the *jars* directory to the *Variable Value* field and click *OK*.



FINAL STEPS

After setting the *CLASSPATH*, two final things need to be done

1. Copy (or move) the directories, ***WEB-INF*** and ***web-interface***, into the Tomcat web-hosting directory, that is,
<Tomcat installation directory> /webapps/ROOT/
2. Make sure the response submit directory (set up in the constants) actually exists.

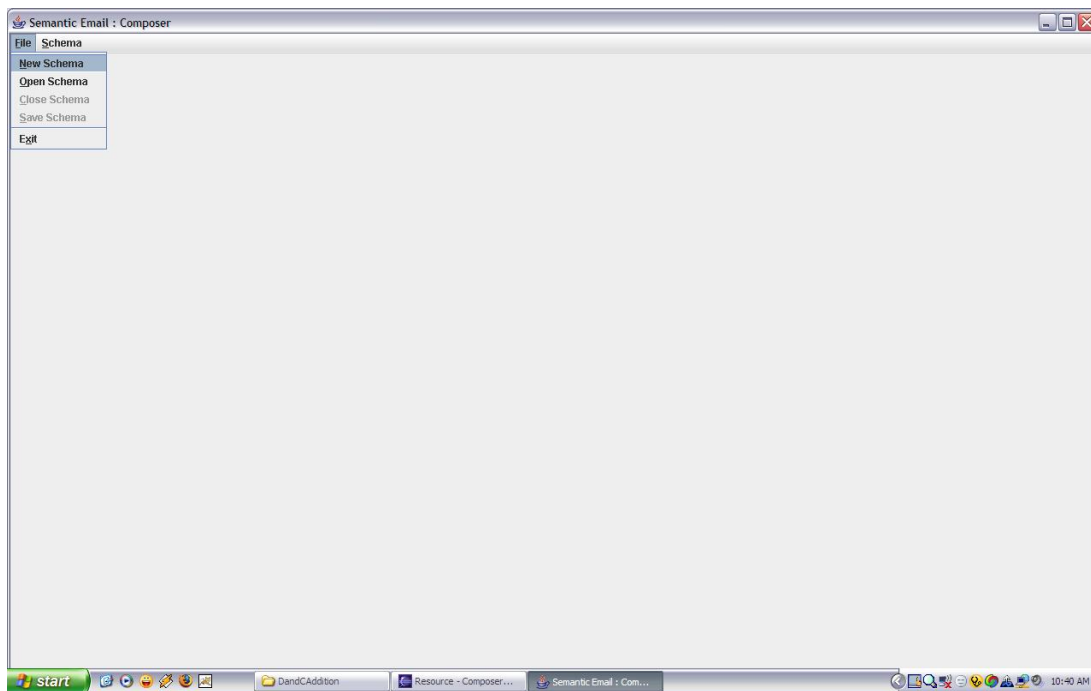
RUNNING THE APPLICATION

RUNNING THE COMPOSER

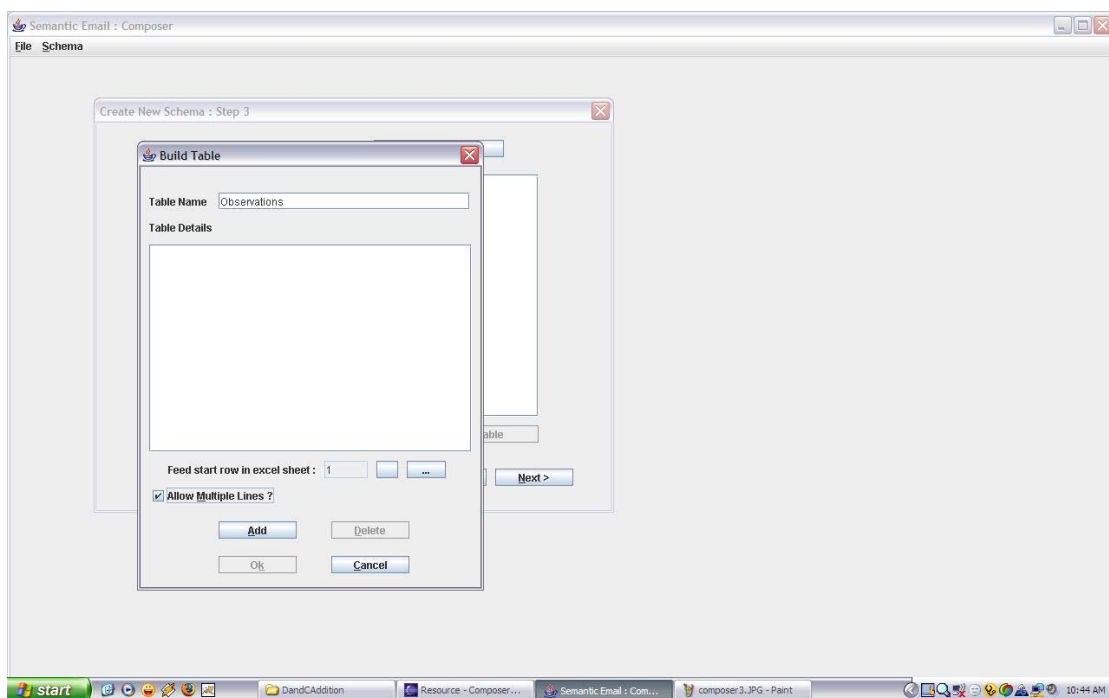
To invoke the Schema composer, run the batch file, *Composer.bat* in the directory *SemanticEmail*.

Building a new Schema

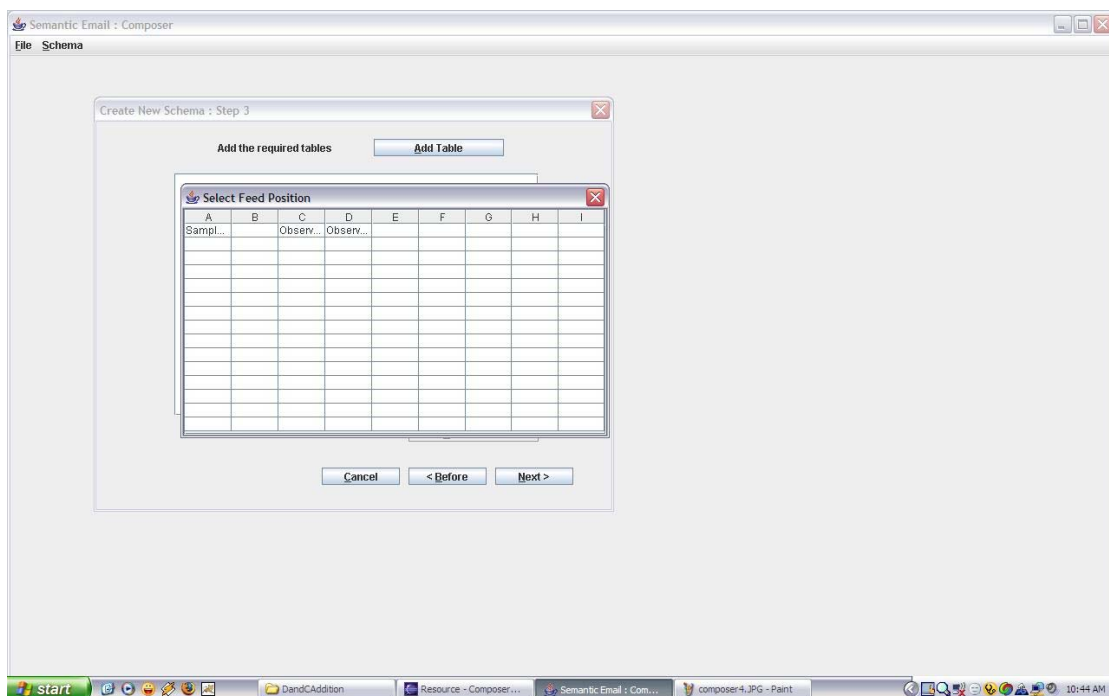
1. Select File > New Schema



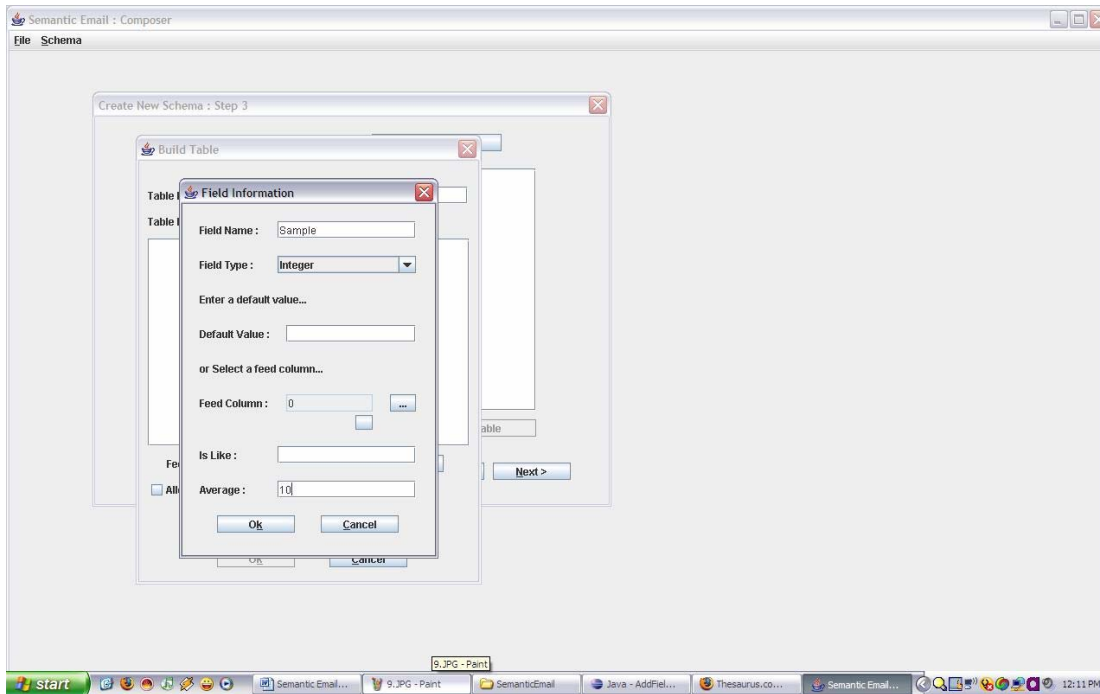
2. Enter a valid name.



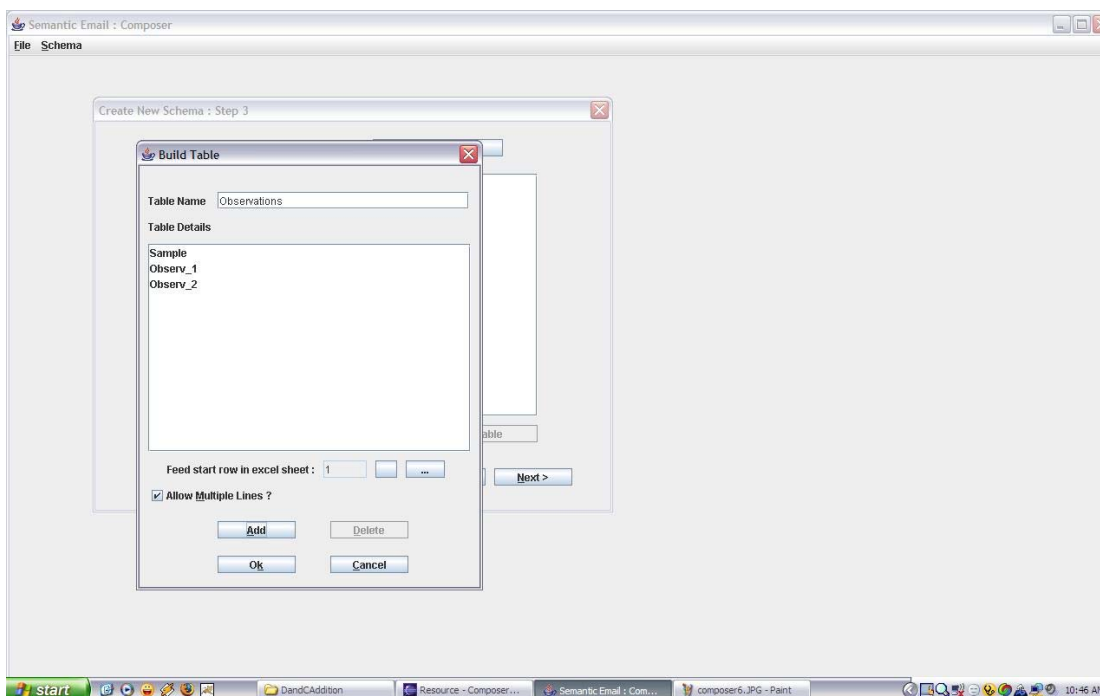
5. Select the feed start row in the excel sheet for the table (row from which data is to be read from the response sheet).



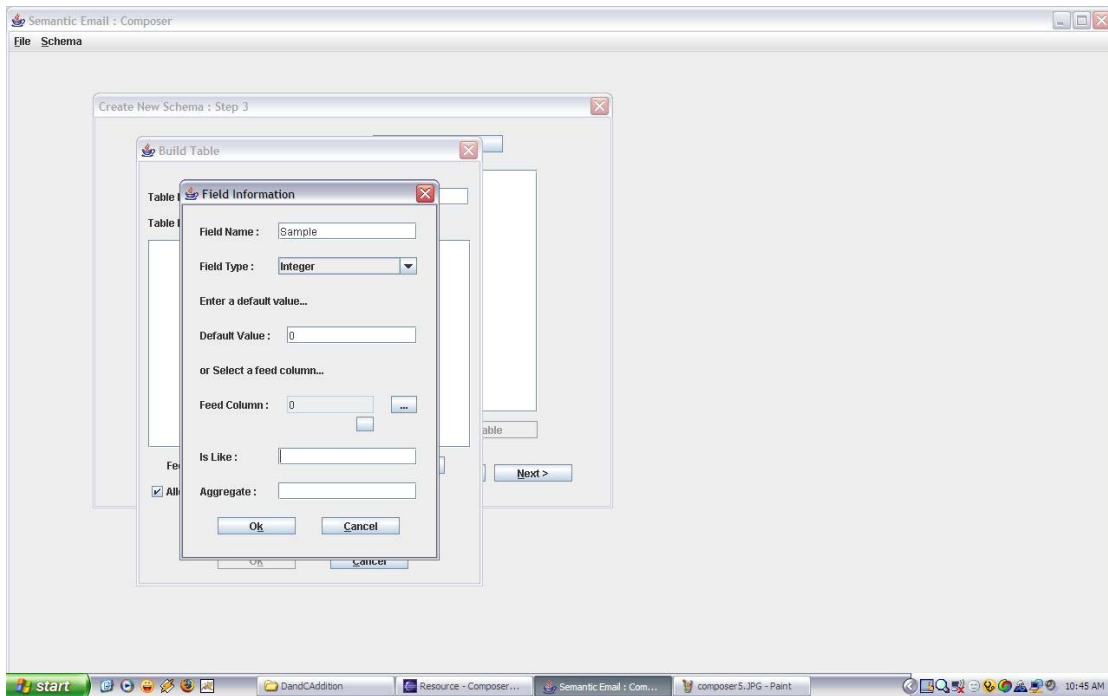
6. Add fields to the table (i.e., columns) and enter the appropriate details for each field.



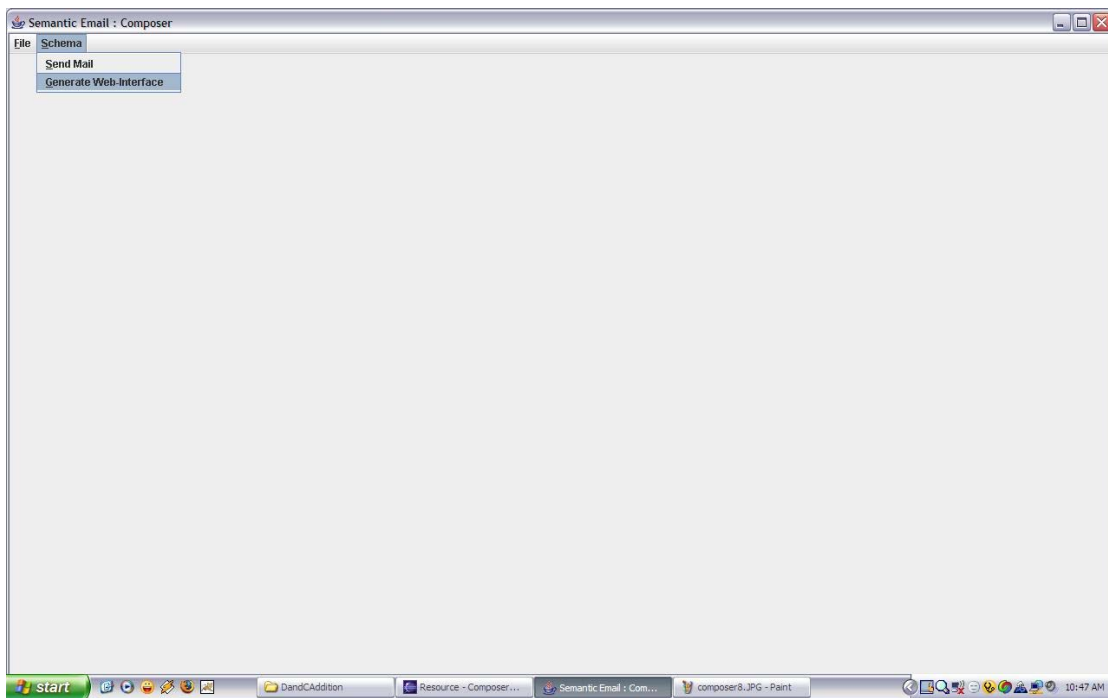
7. Map the data fields in the excel sheet to the fields in the table, that is, select the column from which data should be read for entering into the table in the database for this particular column and then check the *Allow Multiple Lines* check box if the participants need to submit multiple rows of data



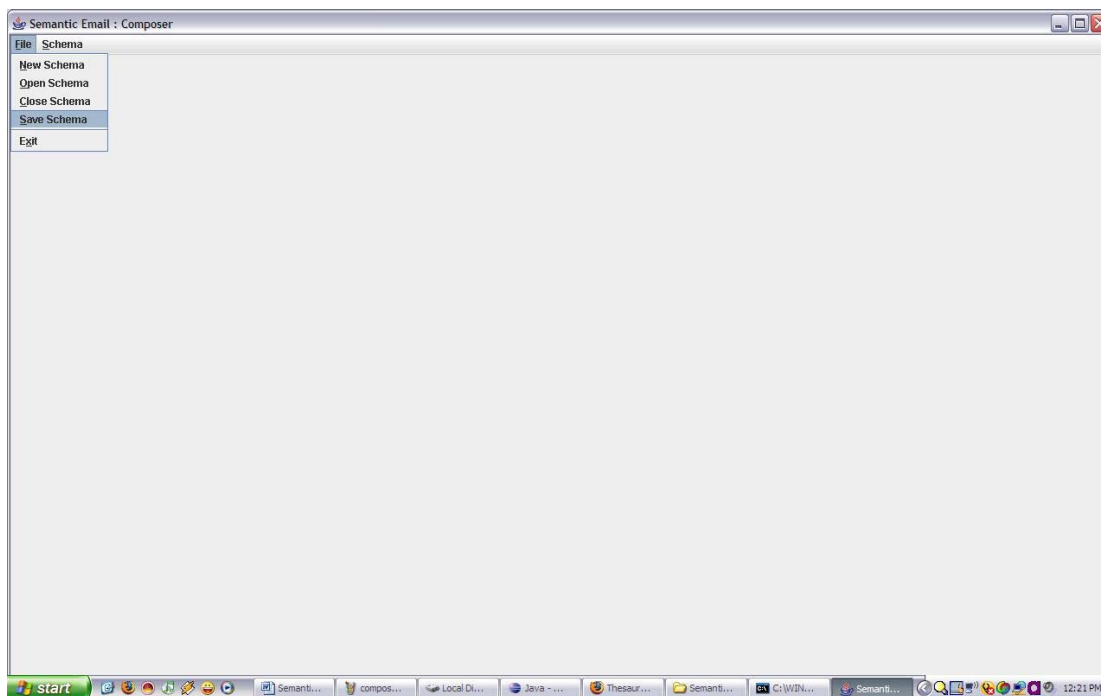
8. Add the list of participants and the list of files that are to be submitted by the participant



9. Generate the web-interface by selecting the *Generate Web-Interface* from the *Schema* menu.

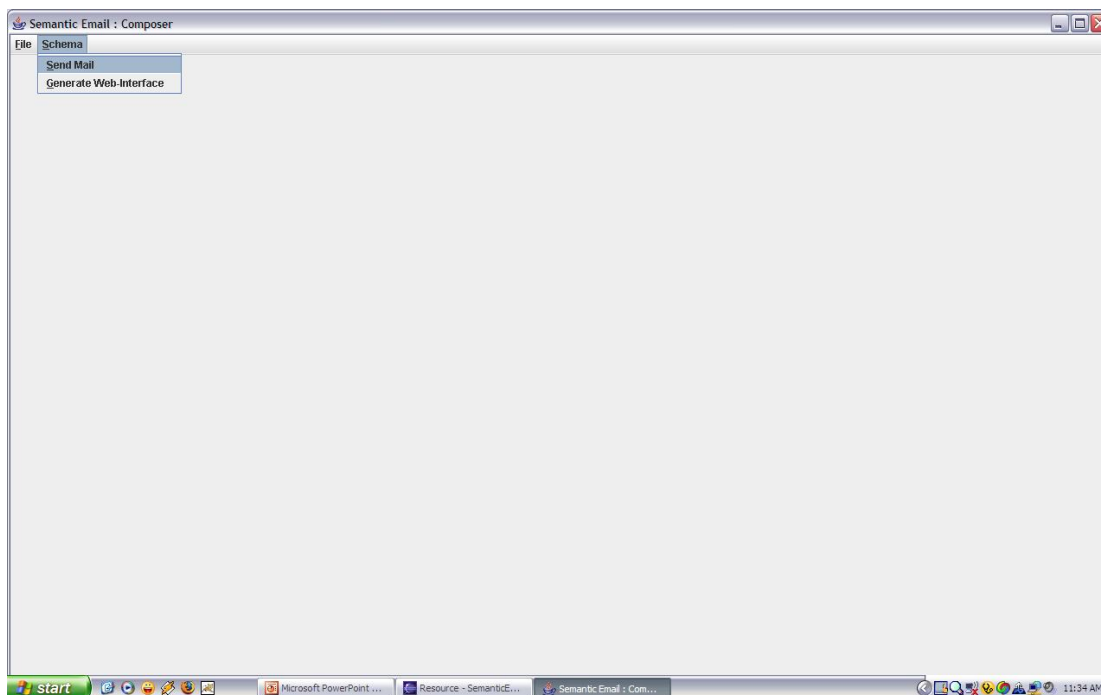


10. Save the schema by selecting the *Save* from the *File* menu.

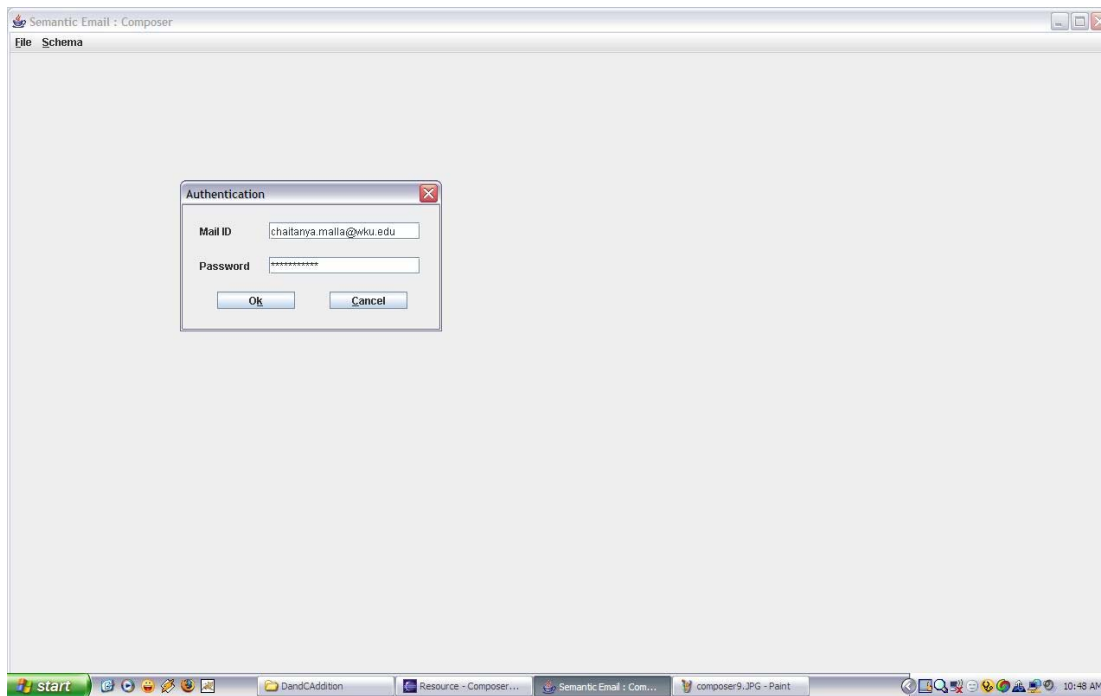


Send out requests

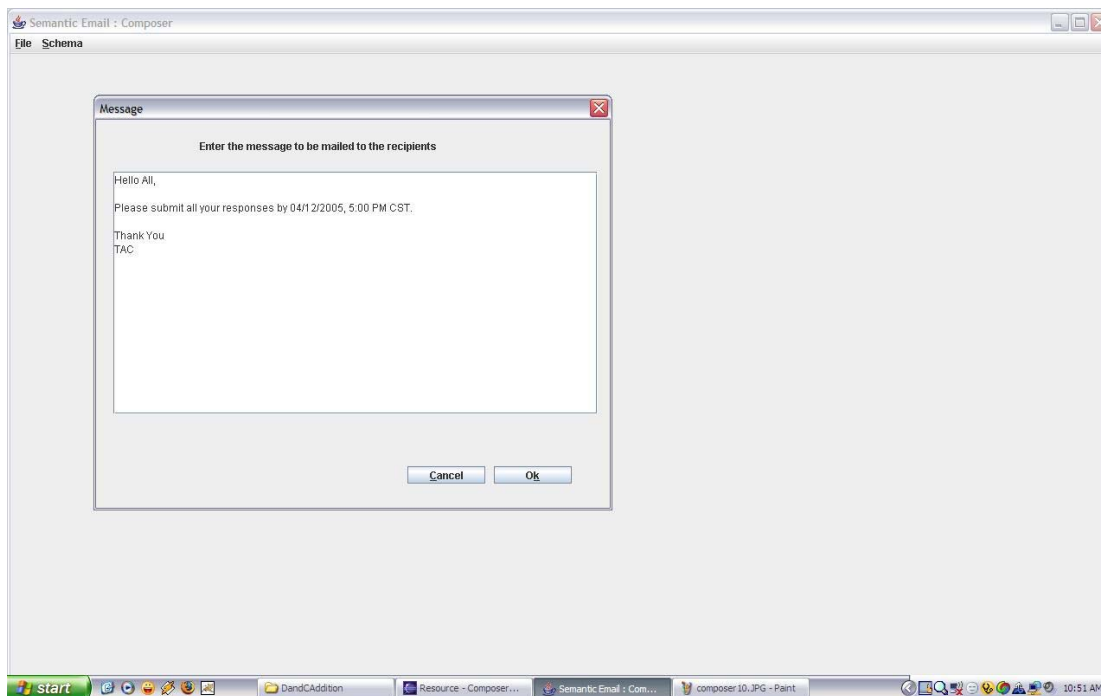
Requests can be sent out to all the participants of the schema by selecting the *Send Mail* from *Schema* menu.



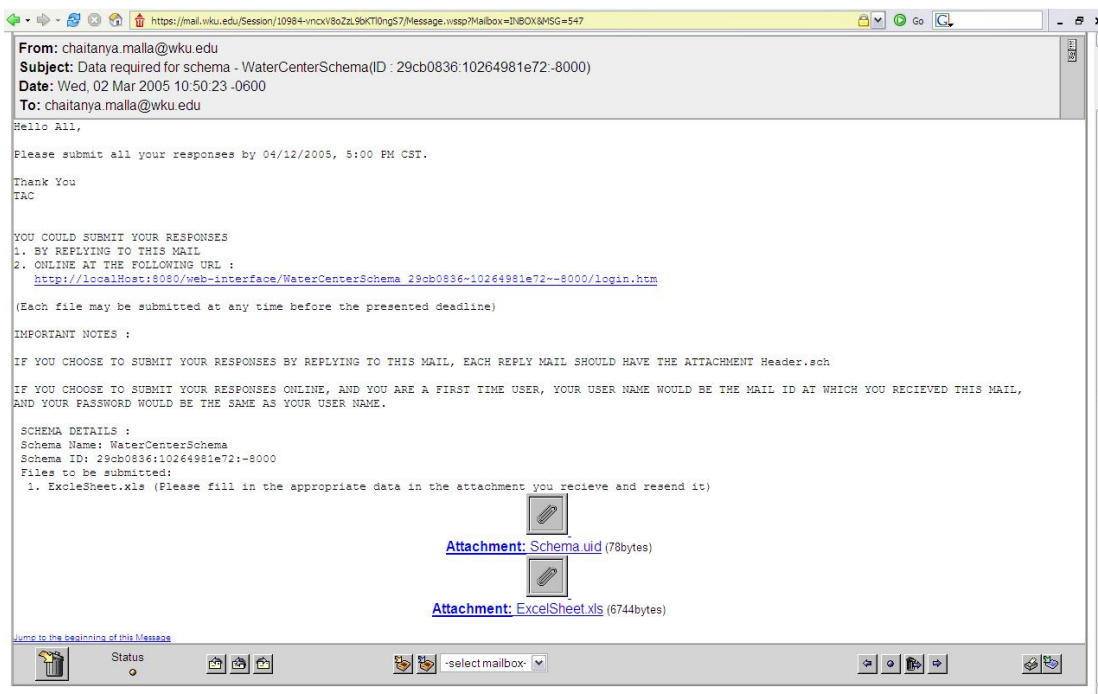
Enter the mail box authentication information...



Enter the message that needs to be sent along with the formatted excel sheet.



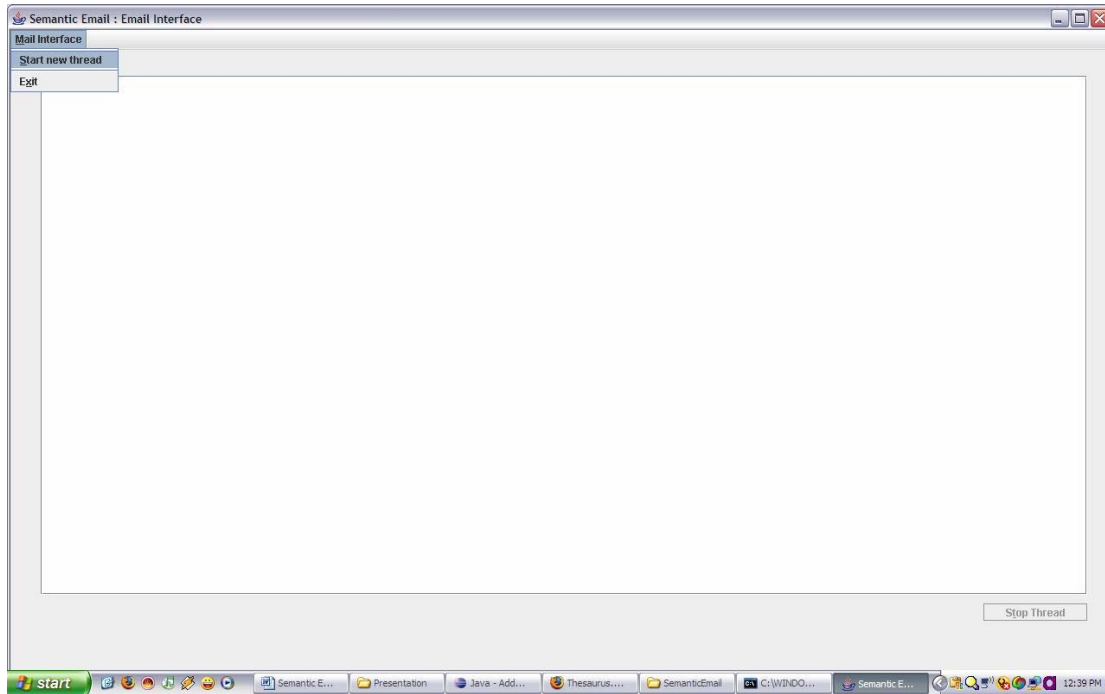
The mail would appear as follows. (Instructions for submitting responses would be automatically appended to the mail message)



RUNNING THE EMAIL INTERFACE

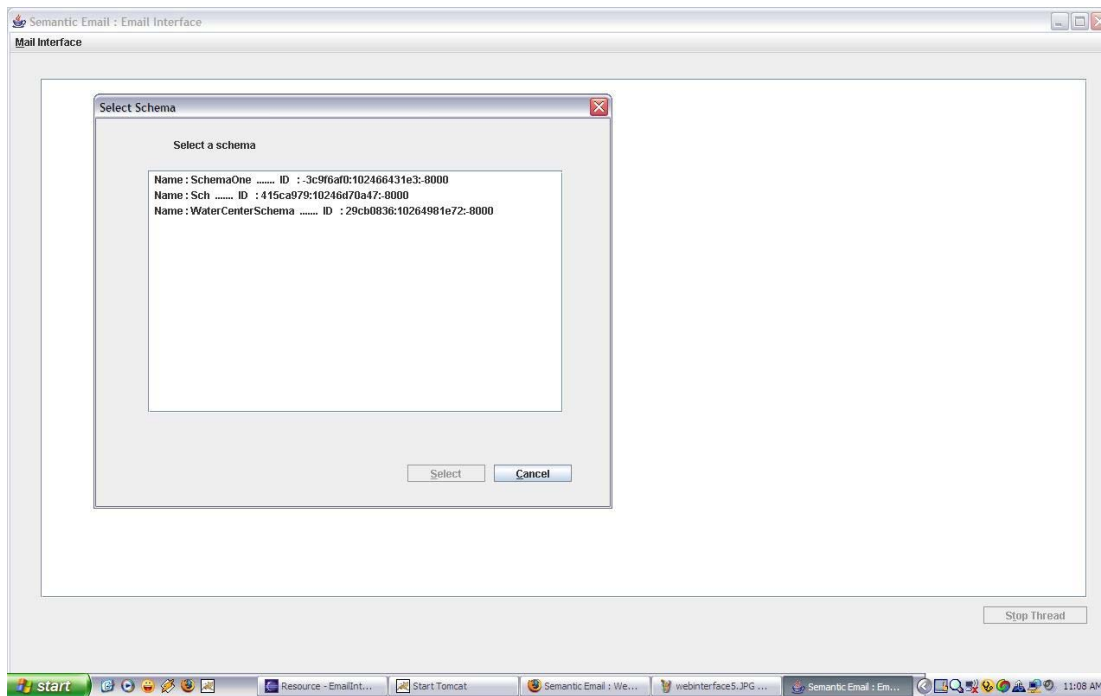
To invoke the email interface, run the batch file, *EmailInterface.bat* in the directory *SemanticEmail*. The Email Interface could be stopped whenever on the end of the time limit for submission of responses or after all responses have been submitted (if no time deadline was imposed on participants).

Select *Start New Thread* from the *Mail Interface* menu to start a new thread for reading response

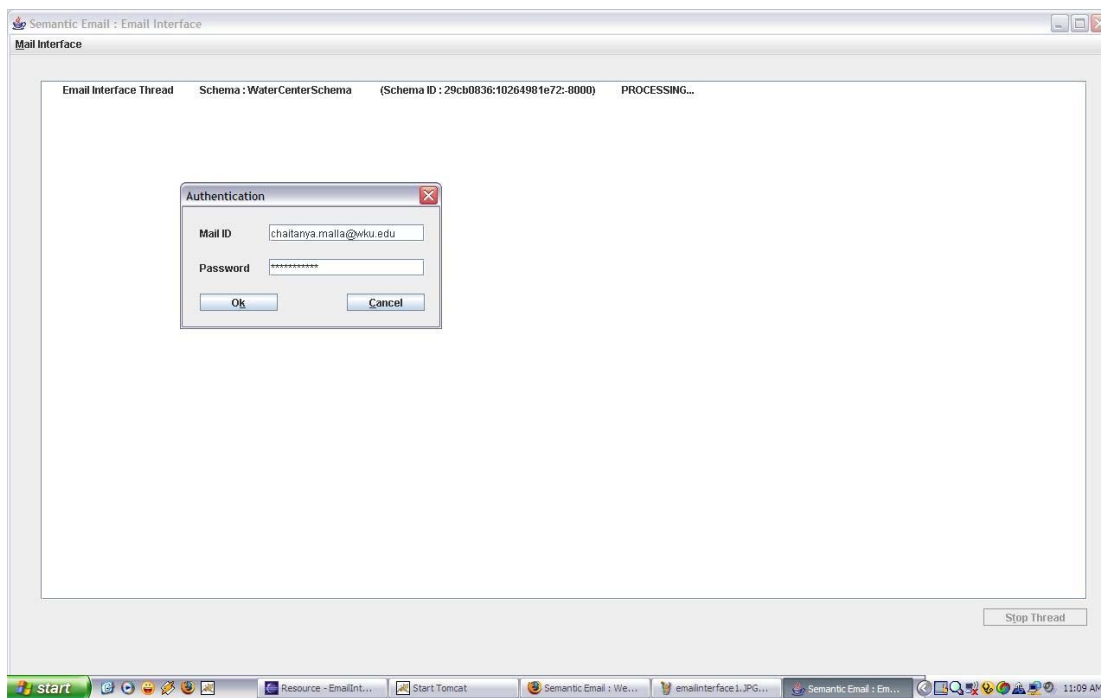


emails.

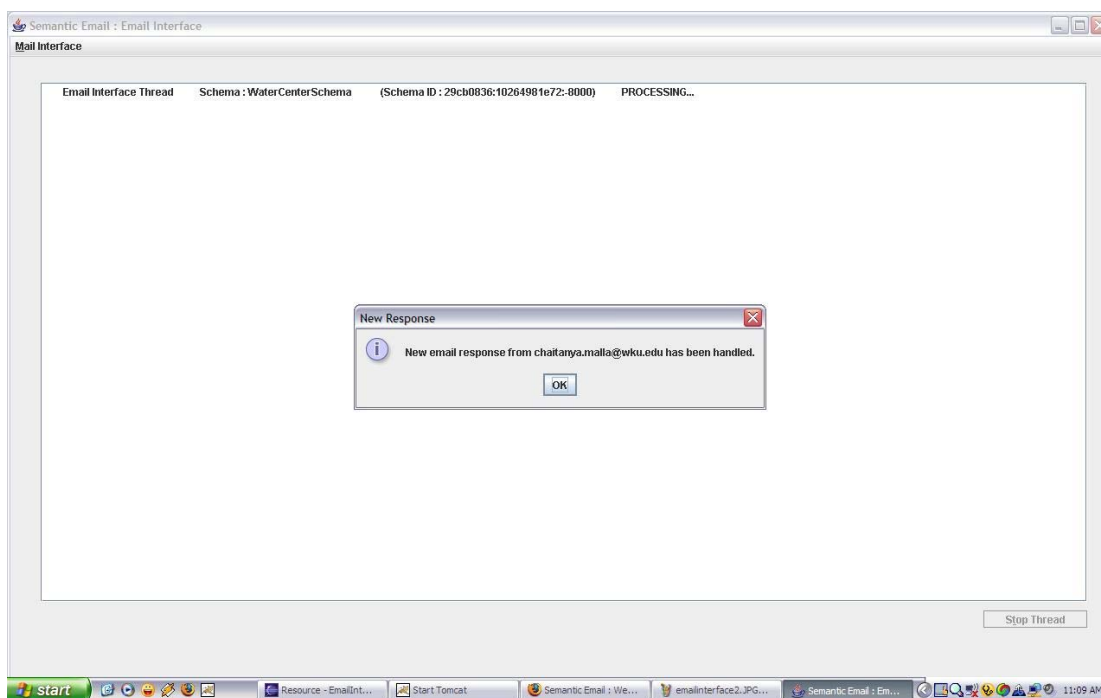
Select the schema for which we need to run the email-interface.



Provide the mail box authentication information.



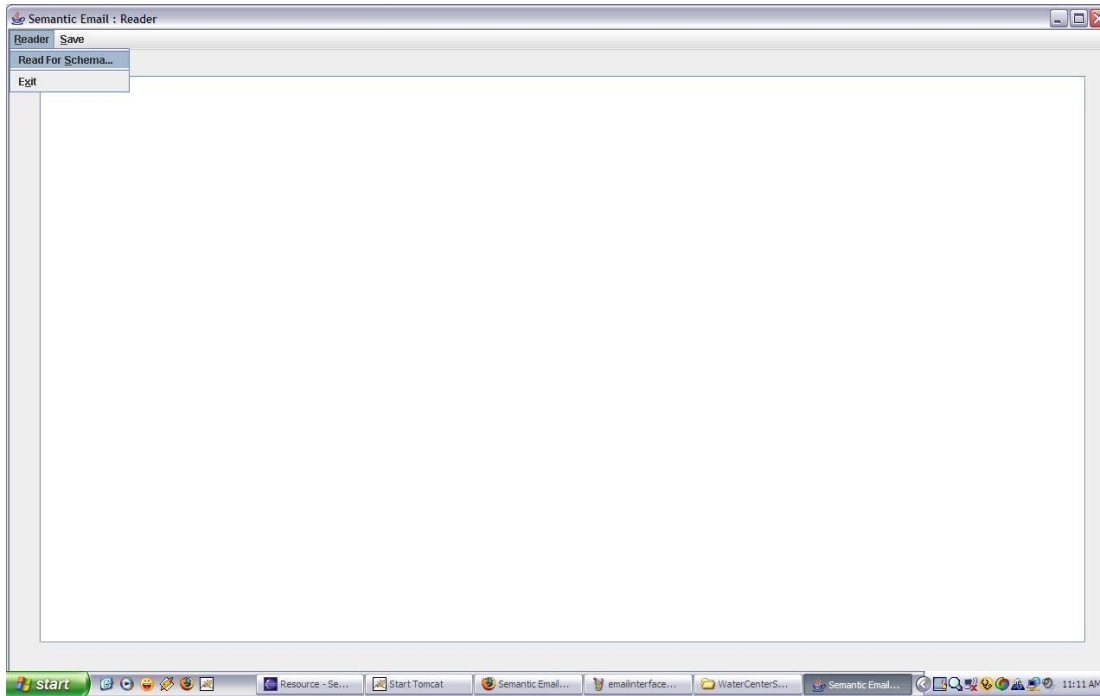
The mail box would be constantly read and email responses would be saved in the response submission directory set earlier.



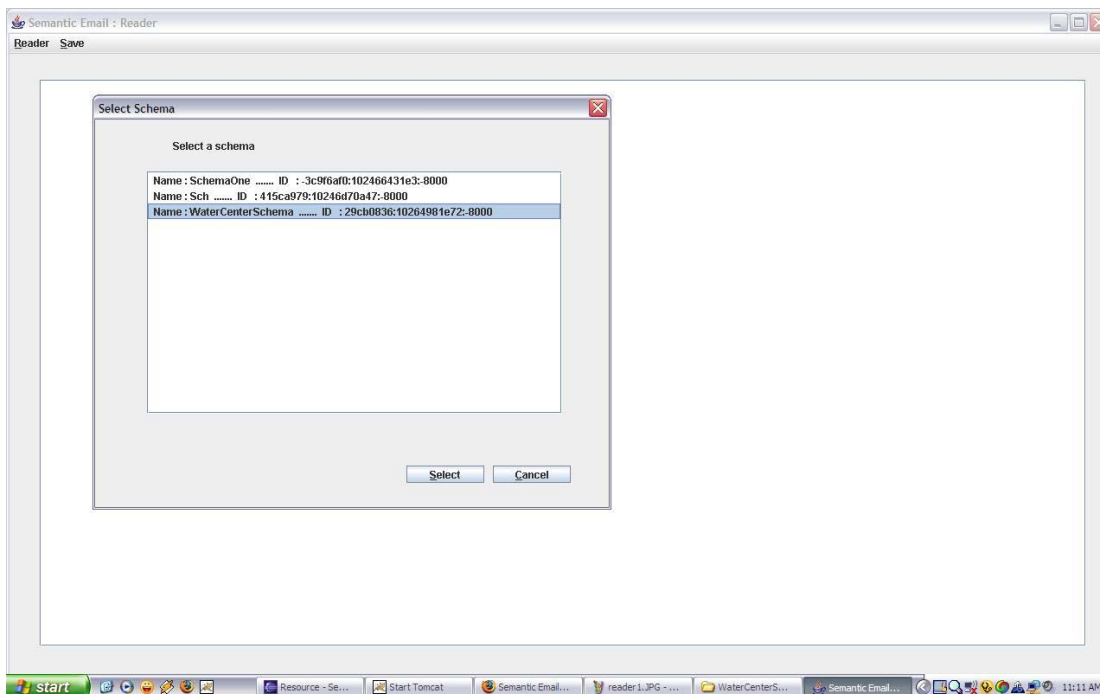
RUNNING THE READER

To invoke the reader, run the batch file, *Reader.bat* in the directory *SemanticEmail*.

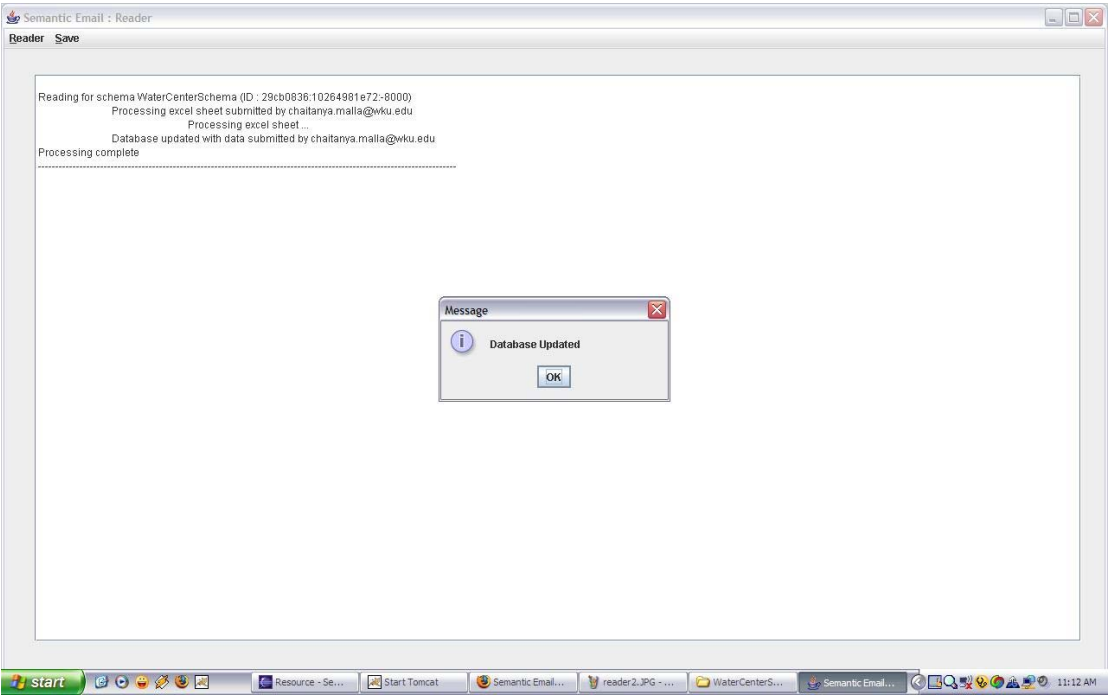
Start reading the submitted responses by selecting the *Read For Schema* from the *Reader* menu.



Select the schema for which the submitted responses have to be read.



The database would be updated with the responses submitted by the participants.



Any discrepancies in data would be identified and displayed for you to take the corresponding action.

