COMP 3311 Database Management Systems Spring 2015

Lab 9. Assignment Four

Objectives of the Lab

- After this lab, you will
  - know how to build up the database for assignment 4,
  - know how to set up the data source,
  - know how to compile the ODBC/C++ program,
  - Know more about the TODOs.

The assignment Script files 1

- You need to use the three script files to build the database *before* you can start doing the assignment.
- As usual, three steps are involved:
  - Download the script files,
  - Log in the Oracle database server using the SQL*Plus client with your Oracle password,
  - Execute the script files at the SQL*Plus prompt.

The assignment Script files 2

- Step 1: download the script files
  1. login to an arbitrary machine csl2wkxx.cse.ust.hk where xx=01-40
  2. at the command prompt type:

```
csl2wk01:lamngok:105> cd ~
csl2wk01:lamngok:106> wget \
http://course.cse.ust.hk/comp3311/assignments/drop_tables.sql
csl2wk01:lamngok:107> wget \
http://course.cse.ust.hk/comp3311/assignments/create_tables.sql
csl2wk01:lamngok:108> wget \
http://course.cse.ust.hk/comp3311/assignments/insert_records.sql
```

The assignment Script files 3

- Step 2: Log in Oracle

  Log in Oracle database server using SQL*Plus. You username should be comp3311stuxxx, where xxx=001 to 089.

- Step 3: Execute the script files at the prompt

```
SQL> @drop_tables
SQL> @create_tables
SQL> @insert_records
SQL> commit;
```

Remember to "commit", otherwise the data will not be written to ORACLE

Setting up the ODBC environment 1

- After building the database, the next step is to set up the ODBC environment and the data source that corresponds to the Oracle Server.
- In the CS Labs, we have already set up the ODBC environment (this includes lab 4210, and the virtual lab6, see slides 21-31 for the details of the virtual lab).
- But you still need to set up the data source.

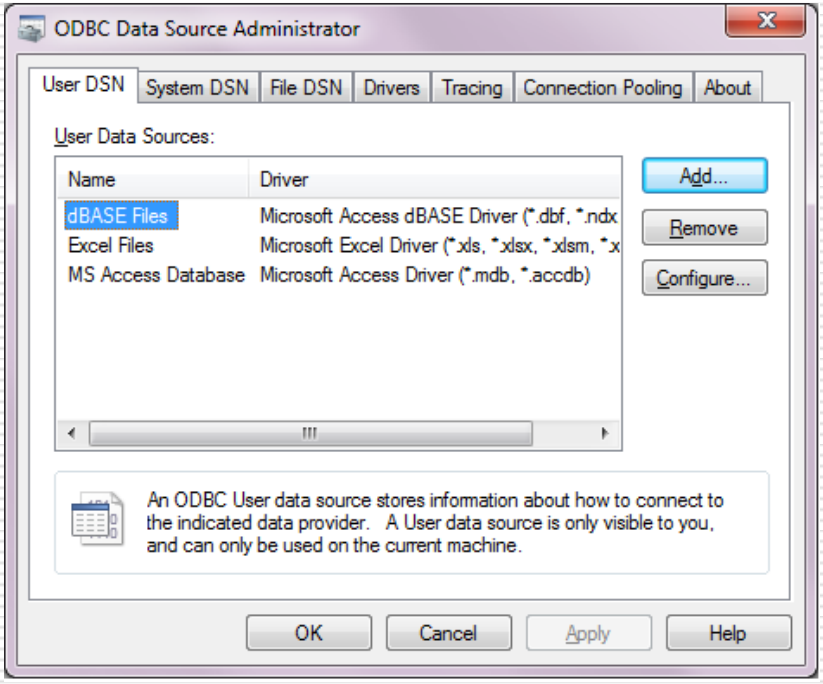
Setting up the ODBC environment 2

- 1. You can setup the Oracle ODBC data source under MS windows:
  - Click the “start” button , then key in “c:\windows\syswow64\odbcad32.exe”

You MUST use “c:\windows\syswow64\odbcad32.exe”

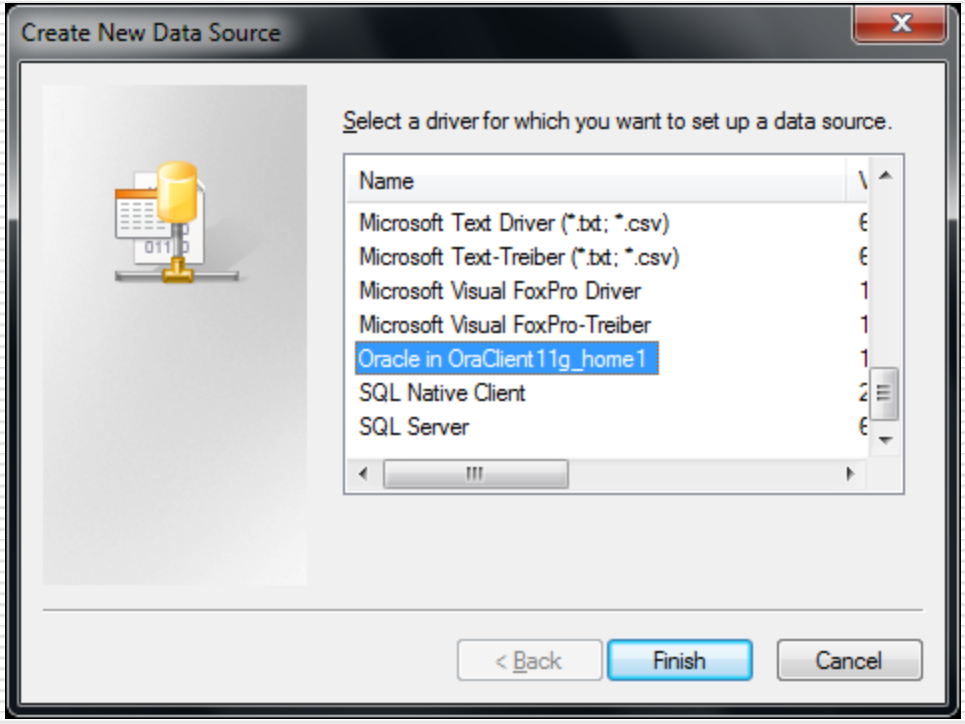
Setting up the ODBC environment 3

- 2. You should see the below window and click the “Add” button



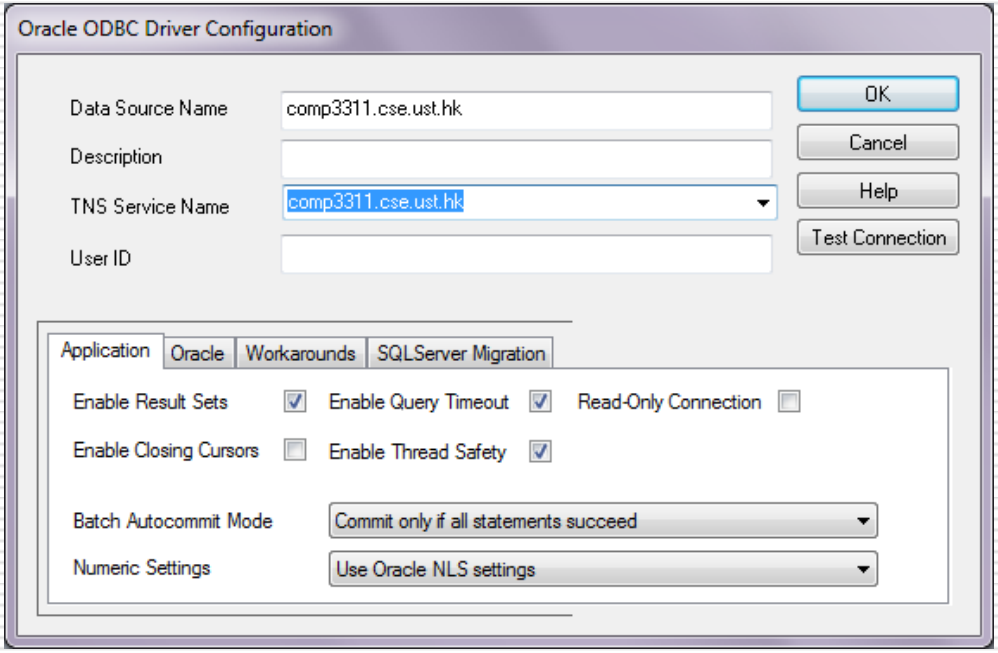
Setting up the ODBC environment 4

- 3. Add the Oracle data source.



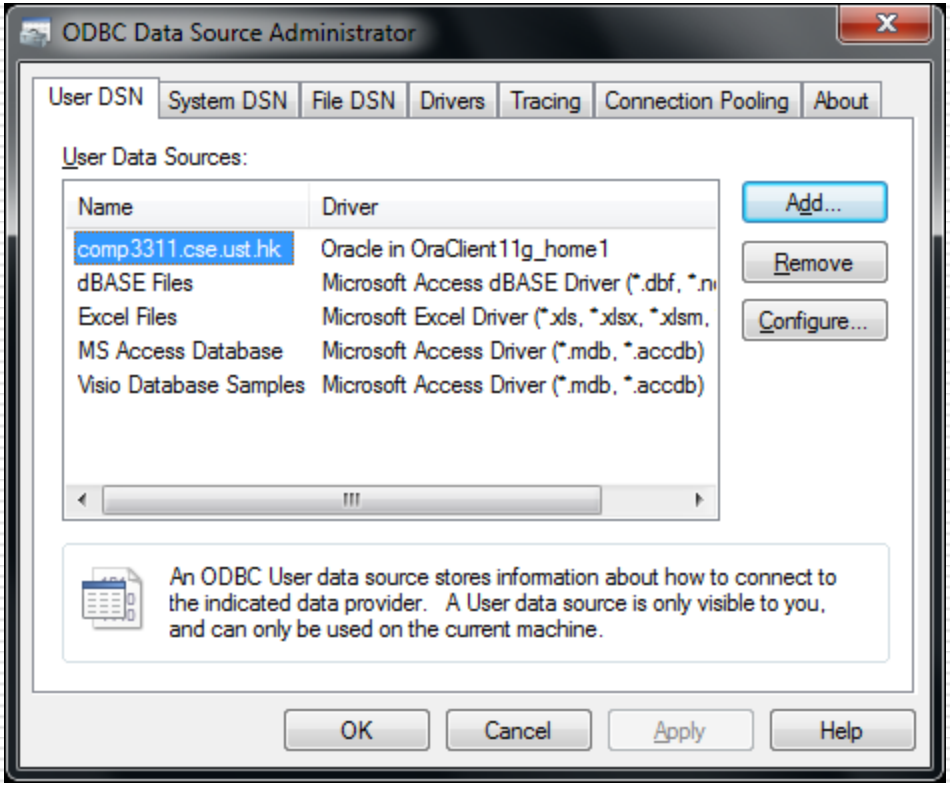
Setting up the ODBC environment 5

- 4. Give a name to the Data Source (you need this name in the SQLConnectA() function, the name here is “comp3311.cse.ust.hk”)



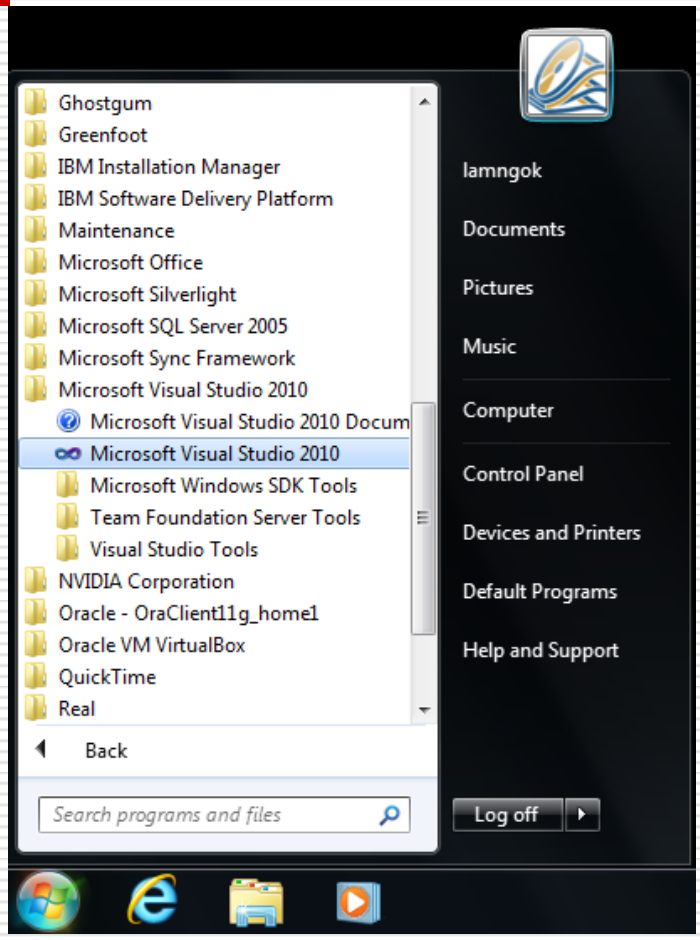
Setting up the ODBC environment 6

- 5. The name “comp3311.cse.ust.hk” appears in the data source administrator window. You are now ready to start your assignment 4 with the data source!



Working with Visual Studio 2010 1 *

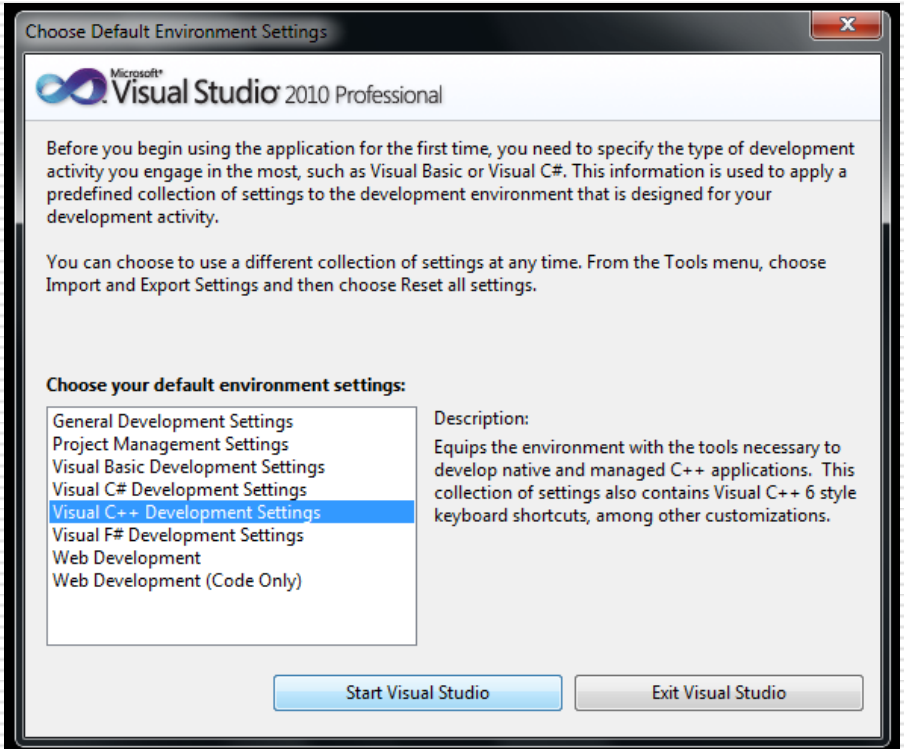
- After setting up the data source, you are ready to work on assignment 4 using visual studio.
- To start Visual Studio, one need to locate the visual studio 2010 package.
- Click the "start" button, and expand the folder "Microsoft Visual Studio 2010".
- Click on the "Microsoft Visual Studio 2010" icon as shown at the right to start it.



** The steps here are applicable to other versions of visual studio. We have tested VS2008 and VS2005.*

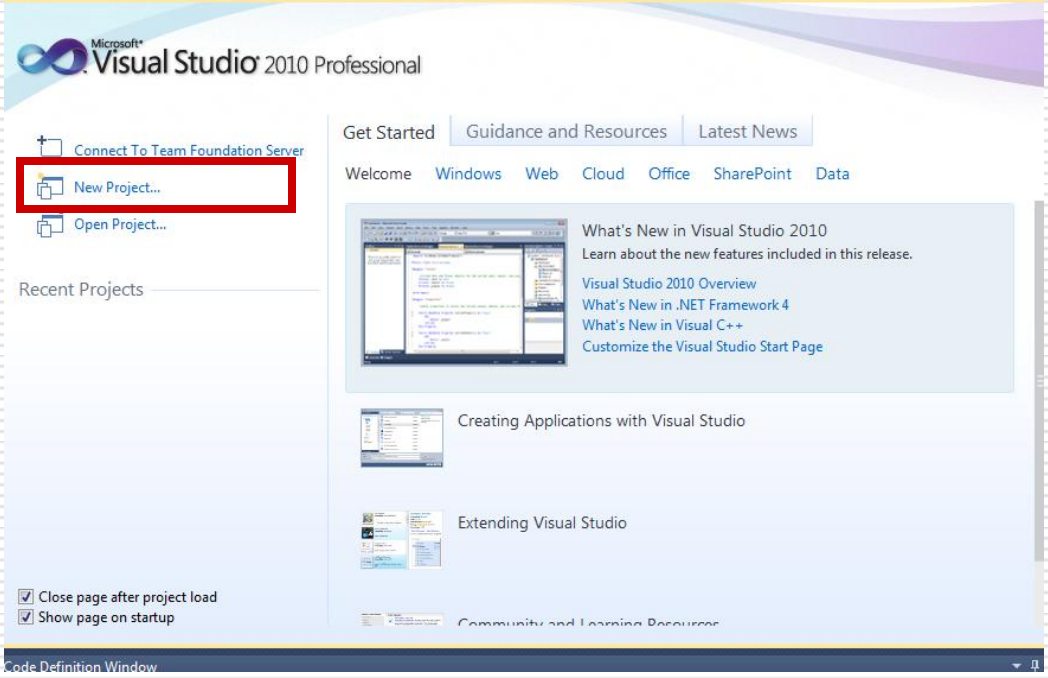
Working with Visual Studio 2010 2

- Select “Visual C++ Development Settings”



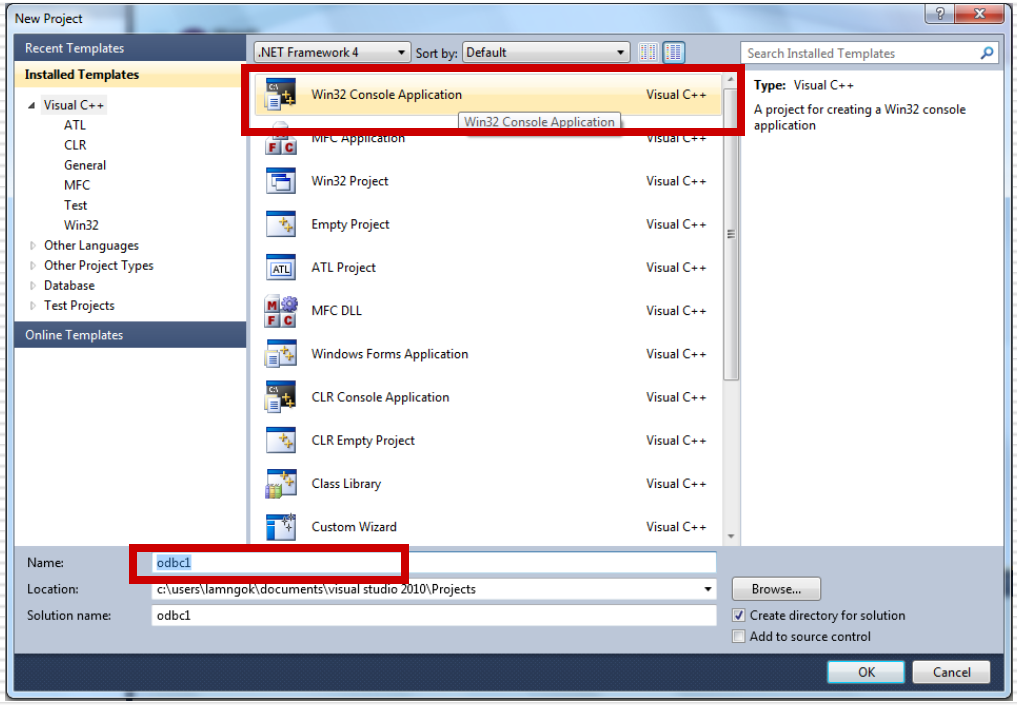
Working with Visual Studio 2010 3

- Select "New Project…" to start a new C/C++ project



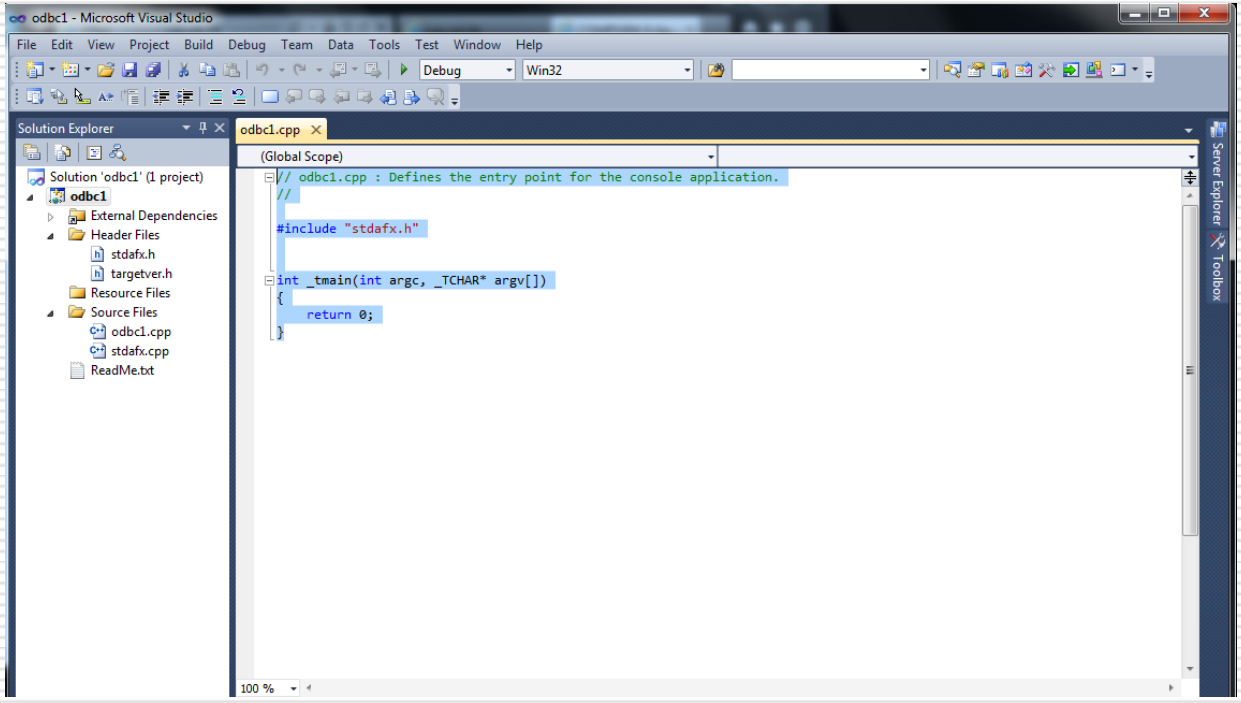
Working with Visual Studio 2010 4

- Select “Win32 Console Application”, and give the C++ project a name.



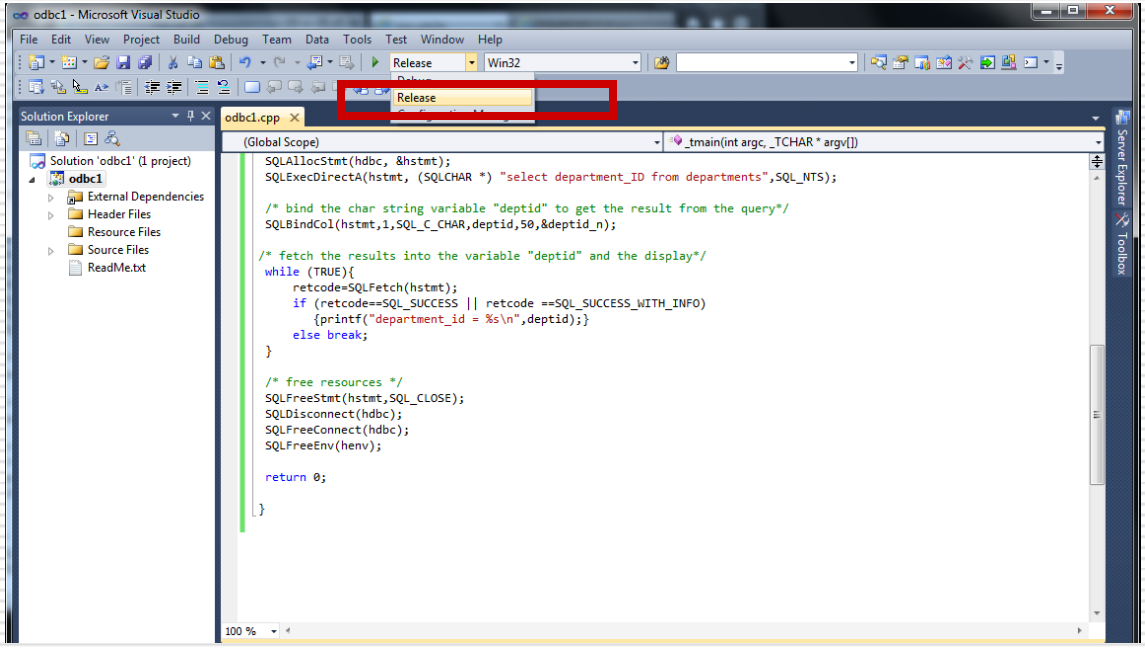
Working with Visual Studio 2010 5

- Then click “next” and “finish”, and you will see the following:



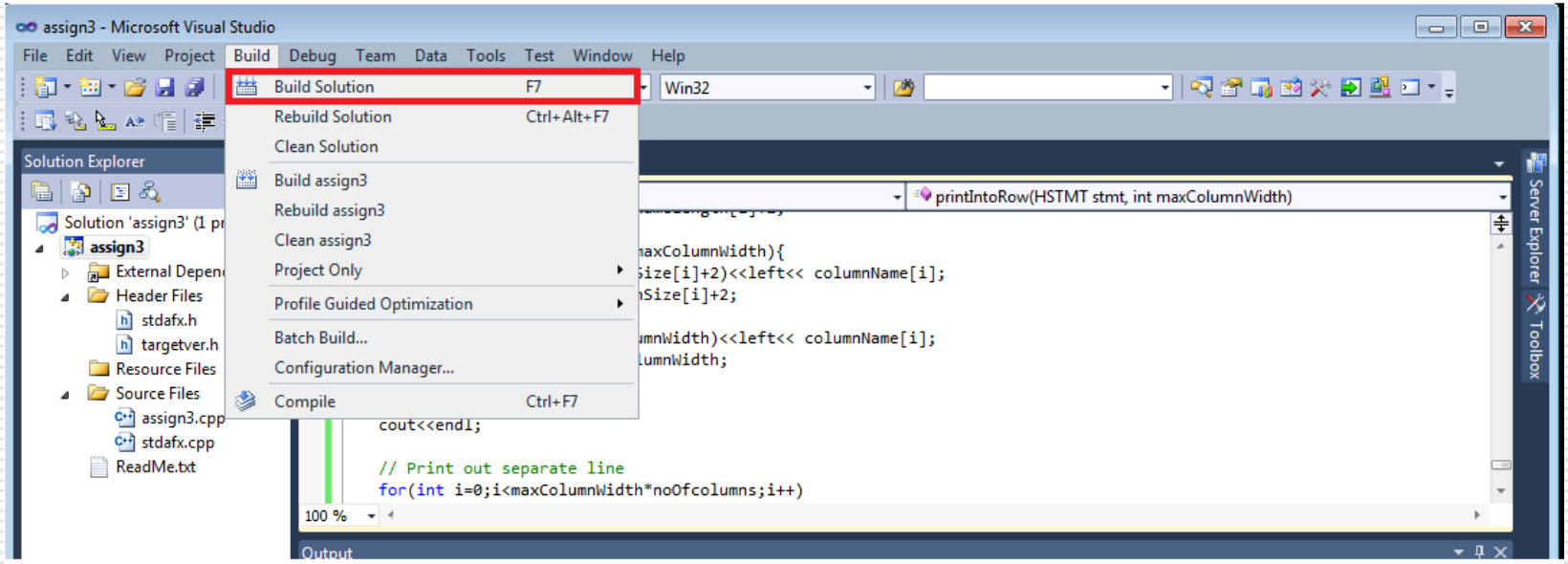
Working with Visual Studio 2010 6

- Replace the C-codes with assign4.cpp you have downloaded, and select "Release" for the compilation option.



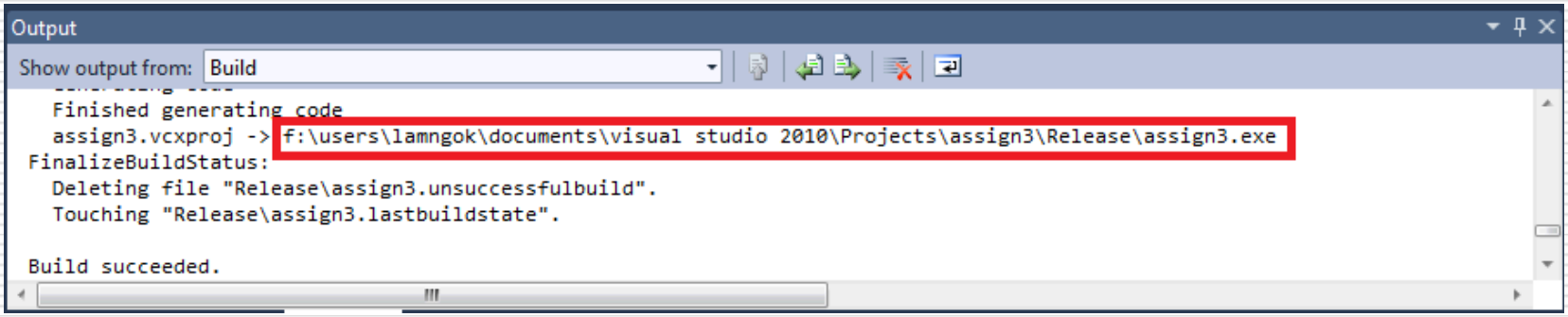
Working with Visual Studio 2010 7

- When you are done with assignment 4, ***save*** the file and ***compile*** the program by selecting "Build Solution".



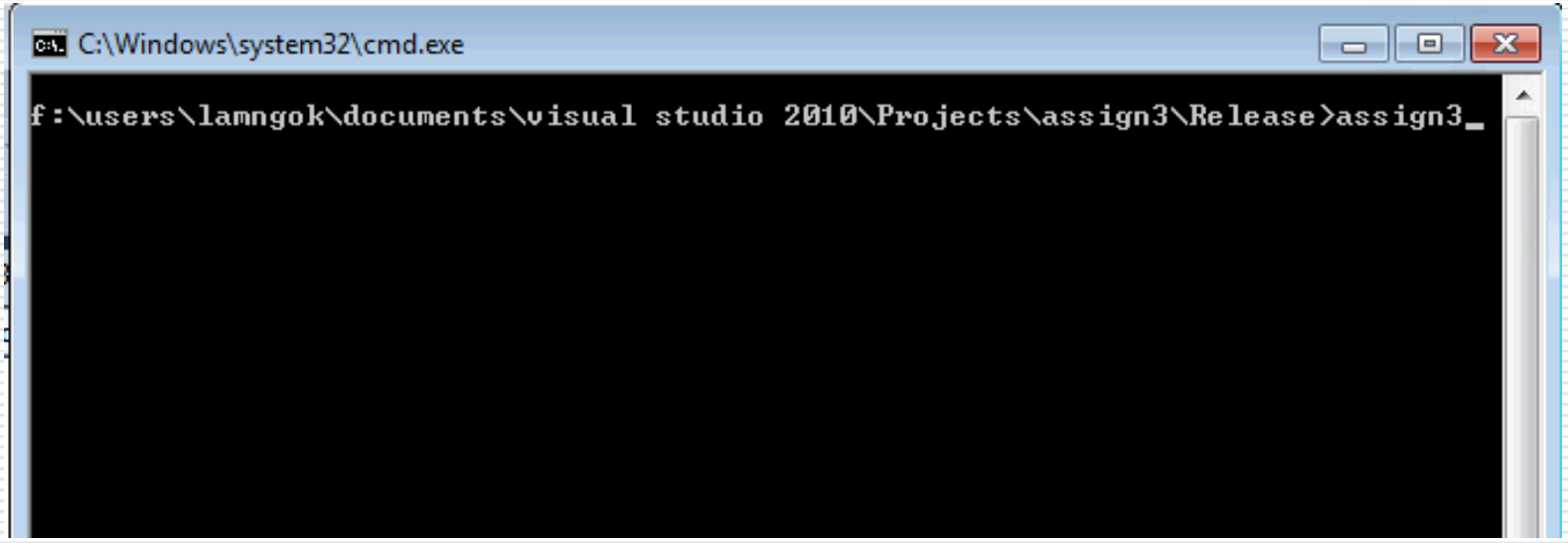
Working with Visual Studio 2010 8

- Open a Windows command window (type "cmd" at "run…")
- Change to the directory where the executable is located:



Working with Visual Studio 2010 9

- Then run the executable from the path.

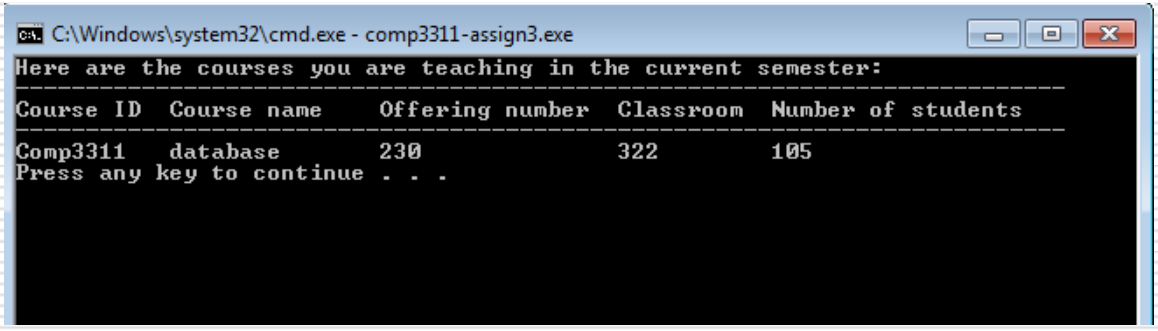


The assignment 4 skeleton program

- You can download the skeleton program from: https://course.cse.ust.hk/comp3311
- There are altogether of 9 places to fill in your code (labeled "TODO #"),
- You can MODIFY any contents inside assign3.cpp,
- You can INCLUDE any standard libraries,
- Your program MUST be compiled and tested to run on a CS Lab machine,
- If we can not compile your code, you will have zero mark for the project!
- You should submit ONLY the **assign4.cpp** file.

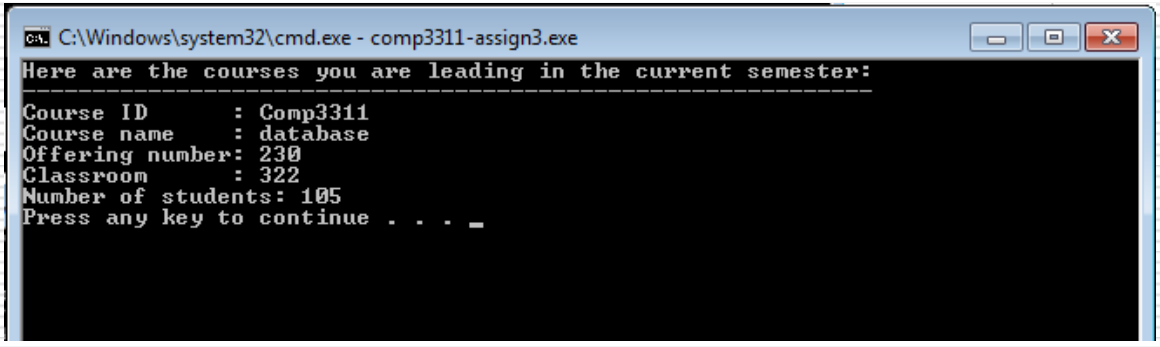
TODO 1

- TODO 1: display course information of the courses the Prof is teaching in the current semester (his/her staff ID value "staff_id" is a global variable).



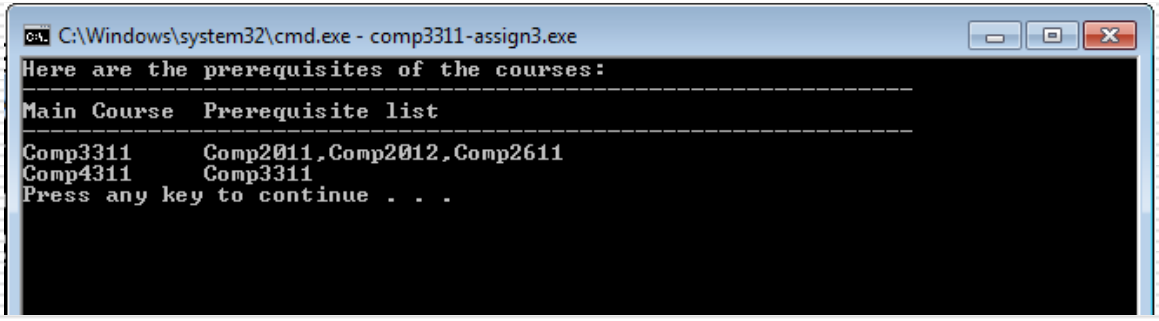
TODO 2

- TODO 2: display course information of the courses the Prof is leading in the current semester.



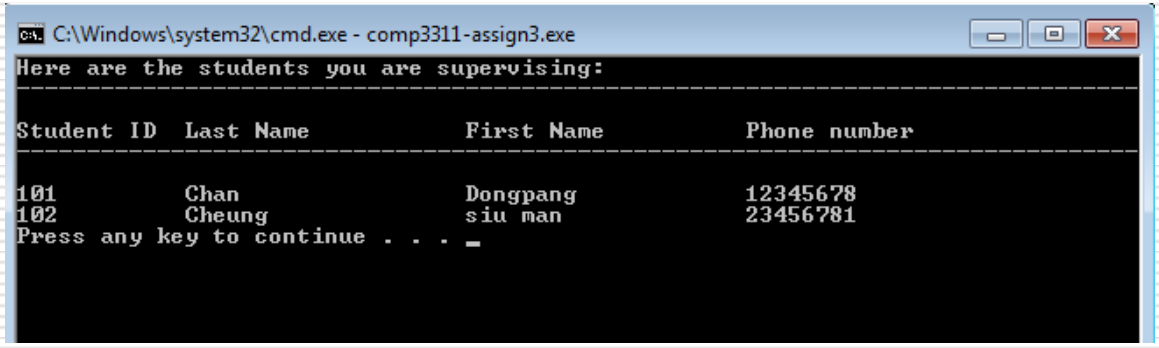
TODO 3

- TODO 3: Show the prerequisites (course_IDs) of all the main courses.



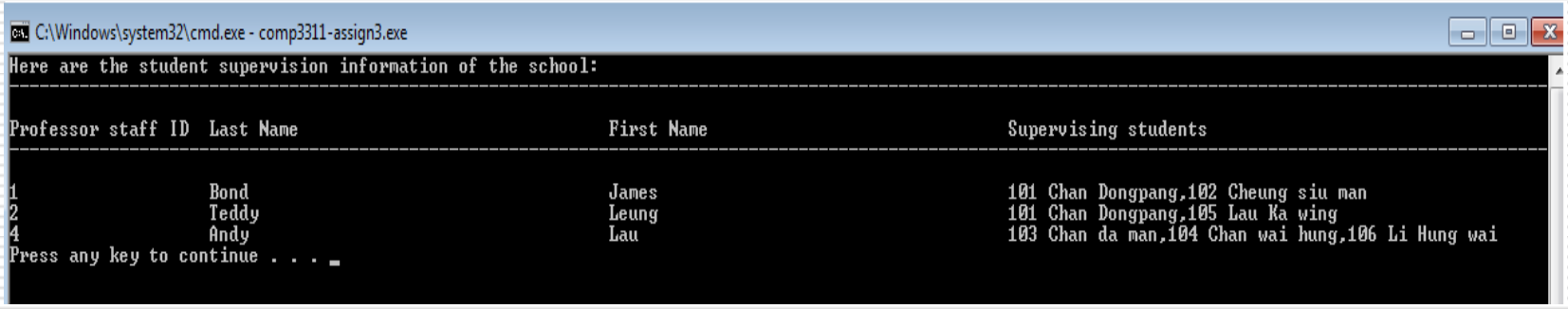
TODO 4

- TODO 4: display all the students supervised by the Prof.



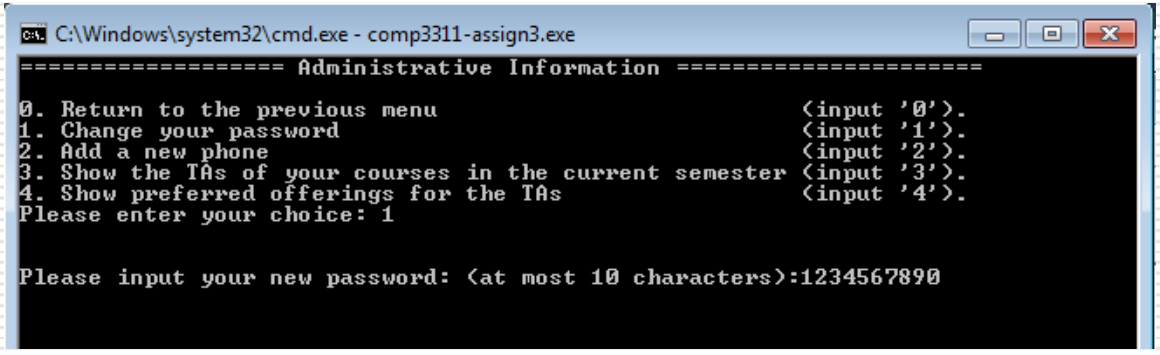
TODO 5

- TODO 5: show supervising information of all the profs.



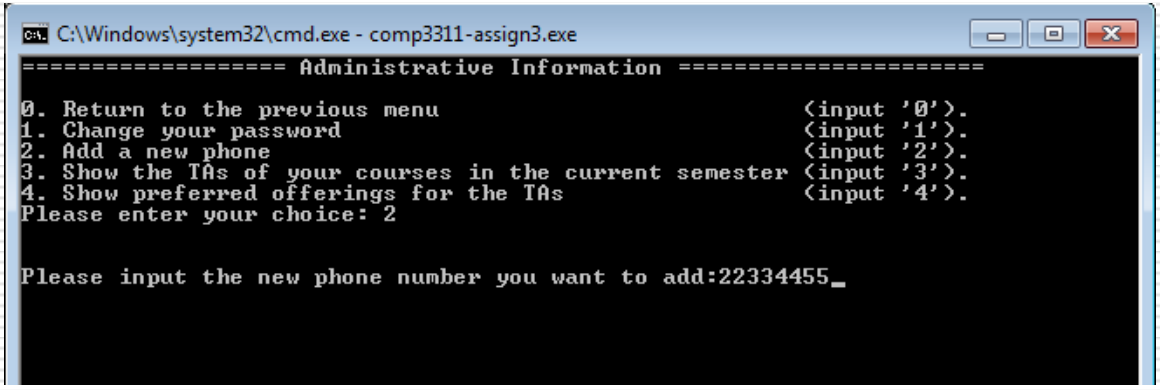
TODO 6

- TODO 6: Change the password for the Prof.



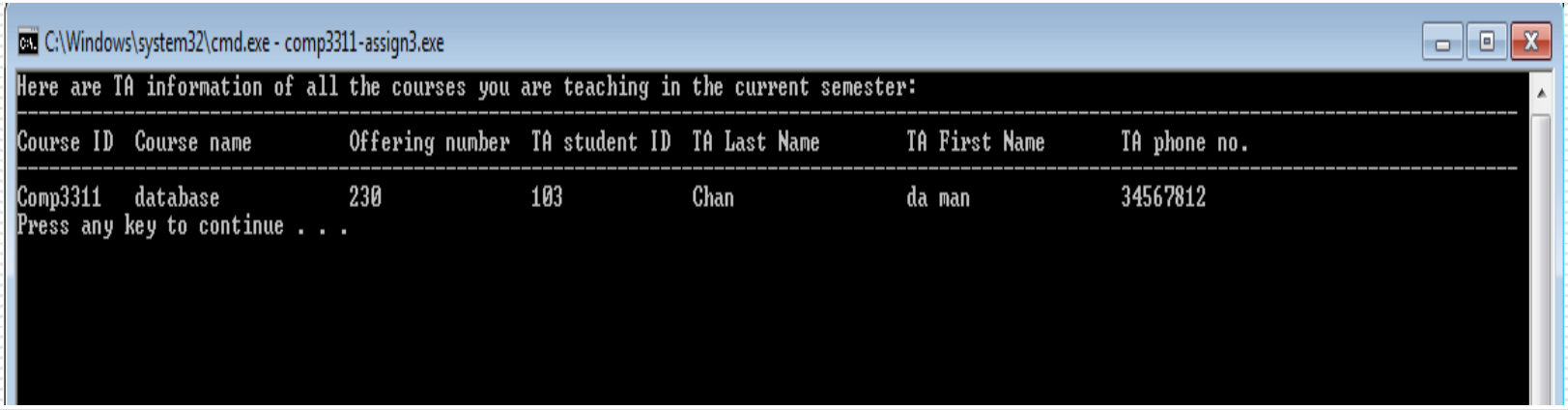
TODO 7

- TODO 7: add a new phone number for the Prof.



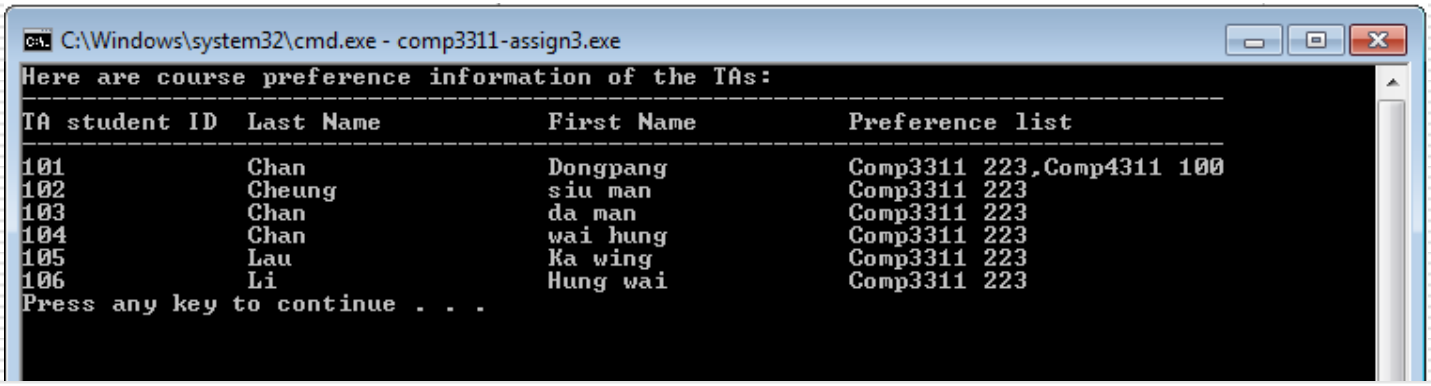
TODO 8

- TODO 8: shows all the TAs working with the Prof in the current semester.



TODO 9

- TODO 9: show the offering preference information of all the TAs.



The provided Printing Functions 1

- The printRecordIntoCol() function prints the query result into a single column.
- You need to have "executed" the SQL query first.
- Then you pass the statement handle to printRecordIntoCol(), it will print the result automatically.
- Always remember to free the statement handle in a function before the function returns.

**Warning : DO NOT "fetch" the result, if you are using printRecordIntoCol(). The function will fetch itself.*

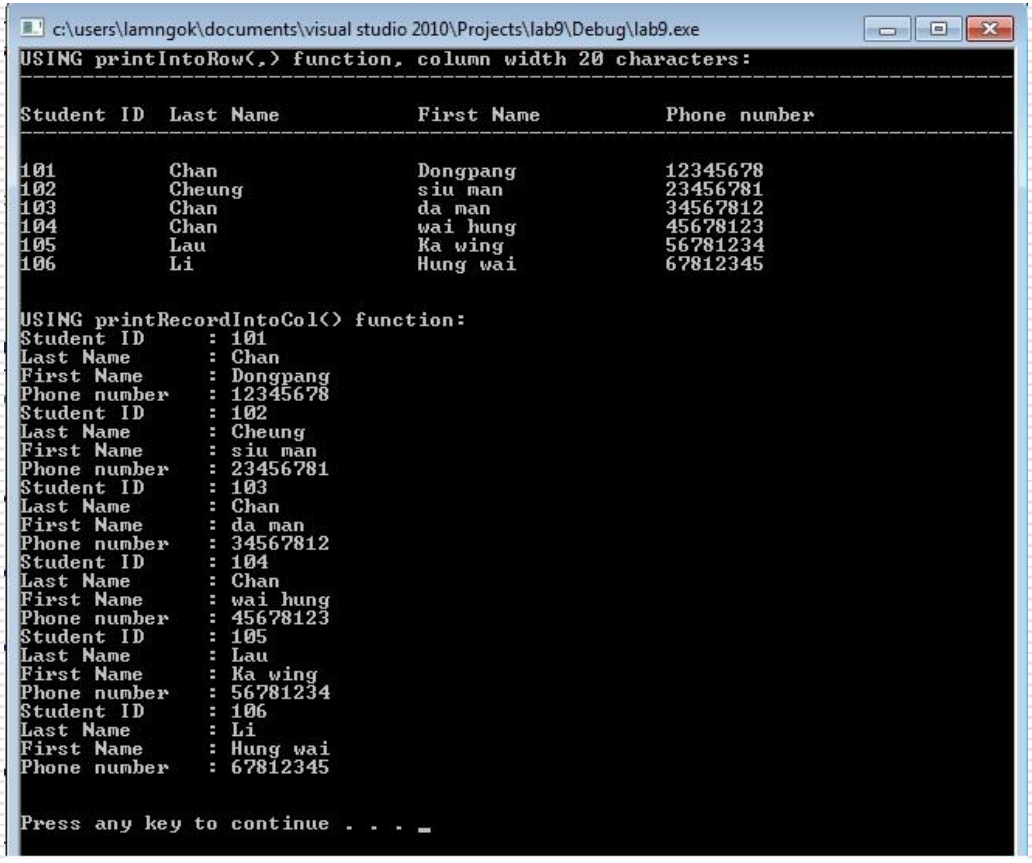
The provided Printing Functions 2

- The printIntoRow () is a similar function that prints the query results into rows.
- You can specify the maximum column width for each column of the result.
- You need to have "executed" the SQL query first.
- Then you pass the statement handle and the maximum column width (integer) to printIntoRow(), it will print the result automatically.
- You can download the following example program to see how they work:

  https://course.cse.ust.hk/comp3311/labs/lab9.cpp

**Warning : DO NOT "fetch" the result, if you are using printIntoRow(). The function will fetch itself.*

Sample Execution of the two provieded functions



Conclusions

- We covered the following topics in this lab:
  - building the database for assignment 4,
  - setting up the data source,
  - compiling the ODBC/C++ program,
  - the TODOs, and the two provided function.