Access DB2@Uwaterloo

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Account Setup
Account Information

What you need:

- Your CS student computing account has already been granted access if you registered for this course
- You do **not** need an extra DB2 account/pwd
- You can install DB2 on your own machine, but we will grade assignments **only** in the university environment as given in this tutorial.
You should use the following host:
linux028.student.cs.uwaterloo.ca

Log on the server (substitute uid with your user id)
ssh uid@linux028.student.cs.uwaterloo.ca

Having a login problem? reset your account password:
https://www.student.cs.uwaterloo.ca/password
You need to run a script to set environment vars, etc.

Determine the shell before running the script

- Type `ps -p $$`
- The last column of the result is the shell being used

If the shell is `csh` or `tcsh`, run:

```
source ~cs348/public/db2cshrc
```

If it is `sh` or `bash`, run (note the dot):

```
. ~cs348/public/db2profile
```
You have to set up DB2 every time you log in the host, yet you can modify your profile to avoid it.

- For csh or tcsh users, add to the file `.cshrc` `source ~cs348/public/db2cshrc`
- For sh or bash users, add to the file `.profile` `. ~cs348/public/db2profile`

Where to add? right after this comment in the appropriate file:

```bash
## Set any other environment variables that are *always* needed here.
## Variables used only by interactive programs should be set in the
## interactive section, the last section in this file.
```
Interactive Mode
After configuration, type `db2` to enter the interactive mode.

```
linux028:~# db2
(c) Copyright IBM Corporation 1993,2007
Command Line Processor for DB2 Client 9.7.4

You can issue database manager commands and SQL statements from the command
prompt. For example:
  db2 => connect to sample
  db2 => bind sample.bnd

For general help, type: ?.
For command help, type: ? command, where command can be
the first few keywords of a database manager command. For example:
  ? CATALOG DATABASE for help on the CATALOG DATABASE command
  ? CATALOG      for help on all of the CATALOG commands.

To exit db2 interactive mode, type QUIT at the command prompt. Outside
interactive mode, all commands must be prefixed with 'db2'.
To list the current command option settings, type LIST COMMAND OPTIONS.

For more detailed help, refer to the Online Reference Manual.
```

```
Always type your commands after `db2 =>`

First of all, connect to the database cs348, type

```
connect to cs348
```

```
db2 => connect to cs348

Database Connection Information

  Database server     = DB2/LINUXx8664 9.7.4
  SQL authorization ID = J55M4U
  Local database alias = CS348
```

Create a table:

```
CREATE TABLE student(sid SMALLINT NOT NULL, name VARCHAR(25))
```
Interactive DB2

Account Setup  Interactive Mode  Shell Mode

- List tables:
  ```
  db2 => ? list tables
  LIST TABLES [FOR {USER | ALL | SYSTEM | SCHEMA schema-name}] [SHOW DETAIL]
  ```
  
  LIST TABLES
  LIST TABLES FOR SCHEMA your_uid
  LIST TABLES FOR SCHEMA CS348

- View table schema:
  DESCRIBE TABLE student

- Insert data:
  INSERT INTO student
  VALUES (12, 'Marvin Minsky')
Interactive DB2

Account Setup  Interactive Mode  Shell Mode

- Querying using SQL, e.g.:
  SELECT * FROM student

- Do not prefix table names in the assignments

- To exit the interactive mode
  - Disconnect the database: connect reset
  - Then: quit

- Needs help? type in interactive mode:
  db2=> ? options/commands/error code/etc.
Shell Mode
You can use DB2 in UNIX Shell on the server, too:
1. Add `db2` before every command
2. Double quotes required for SQL queries, see below.

```
linux028:~> db2 connect to cs348

Database Connection Information

Database server = DB2/LINUXX8664 9.7.4
SQL authorization ID = J55WU
Local database alias = CS348

linux028:~> db2 "select * from student"

SNUM  SNAME       YEAR
---  -------       ----
 1  Jones, Fred   4
 2  student2      3
 3  student3      3
 4  student4      4
 5  student5      3
 6  student6      4
 7  student7      2
1234 student1234 3

8 record(s) selected.
```
SQL Scripts

Account Setup  Interactive Mode  Shell Mode

- You can batch process SQL commands in a file in the shell mode: `db2 -f your_file`
  - You can also save output to files, e.g., `db2 -r out.txt`

- You can break a long SQL stmt into several lines for readability
- Each line must end with the backslash `\`, then immediately a line break (no space after the backslash)

Example:
```
SELECT student.snum, student.sname,\n     student.year
FROM student
```
Various ways to upload a file:

- Use command `scp`
- Use clients, e.g., WinSCP for Windows users
- Odyssey: https://www.student.cs.uwaterloo.ca/odyssey-local
- Nexus: https://www.nexusmail.uwaterloo.ca
  click on File Manage; UW FTP server; enter the server
- ...