# Tutorial 6
## SQL

The sample code and databases for this tutorial can be accessed at the following URL:

https://github.com/uwi-info2180/info2180-sql

Take a look at some of the sample queries that is in the *sample-queries.sql* file.

Also take a look at the *index.php* and *index.view.php* files to see how to connect to and query a database using PDO (PHP Data Objects) library and how to output the data from the query.

## Discussion Questions

1.  What is SQL?
2.  What is SQL used for?
3.  A *database* contains *tables*, data is stored in those tables. A table is a collection of related data which consist of *columns* (fields/attributes) and *rows* (records).
4.  Name some different types of databases?
5.  How do you retrieve data from a database table?
6.  How do you insert data into a table?
7.  How do you update data in a table?
8.  How do you delete data in a table?
9.  When inserting records into a table, what is the benefit of stating the column names as opposed to not stating them?

    e.g.
    ```
    INSERT INTO students VALUES(241, 'Tom', 'tom@example.com',
    'awesome');
    INSERT INTO students (id, name, email, password) VALUES(689, 'Mary',
    'mary.jane@test.com', 'password123');
    ```

10. How would you connect to a MySQL database using PDO?
11. What are prepared statements and how can they help to combat SQL Injection attacks? Hint: See the following link http://www.w3schools.com/php/

php_mysql_prepared_statements.asp also view the PHP documentation http://php.net/manual/en/pdo.prepared-statements.php

12. What are SQL Joins?