Quiz 1

_____
Initial Score (out of 100)

_____   _____
                    Name   **Student ID**

In accordance with both the letter and spirit of the Honor Code, I have neither given nor received assistance on this examination.

Signature _____

Make sure to write succinct answers to each question.

Question 1: (15 points)
For each of the statements, mark **True ("T")** or **False ("F")**:

1. _____ The "executeUpdate()" function can be used to send a SQL statement to update the specified database.
2. _____ The HTTP protocol is a stateful protocol.
3. _____ In JDBC, the user can set a time limit on how long the client can wait for a query to return.
4. _____ The JDBC driver for a database should be provided by the vendor of the operating system.
5. _____ A query result cursor allows the JDBC client to iterate through the results of a query.

Question 2: (15 points)
GET and POST are two commonly used methods for an HTTP request/response between a client and a server. For each of the following properties, mark the corresponding method(s) with this property ("**GET", "POST", or "Both"**).

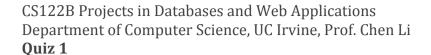| Property	GET/POST
The request can be cached	
The request should be used when dealing with sensitive data.	
The request has a length restriction.	
The request should be used only to retrieve data.	
The request cannot be bookmarked.	

Question 3: (15 points)
In the following table, fill in the "Technique" column using one the three options:
JSP, Java Servlet, Javascript

Property	Technique
A Java program running on the Tomcat server.	
Combines static HTML text with Java servlet code	
Code running inside a Web browser.	

Question 4: (15 points)
 List two possible ways to implement pagination in your Fabflix project, as discussed in class. For each of them, discuss its two advantages and two disadvantages.

Question 5: (10 points)
Write down the basic steps for using JDBC to query a DBMS system.

Question 6: (10 points)
Explain how a session in Java servlet is implemented "under the hood" between a Web browser and the Tomcat Web server as discussed in class.

Question 7: (10 points)
Suppose you want to add a "Recently Clicked" feature to your Fabflix project. In other words, you want to enable a user to see a list of movies that he/she has clicked on in the past two months. How do you implement this feature?

Question 8: (10 points)
What is the benefit from enabling MySQL logging?

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Question 1: (15 points)

1. ____**T**___ (3 points)
2. ____**F**___ (3 points)
3. ____**T**___ (3 points)
4. ____**F**___ (3 points)
5. ____**T**___ (3 points)

Question 2: (15 points)

GET/POST
GET (3 points)
POST (3 points)
GET (3 points)
GET (3 points)
POST (3 points)

Question 3: (15 points)

Technique
Java Servlet (5 points)
JSP (5 points)
Javascript (5 points)

Question 4: (15 points)
    Method 1, using SQL "offset limit"; (4 points)
        + Advantages: Less data for each query to retrieve (or up to date data); Not much memory needed at the Web server (2 points)
        - Disadvantages: More queries to DB; Longer query delay (2 points)

    Method 2, using Web session caching to store the results of a single query; (4 points)
        + Advantages: reduces the overhead on the DB server, Increase response time(2 points)
        - Disadvantages: Memory needed at the Web server(1 point)

Question 5: (10 points)
    (The student is allowed to group some of these steps into one step.)
    Load the driver (1.5 points)
    Define the Connection URL (1.5 points)
    Establish the Connection (1.5 points)
    Create a Statement object (1.5 points)
    Execute a query (1.5 points)

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      Process the result (1.5 points)
      Close the connection (1 point)

<u>**Question 6:**</u> (10 points)
      The first time the browser sends a request to the server(3 points)**, the server generates a cookie and sends it back to the client**(3 points)**. In each following request, the client needs to attach the cookie to identify itself**(4 points)**.**

<u>**Question 7:**</u> (10 points)
      The server maintains a table to store all movie clicks of each user(4 points)**. Each time a user clicks a movie link, the web server program adds a record to the table**(3 points)**. When the web page is accessed, the web server queries the database to get the recent views and display them to the user**(3 points)**.**

<u>**Question 8:**</u> (10 points)
      The benefit from enabling MySQL logging is to monitor every SQL query that hits the database(5 points)**, in order to debug and improve the performance**(5 points)**.**