

BSCCS2001: Graded with Solutions
Week 7

1. Identify the SQL statement(s) that can act as SQL Injections to retrieve all the user IDs, names and passwords from the table *users* in the absence of any security for the database. [MSQ: 2 points]

- ☐ SELECT userid, name, password FROM *users*
WHERE userid = 160 or 1<>1;
- ☐ SELECT userid, name, password FROM *users*
WHERE userid IS 160 or 1=1;
- ✓ SELECT userid, name, password FROM *users*
WHERE userid = 160 or 1=1;
- ✓ SELECT userid, name, password FROM *users*
WHERE userid = 160 or 99=99;

Solution: SQL injection is a web security vulnerability that allows an attacker to interfere with the queries that an application makes to its database. It generally allows an attacker to view data that they are not normally able to retrieve. It is one of the most common web hacking techniques.

The SQL Injection statements in option 3 and 4 are valid, since anything preceded by an obvious TRUE statement such as [1=1/99=99] and joined by OR, is always TRUE. And hence the hacker might get access to all the specified data from the *users* table in the absence of any web security for database.

2. Considering the features of web apps, native apps and hybrid apps, select the correct statement(s). [MSQ: 2 points]

- ☐ Developing a native app is cheaper than developing a hybrid app as it can be built for cross-platforms.
- ✓ ☒ Native apps and hybrid apps are available on the App Store and Google Play.
- ✓ ☒ Web apps are actually websites that open in your smartphone, PC, tablet, etc. with the help of a web browser.
- ☐ Native apps are independent of the operating system on which they run.

Solution:

- Hybrid apps have better scalability. Once you have built for one platform, you can launch on another platform with ease. Hence, it is cheaper to develop a hybrid app than a native app.
- Native apps are heavily dependent on the operating system as they are platform specific.

3. From among the following, select the correct statement(s) about sessions and cookies.

1. A server saves information about cookies it issued, and can use it when serving a request.
2. Cookies are created and shared between a server and a browser with the help of an HTTP header.
3. The duration for which a cookie is stored may be permanent.
4. Sessions are client-side files, whereas cookies are server-side files.

[MCQ: 2 points]

✓ Only 1, 2 and 3 are correct

- ☐ Only statement 2 and 3 are correct
- ☐ Only statement 1 and 4 are correct
- ☐ All the statements are correct

Solution: Statement 1, 2 and 3 are factual statements about cookies and sessions. Statement 4: Sessions are server-side files whereas, cookies are client-side files.

4. Select the correct statement(s) about embedded SQL: [MSQ: 2 points]
- ✓ 'EXEC SQL' statement is used to identify embedded SQL request to the pre-processor.
 - ✓ Embedded SQL combines high-level language statements, like those from Java, with SQL.
 - ☐ Embedded SQL occurs only in procedures and functions.
 - ☐ Embedded SQL are SQL statements that occur only in triggers.

Solution: All are factual statements about embedded SQL.

5. Which of the following layers of a web application can be designed using HTML? [MSQ: 2 points]

✓ Presentation layer

☐ Business logic layer

☐ Application layer

☐ Data access layer

Solution: HTML is used to create a graphical user interface (GUI) to interact with the users, which is a part of presentation layer.

6. Which of the following is not true about an HTTP web server? [MCQ: 2 points]
- ☐ If the document name in a URL identifies an executable program, the HTTP web server executes the program.
 - ☐ An HTTP web server accepts requests from several web clients.
 - ☒ An HTTP web server is mainly responsible for creating a graphical user interface.
 - ☐ HTTP protocol is used for communication with web server.

Solution: An HTTP web server receives the web requests from web client and the protocol used for the communication is HTTP.

The document name in a URL may identify an executable program, that, when run, generates an HTML document.

However, the graphical user interface is a part of presentation layer. In case of web application, the graphical user interface is provided by the web browser.

7. Which among the following is not the component of three-layer web architecture? [MCQ: 2 points]

✓ Graphical User Interface (GUI)

☐ Web server

☐ Application server

☐ Database server

Solution: The three components of three-layer web architecture are: 1) web server, 2) application server, and 3) database server.

8. App development has 4 phases:

1. data modeling,
2. process modeling,
3. modeling, and testing & turnover,
4. business modeling.

Identify the correct sequence in which the phases take place.

[MCQ: 2 points]

- ☐ 1-2-3-4
- ☐ 4-3-2-1
- ☐ 2-1-4-3
- ☒ 4-1-2-3

Solution: App development has 4 phases: business modeling, data modeling, process modeling, and testing & turnover.

9. Consider the following caching facilities:

1. Caching of JDBC connections between servlet requests
2. Caching of pages by Web proxy
3. Caching of generated HTML
4. Caching results of database queries

Let A: caching at server site, and B: caching at client network.

Match the correct caching facility with A and B.

[MCQ: 2 points]

☐ A:1, 2; B: 3, 4

☐ A:1, 2, 3; B: 4

☐ A:1; B: 2, 3, 4

☒ A:1, 3, 4; B: 2

Solution: Please refer to slide: 35.10

10. Which of the following is/are advantages of using Java Server Pages?

[MSQ: 2 points]

- ✓ **Java Server Pages are platform independent and portable.**
- ☐ Java Server Pages are executed at client side and so, are extremely useful for input validation by avoiding many round trips.
- ☐ Java Server Pages can access client-side resources.
- ✓ **Java Server Pages makes it more convenient to write and to modify regular HTML than Servlets, which needs to have a million println statements that generate the HTML.**

Solution: Advantages of using Java Server Pages (JSP) are:

- JSP is platform independent and portable.
- JSP is a servlet, but it is more convenient to write and to modify regular HTML than to have a million println statements used in Servlets that generate the HTML.
- Java Server Pages are executed by the web server before the web server sends the HTTP response. It can access server-side resources like databases, catalogues etc.

However, Java Server Pages do not execute at client-end.