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## CS506- Web Design and Development Solved Subjective From Midterm Papers

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### CS506 Midterm papers

#### 1. Why we use serialization, 2marks

**Answer:- (Page 219)**

Used to send an object to a stream

#### 2. Differentiate between array and ArrayList . 2marks

**Answer:- (Page 61)**

It's like a resizable array. ArrayList actually comes as a replacement the old "Vector" collection. As we add or remove elements into or from it, it grows or shrinks over time.

#### 3. Write the syntax to load the oracle driver . 2marks

**Answer:- (Page 152)**

Class.forName("oracle.jdbc.driver.OracleDriver");

#### 4. What will happen if an image drawn out of the window coordinates? . 5 marks

#### 5. How we process the results of sql query. 5 marks

**Answer:- (Page 153)**

##### Process Results of the Query

- ❖ The ResultSet provides various getXXX methods that takes a column index or name and returns the data
- ❖ The ResultSet maintains the data in the form tables (rows & columns)
- ❖ First row has index 1, not 0.
- ❖ The next method of ResultSet returns true or false depending upon whether the next row is available (exist) or not and moves the cursor
- ❖ Always remember to call next() method at-least once
- ❖ To retrieve the data of the column of the current row you need to use the various getters provided by the ResultSet.
- ❖ For example, the following code snippet will iterate over the whole ResultSet and illustrates the usage of getters methods

```
while ( rs.next() ){  
//by using column name  
String name = rs.getString("columnName");
```

```
// or by using column index  
String name = rs.getString(1);}
```

**6. How a window handle its own events. 3marks**

**Answer:-** [Click here for Detail](#)

Using listeners is the preferred way of handling events since it is easier than enabling events directly for an object, and the code is clearer. Nonetheless, we should take a look at how you deal with events after calling `enableEvents()`.

**Diff b/w array n arraylist? 2marks**

**Answer:-** rep

**automatic reading in serialization?3marks**

**Answer:-** (Page 220)

System knows how to read data from stream and re-create object in memory.

The recreated object is type of “Object” therefore Down-casting is required to convert it into actual type.

**GUI drivers? 3marks**

**Answer:-** [Click here for Detail](#)

Java GUI Drivers

- ❖ Several well-developed open-source tools
- ❖ Some are more for unit testing GUI components. Others are for system or acceptance testing.
- ❖ Use various methods for triggering controls:
  - Use Robot to generate native OS events
  - Generate AWT events
  - Drive control components directly

**What is advantage of collection over array?[2]**

**Answer:-** (Page 60)

Advantage of a collection over an array is that you don't need to know the eventual size of the collection in order to add objects to it.

**Which method of ResultSetMetaData objective is used to return the suggested value to column label for printout?[2]**

**Answer:-** (Page 175)

The `getColumnLabel()` method returns the suggested column label for printouts

**If a method is declared in protected where it can be accessible?[2]**

**Answer:-**

It can be accessible to only to the class to which they belong, and any subclasses

**What will happen if class implemented WindowListner interface and provided its definition of only one method? [3]**

**Answer:-**

To handle window events, we need to implement “WindowListner” interface.

To handle window events, we need to implement “WindowListner” interface.

“WindowListner” interface contains 7 methods We require only one i.e. `windowClosing`

But, We have to provide definitions of all methods to make our class a concrete class, if don't do this we can not create its object.

**State the name of the class with which Window like container can be declared for GUI and animation based Web application. And explain it. [3]**

**Write down the steps of make Client on Java Client Server application. [5]**

**Answer:- (Page 175)**

### **Steps – To Make a Simple Client**

To make a client, process can be split into 5 steps. These are:

#### **1. Import required package**

You have to import two packages

```
. java.net.*;  
. java.io.*;
```

#### **2. Connect / Open a Socket with Server**

Create a client socket (communication socket) Socket s =  
new Socket("serverName", serverPort) ;

**serverName :** Name or address of the server you wanted to connect such as  
http://www.google.com or 172.2.4.98 etc. For testing if you are running  
client and server on the same machine then you can specify "localhost" as  
the name of server

**serverPort :** Port number you want to connect to

The scheme is very similar to our home address and then phone number.

#### **3. Get I/O Streams of Socket**

Get input & output streams connected to your socket

For reading data from socket As stated above, a socket has input stream attached to it.

```
InputStream is = s.getInputStream();
```

// now to convert byte oriented stream into character oriented buffered reader // we use intermediary  
stream that helps in achieving above stated purpose

```
InputStreamReader isr= new InputStreamReader(is); BufferedReader br = new BufferedReader(isr);
```

For writing data to socket

A socket has also output stream attached to it. Therefore,

```
OutputStream os = s.getOutputStream();
```

// now to convert byte oriented stream into character oriented print writer

// here we will not use any intermediary stream because PrintWriter constructor // directly

accepts an object of OutputStream  
PrintWriter pw = new PrintWriter(os, true);

Here notice that true is also passed to so that output buffer will flush.

#### 4. Send / Receive Message

Once you have the streams, sending or receiving messages isn't a big task. It's very much similar to the way you did with files

- . To send messages
- . To read messages

#### 5. Close Socket

```
pw.println("hello world");  
String recMsg = br.readLine();
```

Don't forget to close the socket, when you finished your work s.close();

**What does it mean that a method or class is abstract? [5]**

**Answer:- (Page 96)**

Abstract classes are used to define only part of an implementation. Because, information is not complete therefore an abstract class cannot be instantiate. However, like regular classes, they can also contain instance variables and methods that are full implemented. The class that inherits from abstract class is responsible to provide details.

Any class with an abstract method (a method has no implementation similar to pure virtual function in C++) must be declared abstract, yet you can declare a class abstract that has no abstract method.

If subclass overrides all abstract methods of the super class, than it becomes a concrete (a class whose object can be instantiate) class otherwise we have to declare it as abstract or we can not compile it.

The most important aspect of abstract class is that reference of an abstract class can point to the object of concrete classes.

## IDTERM EXAMINATION

**Q1:- WHY IS DIRECTLY PAINTCOMPONENT () METHOD NOT RECOMMENDED? Marks ( 2 )**

**Answer:- (Page 191 )**

Painting is managed by system, so calling paintComponent() directly is not recommended at all. Similarly calling paint( ) method is also not recommended. Why? Because such code may be invoked at times when it is not appropriate to paint -- for instance, before the component is visible or has access to a valid Graphics object.

**Q2:-WRITE A DIFFERENCE BETWEEN EXECUTE QUERY SQL AND UPDATE QUERY SQL METHOD? Marks ( 2)**

**Answer:- (Page 152 )**

**executeQuery(sql) method**

- ❖ Used for SQL SELECT queries
- ❖ Returns the ResultSet object that contains the results of the query and can be used to access the query results.

```
String sql = "SELECT * from sometable";ResultSet rs =stmt.executeQuery(sql);
```

**executeUpdate(sql)method**

- ❖ This method is used for executing an update statement like INSERT, UPDATE or DELETE
- ❖ Returns an integer value representing the number of rows updated

```
String sql = "INSERT INTO tablename " + "(columnNames) Values (values)" ;  
int count = stmt.executeUpdate(sql);
```

**Q3:- IS ITERATOR CLASS OR INTERFACE? WHAT IS ITS USE? Marks ( 2)**

**Answer:- [Click here for Detail](#)**

Iterator is an interface which is used to step through the elements of a Collection.

**Q4:- DISCUSE THREE METHOD OF RESULTSET METADATA? Marks ( 3)**

**Answer:- (Page 175)**

**Useful ResultSetMetaData methods**

**getColumnCount ( )**

– Returns the number of columns in the result set

**getColumnDisplaySize (int)**

Returns the maximum width of the specified column in characters

**getColumnType(int)**

Returns the SQL type for the column to compare against types in java.sql.Types

**Q5:-HOW GUI COMPONENT HANDLES ITS OWN EVENTS? Marks ( 3 )**

**Answer:- [Click here for Detail](#)**

A component can handle its own events by implementing the required event-listener interface and adding itself as its own event listener.

**Q6:\_ WHAT IS PORT? HOW CAN IT USEFULL IN NETWORK? Marks ( 5)**

**Answer:- (Page 211)**

It is a transport address to which processes can listen for connections request.

There are different protocols available to communicate such as TCP and UDP. We will use TCP for programming in this handout.

**Q7:- WRITE FIVE TYPES OPERATORS USED IN SLECTION STATEMENT? Marks ( 5)**

## **MIDTERM EXAMINATION**

**how do we load a driver and how do we define a connection for URL and JDBC (5)**

**Answer:- (Page 152 )**

**2. Load Driver**

- ❖ Need to load suitable driver for underlying database.
- ❖ Different drivers & types for different databases are available.

- ❖ For MS Access, load following driver available with j2se.

`Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");`

- ❖ For Oracle, load the following driver. You have to download it explicitly.

`Class.forName("oracle.jdbc.driver.OracleDriver");`

**Define Connection URL**

To get a connection, we need to specify the URL of a database (Actually we need to specify the address of the database which is in the form of URL)

As we are using Microsoft Access database and we have loaded a JDBC-ODBC driver. Using JDBC-ODBC driver requires a DSN which we have created earlier and named it personDSN. So the URL of the database will be

**What is the difference between Applet and Application (5)**

**Answer:-** [Click here for Detail](#)

Applets as previously described, are the small programs while applications are larger programs. Applets don't have the main method while in an application execution starts with the main method. Applets can run in our browser's window or in an appletviewer. To run the applet in an appletviewer will be an advantage for debugging. Applets are designed for the client site programming purpose while the applications don't have such type of criteria.

Applet is the powerful tools because it covers half of the java language picture. Java applets are the best way of creating the programs in java. There are a less number of java programmers that have the hands on experience on java applications. This is not the deficiency of java applications but the global utilization of internet. It doesn't mean that the java applications don't have the place. Both (Applets and the java applications) have the same importance at their own places. Applications are also the platform independent as well as byte oriented just like the applets.

Applets are designed just for handling the client site problems. while the java applications are designed to work with the client as well as server. Applications are designed to exist in a secure area. While the applets are typically used.

**Can an anonymous class be declared as implementing an inheritance and extending a class (3)**

**Answer:-** [Click here for Detail](#)

No. An anonymous class can extend a class or implement an interface, but it cannot be declared to do both

**Difference between serialization and deserialization (3)**

**Answer:-** [Click here for Detail](#)

serialization - Turn data into a stream of bytes

deserialization - Turn a stream of bytes back into a copy of the original object.

**Difference between character oriented and byte oriented streams (2)**

**Answer:-** [Click here For Detail](#)

Byte stream access the file byte by byte. A byte stream is suitable for any kind of file, however not quite appropriate for text files. For example, if the file is using a Unicode encoding and a character is represented with two bytes, the byte stream will treat these separately and you will need to do the conversion yourself. A character stream will read a file character by character. A character stream needs to be given the file's encoding in order to work properly.

**Why is executeUpdate() used (2)**

**Answer:-** (Page 156)

Used to execute for INSERT, UPDATE, or DELETE SQL statements.

This method returns the number of rows that were affected in the database.

**Name component subclasses that support painting (2)**

**Answer:-** [Click here for Detail](#)

The Canvas, Frame, Panel, and Applet classes support painting.

## MIDTERM EXAMINATION

**1. Write Different between abstract class and interface class? 2 marks**

**Answer:-** [Click here for Detail](#)

Interfaces are essentially having all method prototypes no definition but Abstract class can contain method definitions also.

When the sub-types behavior is totally different then you use an interface, when the sub-types behavior is partially common and different with respect to the super type an abstract class is used.

**2. Write 4 types of JDBC Driver. 2 marks**

**Answer:-** (Page 180)

Type – 1: JDBC – ODBC Bridge

Type 2: Native – API/partly Java driver

Type 3: Net – protocol/all–Java driver

Type 4: Native – protocol/all–Java driver

### 3. If a method is declared as protected where can be the method accessed? 2 marks

**Answer:- (Page 41)**

Accessible only to the class itself and to its subclasses or other classes in the same package.

### 4. How can a GUI component handle its own events? 3 marks

**Answer:- rep**

### 5. What Difference between serialization and de-serialization? 3 marks

**Answer:- rep**

### 6. How can we prevent serialization? 5 marks

**Answer:- (Page 225 )**

- ❖ Often there is no need to serialize sockets, streams & DB connections etc because they do not represent the state of object, rather connections to external resources
- ❖ To do so, **transient** keyword is used to mark a field that should not be serialized
- ❖ So we can mark them as,
  - o **transient** Socket s;
  - o **transient** OutputStream os;
  - o **transient** Connection con;
- ❖ Transient fields are returned as null on reading

### 7. Why do we use prepared Statement object? 5 marks

**Answer:- (Page 159 )**

The PreparedStatement are used for executing precompiled SQL statements and passing in different parameters to it.

- ❖ PreparedStatement object differs from Statement object as that it is used to create a statement in standard form that is sent to database for compilation, before actually being used.
- ❖ Each time you use it, you simply replace some of the marked parameters (?) using some setter methods.
- ❖ We can create PreparedStatement object by using prepareStatement method of the connection class.

The SQL query is passed to this method as an argument as shown below.

```
PreparedStatement pstmt = con.prepareStatement ("UPDATE tableName SET columnName = ? " +  
"WHERE columnName=?");
```

- ❖ Notices that we used marked parameters (?) in query. We will replace them later on by using various setter methods.
- ❖ If we want to replace first? With String value, we use setString method and to replace second? With int value, we use setInt method. This is shown in the following code snippet.

```
pstmt.setString (1 , stringValue);  
pstmt.setInt (2 , intValue)
```



## MIDTERM EXAMINATION

### ♣ 4 stages of applet cycles

**Answer:- (Page 201 )**

- ❖ It can **initialize** itself.
- ❖ It can **start** running.
- ❖ It can **stop** running.
- ❖ It can perform a **final cleanup**, in preparation for being unloaded

### ♣ What will happen if a class implements Windowlistener Interface and it does not provide definitions of all methods.

**Answer:- rep**

### ♣ Methods to execute SQL query?

**Answer:- rep**

### ♣ What does mean by it if a class or method is abstract? (5 marks)

**Answer:- rep**

### ♣ Diff b/w Input/output streams class hierarchy and Read/Write class hierarchy?

**Answer:-** [Click here for Detail](#)

The Reader/Writer class hierarchy is character-oriented, and the InputStream/OutputStream class hierarchy is byte-oriented.

Basically there are 2 types of streams. Byte streams that are used to handle stream of bytes and character streams for handling streams of characters. In byte streams input/output streams are the abstract classes at the top of hierarchy, while writer/reader is abstract classes at the top of character streams hierarchy.

### ♣ Can applets communicate with each other? (5 marks)

**Answer:-** [Click here for Detail](#)

Applets may communicate with other applets running in the same virtual machine. If the applets are of the same class, they can communicate via shared static variables. If the applets are of different classes, then each will need a reference to the same class with static variables. In any case the basic idea is to pass the information back and forth through a static variable.

An applet can also get references to all other applets on the same page using the getApplets() method of java.applet.AppletContext. Once you got a reference to an applet, you can communicate with it by using its public members.

♣ **As a developer of GUI, what should u know about top level containers and general purpose containers?**

**Answer:- (Page 104)**

A container is a collection of related components, which allows other components to be nested inside it. In application with JFrame, we attach components to the content pane – a container.

Container are classified into two broad categories that are Top Level containers and General Purpose Containers

Top level containers can contain (add) other containers as well as basic components (buttons, labels etc) while general purpose containers are typically used to collect basic components and are added to top level containers.

General purpose containers cannot exist alone they must be added to top level containers

Examples of top level container are JFrame, Dialog and Applet etc. Our application uses one of these. Examples of general purpose container are JPanel, Toolbar and ScrollPane etc.

## **MIDTERM EXAMINATION**

**What is the difference between a static and a non-static inner class?**

**Answer: -** [Click here for Detail](#)

A non-static inner class may have object instances that are associated with instances of the class's outer class. A static inner class does not have any object instances.

**What is the difference between Anonymous object and Named object? Give example with code.**

**Answer:- (Page 146)**

We generally use anonymous object when there is just a one time use of a particular object but in case of a repeated use we generally used named objects and use that named reference to use that objects again and again.

### **Named**

- String s = “hello”; System.out.println(s);
- “hello” has a named reference s.

### **Anonymous**

- System.out.println(“hello”);

**Discuss any three methods of ResultSetMetaData?**

**Answer:- rep**

**Two java collections. Which Should use for Your indexed Search?**

**Answer:-** [Click here for Detail](#)

Array List

**Which Component subclasses are used for paint**

**Answer:-** [Click here for Detail](#)

'Canvas' is the subclass of Component that can be used for drawing and painting.

But generally Graphics class and its methods are used for drawing and painting. They are quite familiar with Java developers for drawing and painting. Canvas and Graphics have some common methods that are inherited from Component like paint(),update() etc. but Graphics class provides more facilities to a programmer with its methods.

## **Midterm Paper**

### **CS506-Web Design and Development**

**How do we create DataBaseMetaData object? (2)**

**Answer:-** (Page 177)

From a Connection object, a DataBaseMetaData object can be derived. The following code snippet demonstrates how to get DataBaseMetaDataobject.

```
Connection con= DriverManager.getConnection(url, usr, pwd);  
DataBaseMetaData dbMetaData = con.getMeataData();
```

**Write the syntax of update SQL Query. (2)**

**Answer:-** (Page 153 )

```
String sql = "INSERT INTO tablename " + "(columnNames) Values (values)" ; int count = stmt.executeUpdate(sql);
```

**What is the difference between the paint() and repaint() methods? (3)**

**Answer:-** (Page )

**Answer:-** [Click here for Detail](#)

The paint method is where actual painting occurs. If you want to change the way a Component is drawn, you should override this method.

The repaint method typically just tells your Component that it should call its paint method as soon as it can. This is the method you should call to force a Component to update itself. The Java API warns not to ever directly call the paint method, mostly for efficiency reasons.

**What interfaces needs to implement while handling ActionEvent, KeaEvent and WindowEvent? (3)**

**How can you retrieve data from the ResultSet? (5)**

**Answer:-** (Page 153)

The JdbcEx.java demonstrates the usage of all above explained steps. In this code example, we connect with the PersonInfo database, the one we have created earlier, and then execute the simple SQL SELECT query on Person table, and then process the query results.

**What is difference between an Applet and an application? (5)**

**Answer:-** rep

## **MIDTERM EXAMINATION**

### **CS506- Web Design and Development**

**Question No: 17 ( Marks: 1 )**

What is the typical use of Hashtable?

**Answer:-** [Click here for Detail](#)

Hash table is very important that time When a program wants to store a key value pair, one can use Hashtable.

**Question No: 18 ( Marks: 1 )**

Why we use paintChildren( ) method?

**Answer:-** (Page 186)

Tells any components contained by this component to paint themselves

It is suggested that you do not override or invoke this method too.

**Question No: 19 ( Marks: 2 )**

Write any two steps of painting strategy.

**Answer:-** (Page 187)

Subclass JPanel

Override the paintComponent(Graphics g) method

**Question No: 20 ( Marks: 3 )**

Name three paint () methods which are used to paint Swing Component.

**Answer:-** (Page 186)

- ❖ protected void paintComponent(Graphics g)
- ❖ protected void paintBorder(Graphics g)
- ❖ protected void paintChildren(Graphics g)

**Question No: 21 ( Marks: 5 )**

Differentiate between Named and Anonymous Objects.

**Answer:-** rep