

1. Differentiate between applet and application program.

Ans:

Sr. No.	Applets	Applications
1.	Applets do not have main method . On loading of applets some methods of applet class get called automatically.	Application programs have main method . Within the main method the call to another methods of Java class is given.
2.	Applets cannot run independently . They can be either embedded in web page or can be run using appletviewer.	Applications program run independently .
3.	Applets cannot be read from file . Similarly applets can not write to files.	Application programs make use of I/O functions and can read a file or write to file.
4.	Applets cannot communicate with others on the network.	Java programs can communicate with other programs in distributed environment.
5.	Applets cannot execute any program on local computer.	Applications can execute a program on local computer.

2. Difference between swing and Awt.

Java Swing	Java AWT
Platform independence is a feature of Java swing components.	AWT components are platform-dependent.
Java Swing components are lightweight.	AWT components are heavyweight.
Java Swing supports a pluggable look and feel.	Pluggable look and feel are not supported by AWT.
Tables, lists, scrollpanes, colorchooser, tabbedPane, and other more powerful components are available in Java Swing.	In comparison to Swing, AWT has fewer components.
Java Swing follows MVC.	The MVC (Model View Controller) model, in which the model represents data, the view represents presentation, and the controller acts as an interface between the model and the view, is not followed by AWT.

3. Meaning of platform dependent and independent.

Ans: Platform dependent software refers to programs that are designed to run on a specific computer system or operating system. These programs are tightly coupled with the underlying hardware and software environment and may use system-specific features or instructions.

Platform independent software, also known as cross-platform software, is designed to run on multiple computer systems and operating systems without requiring significant modifications.

4. Meaning of heavyweight and lightweight component.

Ans: Platform heavyweight refers to a software platform or framework that requires significant system resources and has a high level of complexity. These platforms often provide extensive features, capabilities, and tools but may consume more memory, processing power, and disk space.

Platform lightweight, also known as lightweight frameworks or runtime environments, refers to software platforms that have minimal resource requirements and a simplified architecture. These platforms aim to provide essential functionalities while keeping the overhead and complexity to a minimum.

5. Difference between frame and panel.

Ans: In Java, "frame" and "panel" are both components of the Abstract Window Toolkit (AWT) and Swing libraries used for building graphical user interfaces (GUIs). Here's how they differ:

1. Frame:

- A frame, represented by the `Frame` class in AWT and the `JFrame` class in Swing, is a top-level container that represents a window with a title bar, borders, and controls for minimize, maximize, and close operations.

- Frames are typically used as the main window or the top-level container for a GUI application. They provide the structure and layout for other components such as buttons, labels, and text fields.

- Frames can have a menu bar, status bar, and various other components placed within them. They can also handle events and user interactions.

2. Panel:

- A panel, represented by the `Panel` class in AWT and the `JPanel` class in Swing, is a container component that is used to organize and group other components together.

- Panels do not have a title bar or border like frames. Instead, they are lightweight components that are often used as building blocks within a frame or other containers.

- Panels can be used to group related components and provide a way to organize and manage layout within a larger container. They can have their own layout manager to arrange the components they contain.

- Panels are commonly used to create complex layouts by nesting multiple panels within each other. They can be added to frames or other panels to create a hierarchical structure for organizing components.

In summary, a frame represents a window with a title bar, borders, and controls, and it serves as the main container for a GUI application. A panel is a lightweight container used for grouping and organizing components within a frame or other containers. Frames are typically used as top-level windows, while panels are used as building blocks for creating complex layouts within frames or other panels.

6. How to add menu.

Ans: To add a menu in Java Swing, you need to follow these steps:

Menus are essential components of any Window based GUI. It allows the user to choose one of several options. • Menus are created with the help of Menu items and these menus are placed on menubar.

1. Create a `JMenuBar` object.
2. Create one or more `JMenu` objects.
3. Create one or more `JMenuItem` objects.
4. Add the menu items to the menus.
5. Add the menus to the menu bar.
6. Set the menu bar to the frame using `frame.setJMenuBar(menuBar);`.

These steps involve creating the necessary menu components and organizing them into a hierarchical structure. Finally, you associate the menu bar with the frame to display the menu in your Java Swing application.

7. What is event and event delegation model.

Ans:

In Java, an event refers to an occurrence or action that takes place during the execution of a program. It can be a user action, such as clicking a button or typing on a keyboard, or a system-generated action, such as a timer triggering or data arriving from a network.

2.5 Delegation Event Model

- **Basic Concept :** Event delegation model is used for understanding the event and for processing it. The event-handler method takes the Event object as a parameter. For handling particular event specific object of event must be mentioned.
- There are four main components based on this model are

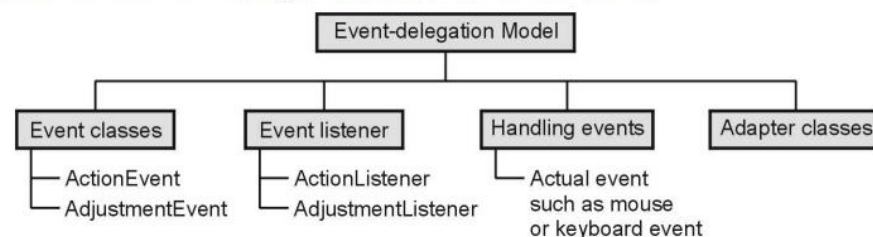


Fig. 2.5.1 Components of event delegation model

Advantages of Event Delegation Model

Following are the advantages of event delegation model -

1. In event delegation model the events are handled using objects. This allows a clear separation between the usage of the components and the design.
2. It accelerates the performance of the application in which multiple events are used.

8 and 9 Key Listener and Mouse Listener Method:

2.4.3 KeyListener Interface

- This interface is defining the events such as **keyPressed()**, **keyReleased()** and **keyTyped()** are used.
- These methods are useful for key press, key release and when you type some characters.

```
void keyPressed(KeyEvent k)
void keyReleased(KeyEvent k)
void keyTyped(KeyEvent k)
```

2.4.4 MouseListener Interface

- This interface defines five important methods for various activities such as mouse click, press, released, entered or exited. These are

```
void mouseClicked(MouseEvent m)
void mousePressed(MouseEvent m)
void mouseReleased(MouseEvent m)
void mouseEntered(MouseEvent m)
void mouseExited(MouseEvent m)
```

Ans:

10. Concept Of Adaptor Class.

2.8 Adapter Classes

- It is basically a class in Java that implements an interface with a set of dummy methods.
- The famous adapter classes in Java API are **WindowAdapter**, **ComponentAdapter**, **ContainerAdapter**, **FocusAdapter**, **KeyAdapter**, **MouseAdapter** and **MouseMotionAdapter**.
- Whenever your class implements such interface, you have to implements all of the seven methods.
- **WindowAdapter** class implements **WindowListener** interface and make seven empty implementation.
- When you class subclass **WindowAdapter** class, you may choose the method you want without restrictions.

11. Event class , listeners and its method.

Ans: Book pdf page number 36 and onwards.

12. difference in keyTyped() and keyPressed()

Ans; keyTyped() is used for capturing character input, while keyPressed() is used for capturing any key press event, including non-character keys.

13. How to create Frame , label and button. (SKIP THIS)

Ans: To create a frame, label, and button, you can use a graphical user interface (GUI) library such as Java's Swing. Here's an example in Java:

```
``java

import javax.swing.JButton;

import javax.swing.JFrame;

import javax.swing.JLabel;


public class GUIExample {

    public static void main(String[] args) {

        // Create a JFrame (the main window)

        JFrame frame = new JFrame("Example Frame");


        // Create a JLabel (a text label)

        JLabel label = new JLabel("Hello, World!");


        // Create a JButton (a clickable button)

        JButton button = new JButton("Click Me");


        // Set the position and size of the label and button

        label.setBounds(50, 50, 200, 30);

        button.setBounds(50, 100, 100, 30);


        // Add the label and button to the frame

        frame.add(label);

        frame.add(button);


        // Set the size and layout of the frame

        frame.setSize(300, 200);
```

```

frame.setLayout(null); // We're using absolute positioning, so set the layout to null

// Make the frame visible
frame.setVisible(true);

// Set the default close operation (exit the application when the frame is closed)
frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
}
}
'''

```

16. Meaning Of GUI.

Ans: GUI stands for Graphical User Interface. It refers to the visual elements and interactive components of a software application that allow users to interact with the program using graphical elements such as windows, buttons, menus, and icons.

A GUI provides a user-friendly and intuitive way to interact with a computer program by using graphical representations rather than relying solely on text-based commands.

17. Subclass of Container.

Ans: In Java, the `Container` class is a subclass of the `Component` class and is itself a superclass for various types of containers, including `Panel`, `Window`, `Frame`, and `Dialog`. These container classes provide a way to organize and manage multiple components within a graphical user interface.

Here are some commonly used subclasses of the `Container` class in Java:

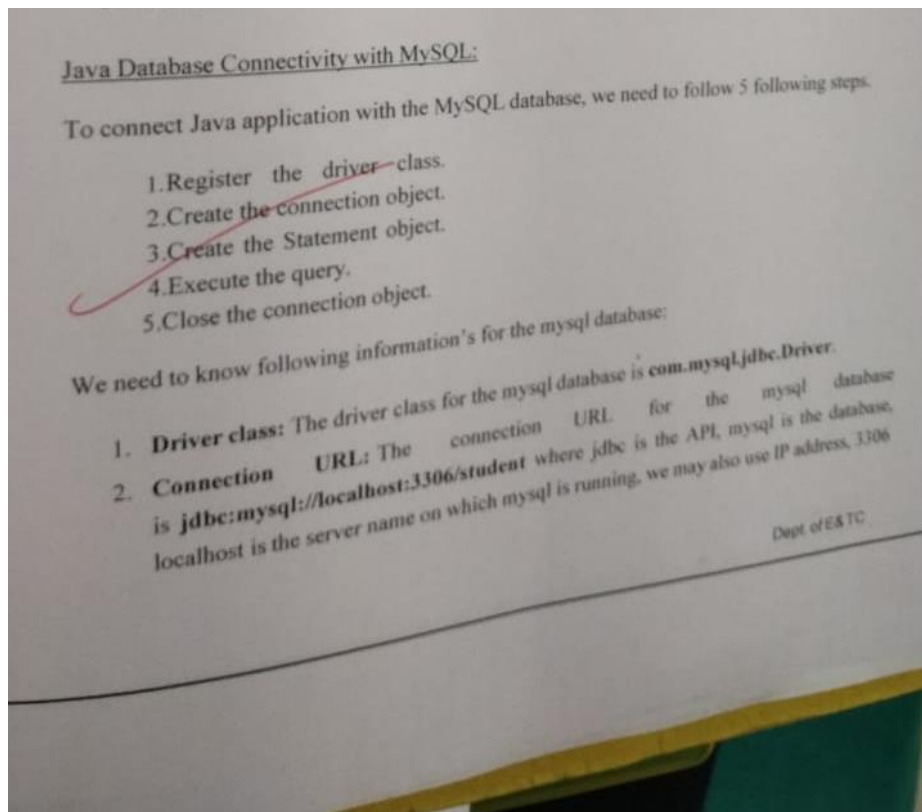
1. `Panel`: A lightweight container that can be used to group and organize components. It does not have a window frame and is often used as a building block for creating more complex GUIs.
2. `Window`: Represents a top-level window with a title bar, border, and the ability to be minimized, maximized, or closed. The `Frame` and `Dialog` classes are subclasses of `Window`.
3. `Frame`: A top-level window with a title bar, border, and content area. It can be used as the main application window or as a secondary window. It provides standard windowing operations such as resizing and closing.
4. `Dialog`: A subclass of `Window` that represents a dialog box, which is a small window that displays information or prompts the user for input. It typically has a modal behavior, meaning it blocks interaction with other windows until it is closed.

These subclasses of `Container` provide additional functionalities and behaviors specific to their respective roles in a GUI application. By using these subclasses, you can create hierarchical structures of containers and components to organize and arrange the visual elements of your application.

18. What is the use of Dispose Method.

Ans:: The dispose() method is a commonly used method in graphical user interface (GUI) programming, particularly in frameworks such as Java's Swing or AWT. It is used to release system resources associated with a GUI component or window when it is no longer needed. It's important to note that once you call dispose() on a GUI component, you cannot use it again. If you need to reuse the component, you will need to recreate it.

19. JDBC connectivity steps .



Ans:

20. Query for creating database , table , insert and delete.

Ans: To create a database, table, insert data, and delete data, the specific steps and syntax depend on the database management system (DBMS) you are using. I'll provide an example using SQL, which is a common language for working with relational databases. Please note that the actual commands may vary based on the DBMS you are using (e.g., MySQL, PostgreSQL, SQLite, etc.). Here's a general outline:

1. Creating a Database:

...

```
CREATE DATABASE your_database_name;
```

...

2. Selecting a Database:

```
USE your_database_name;
```

3. Creating a Table:

```
...  
  
CREATE TABLE your_table_name (  
  
    column1 datatype,  
  
    column2 datatype,  
  
    column3 datatype,  
  
    ...  
  
);  
...
```

4. Inserting Data into the Table:

```
...  
  
INSERT INTO your_table_name (column1, column2, column3, ...)  
VALUES (value1, value2, value3, ...);  
...
```

5. Deleting Data from the Table:

```
DELETE FROM your_table_name  
  
WHERE condition;
```

21. Meaning Of RMI.

5.1 Remote Method Invocation

- RMI stands for Remote Method Invocation. It is a mechanism in Java which allows an object running on one system to access an object running on another system.
- This technology consists of a server and a client.
- It is used to build distributed applications.
- For making the remote communication between two java programs the mechanism of RMI is used.
- While implementing the RMI applications the **java.rmi** package is used.
- There are few commonly used terminologies in RMI and those are -
 - **Remote Object** : In Java based distributed computing environment, remote object is the one whose methods can be invoked from another Java Virtual Machine. This JVM can be on different host. The remote object is described by the remote interfaces. The Remote Method Invocation (RMI) is a mechanism used to invoke the remote object via the method defined in remote interface.
 - **Server** : The remote server means the single remote object having the methods that can be remotely invoked.
 - **Client** : The remote client means the remote object that invokes the remote methods on a remote object.
 - **Remote Interface** : The remote object gets accessed via its remote interface.

Ans:

24. Difference between stub and skeleton.

Ans: Stub – A stub is a representation (proxy) of the remote object at client. It resides in the client system; it acts as a gateway for the client program. Skeleton – This is the object which resides on the server side. stub communicates with this skeleton to pass request to the remote object.

26. What is RMI naming Service.

- When multiple servers are involved in your application, the naming service allows you to specify logical server names rather than server addresses. For example, instead of connecting to your database server at host using some address and port number, you can specify the name of that server, such as MYHost/MyCompany/MyServer.
- Similarly components on that server can be identified by specifying an initial server name context plus the package and component name.

C:\My package \ Payroll \ index.html

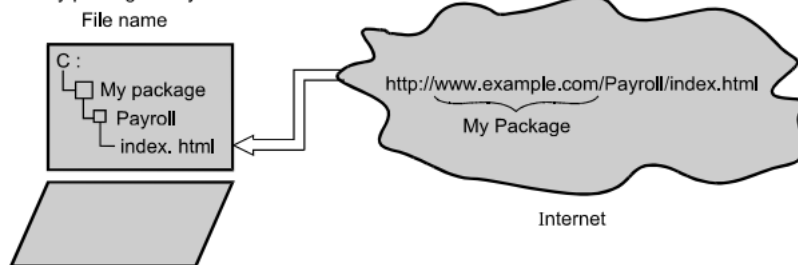


Fig. 5.7.1 Naming system

- **Name Server** consists of a program that implements a **naming service** protocol. This protocol maps a **human-recognizable** name/address to a system-internal, numeric, identification. Thus naming services are used to specify logical server name rather than server addresses.
- The most prominently used name servers are Domain Name Servers / Domain Name Service (DNS).

Ans;

27. Difference between bind and rebind.

Ans: The bind method binds the specified name to the remote object. It throws the AlreadyBoundException if the name is already bound to an object. The rebind method always binds the name to the object even if the name is already bound. The old binding is lost.

28. What is IP address?

Ans: IP address stands for “Internet Protocol address.” The Internet Protocol is a set of rules for communication over the internet, such as sending mail, streaming video, or connecting to a website. An IP address identifies a network or device on the internet.

The internet protocols manage the process of assigning each unique device its own IP address. (Internet protocols do other things as well, such as routing internet traffic.) This way, it’s easy to see which devices on the internet are sending, requesting, and receiving what information.

29. What is InetAddress Class.

Ans: Java InetAddress class is used to represent the IP address. The InetAddress class contains methods for obtaining the IP address of any hostname, such as www.google.com, www.facebook.com, and so on. The IP address, including IPv4 and IPv6, are referred to by the InetAddress class. An IP address and, optionally, its matching hostname make up an instance of an InetAddress. An IP address is an unsigned 32-bit or 128-bit value. The InetAddress class is a cache that stores both successful and unsuccessful hostnames.

30. What are the Factory Methods of Inet Address Class.

6.3.1 Factory Methods

- InetAddress class has no visible constructor. Hence to make use of InetAddress object we need to use the factory methods.
- **What is factory method ?** Factory method is simply a convention whereby static methods in a class return instance of that class.

TECHNICAL PUBLICATIONS® - an up-thrust for knowledge

Advanced JAVA Programming

6 - 8

Networking

- There are three important factory **methods** from InetAddress class and those are
 - getLocalHost
 - getBy Name
 - getAllByName

Ans:

Q.31 Meaning JSP. (Java+HTML)

Ans: JavaServer Pages (JSP) is a technology for developing Webpages that supports dynamic content. This helps developers insert java code in HTML pages by making use of special JSP tags, most of which start with <% and end with %>.

A JavaServer Pages component is a type of Java servlet that is designed to fulfill the role of a user interface for a Java web application. Web developers write JSPs as text files that combine HTML or XHTML code, XML elements, and embedded JSP actions and commands

Q.32 What is Servlet

Ans: Servlets are the Java programs that run on the Java-enabled web server or application server. They are used to handle the request obtained from the webserver, process the request, produce the response, then send a response back to the webserver.

Properties of Servlets are as follows:

Servlets work on the server-side.

Servlets are capable of handling complex requests obtained from the webserver.

Q35 Difference between get & post method.

GET	POST
In GET method, values are visible in the URL.	In POST method, values are not visible in the URL.
GET has a limitation on the length of the values, generally 255 characters.	POST has no limitation on the length of the values since they are submitted via the body of HTTP.
GET performs are better compared to POST because of the simple nature of appending the values in the URL.	It has lower performance as compared to GET method because of time spent in including POST values in the HTTP body.
This method supports only string data types.	This method supports different data types, such as string, numeric, binary, etc.
GET results can be bookmarked.	POST results cannot be bookmarked.
GET request is often cacheable.	The POST request is hardly cacheable.
GET Parameters remain in web browser history.	Parameters are not saved in web browser history.

Ans:

Q.36. what is use of Http Request & Http Response

Ans; In client-server communication, clients send HTTP requests to the server and get HTTP responses. With HTTP GET requests, a client may request resources from a server. When sending an HTTP request, the client can provide additional information to the server, such as cookies or authorization data.