

UNIT-V

TWO MARKS QUESTION & ANSWER

1. What is the difference between the 'Font' and 'FontMetrics' class?

Font class is used to set or retrieve the screen fonts. The Font class maps the characters of the language to their respective glyphs.

The FontMetrics class defines a font metrics object, which encapsulates information about the rendering of a particular font on a particular screen. i.e they provide access to the attributes of the font object.

2. What is the difference between the paint() and repaint() methods?

paint()	repaint()
The paint() method is called when some action is performed on the window.	Whenever a repaint method is called, the update method is also called along with paint() method.
This method supports painting via graphics object.	This method is used to cause paint() to be invoked by the AWT painting thread.

3. What is the difference between applications and applets?

Java Application	Applet
Java application contains a main method	An applet does not contain a main method
Does not require internet connection to execute	Requires internet connection to execute
Is stand alone application	Is a part of web page
Can be run without a browser	Requires a Java compatible browser
Users stream I/O classes	Use GUI interface provided by AWT or Swings
Entry point is main method	Entry point is init method
Generally used for console programs	Generally used for GUI interfaces

4. What is a layout manager and what are different types of layout managers available in java AWT?

A layout manager is an object that is used to organize components in a container. The different layouts available are FlowLayout, BorderLayout, CardLayout, GridLayout and GridBagLayout.

5. What is an event and what are the models available for event handling?

An event is an event object that describes a state of change in a source. In other words, event occurs when an action is generated, like pressing button, clicking mouse, selecting a list, etc. There are two types of models for handling events and they are: a) event-inheritance model and b) event-delegation model

**6. What is the lifecycle of an applet?**

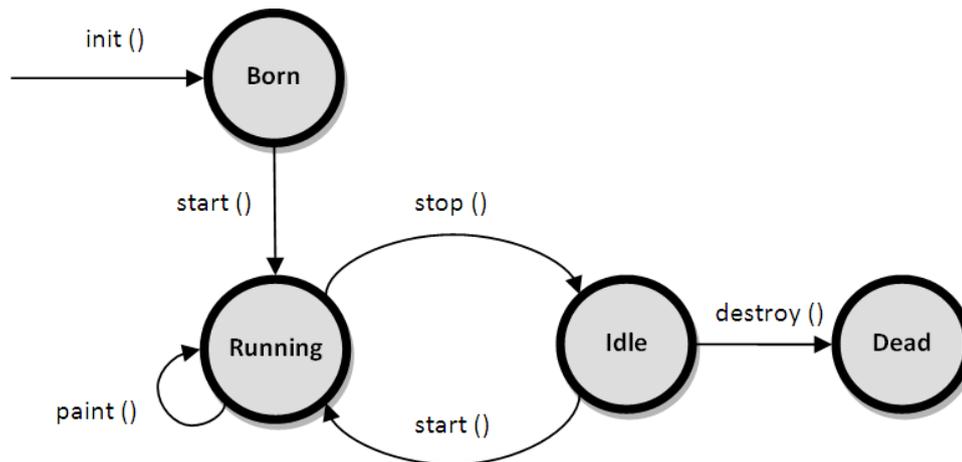
init() method - Can be called when an applet is first loaded

start() method - Can be called each time an applet is started.

paint() method - Can be called when the applet is minimized or maximized.

stop() method - Can be used when the browser moves off the applet's page.

destroy() method - Can be called when the browser is finished with the applet.



**7. What class is the top of the AWT event hierarchy?**

The java.awt.AWTEvent class is the highest-level class in the AWT event-class hierarchy.

**8. Write a note on BorderLayout?**

The BorderLayout class implements a common layout style for top-level windows. It has four narrow, fixed-width components at the edges and one large area in the center. The four sides are referred to as north, south, east, and west. The middle area is called the center. Here are the constructors defined by BorderLayout

BorderLayout( )

BorderLayout(int horz, int vert)

**9. Distinguish between component and container**

Java's Component class represents visual elements of a Graphical User Interface. Its subclasses include Button, Checkbox, TextField, Choice, and Canvas. The Container class is another subclass of Component. A Container is a component that can contain other components (including other containers). This is the essential difference between containers and other types of component. Subclasses of Container include Frame, Panel, and Applet.

Component	Container
<i>component is an independent visual control, such as a push button or slider.</i>	A container holds a group of components. Thus, a container is a special type of component that is designed to hold other Components

## 10. What is the difference between `JCheckBox` and `JRadioButton`?

In a checkbox group, a user can select more than one option. Each checkbox operates individually, so a user can toggle each response “on” and “off.”

Radio buttons, however, operate as a group and provide mutually exclusive selection values. A user can select only one option in a radio button group.]

## 11. What is the difference between a `MenuItem` and a `CheckboxMenuItem`?

The `CheckboxMenuItem` class extends the `MenuItem` class to support a menu item that may be checked or unchecked.

## 12. What is the purpose of the `enableEvents()` method?

The `enableEvents()` method is used to enable an event for a particular object. Normally, an event is enabled when a listener is added to an object for a particular event. The `enableEvents()` method is used by objects that handle events by overriding their `eventDispatch` methods.

## 13. What is the difference between a `Choice` and a `List`?

A `Choice` is displayed in a compact form that requires you to pull it down to see the list of available choices. Only one item may be selected from a `Choice`. A `List` may be displayed in such a way that several `List` items are visible. A `List` supports the selection of one or more `List` items

## 14. What is the use of `JList`?

`JList` is a Swing component with which we can display a list of elements. This component also allows the user to select one or more elements visually.

## 15. What is meant by controls and what are different types of controls in AWT?

Controls are components that allow a user to interact with your application and the AWT supports the following types of controls: Labels, Push Buttons, Check Boxes, Choice Lists, Lists, Scrollbars, and Text Components. These controls are subclasses of `Component`.

## 16. What is the difference between scrollbar and scrollpane?

A `Scrollbar` is a `Component`, but not a `Container` whereas `ScrollPane` is a `Container` and handles its own events and perform its own scrolling.

## 17. What is an event and what are the models available for event handling?

An event is an event object that describes a state of change in a source. In other words, event occurs when an action is generated, like pressing button, clicking mouse, selecting a list, etc. There are two types of models for handling events and they are: a) event-inheritance model and b) event-delegation model

## 18. Which containers use a border Layout as their default layout?

The `window`, `Frame` and `Dialog` classes use a border layout as their default layout.

19. What are the differences between AWT and Swing?

SWING	AWT
Swing components are light weight.	AWT components are heavy weight.
Swing components are drawn by java itself that's why it's platform independent.	AWT components are platform dependent.
Look and Feel of swing can be changed.	There is no such feature in AWT.
All of the buttons, entry fields, etc. are drawn by the Swing package on the drawing surface provided by the window object. This is the reason that Swing has more code.	AWT is a thin layer of code on top of OS.
Swing components are generally slower than AWT.	Use of native peers speeds component performance.
Swing supports a wider range of features like icons and pop-up tool-tips for components.	AWT components do not support features like icons and tool-tips.
Swing has many advanced features like JTable, Jtabbed pane which is not available in AWT.	These feature is not available in AWT.

20. What is the use of WindowListener?

WindowListener interface is implemented in class to handle following activi- ties

- Opening a window* - Showing a window for the first time
- Closing a window* - Removing the window from the screen
- Iconifying a window* - Reducing the window to an icon on the desktop.
- Deiconifying a window* - Restoring the window to its original size.
- Focused window* - The window which contains the "focus owner".
- Activated window (frame or dialog)* - This window is either the focused window, or owns the focused window.
- Deactivated window* - This window has lost the focus. For more information about focus, see the AWT Focus Subsystem specification.
- Maximizing the window* - Increasing a window's size to the maximum allowable size, either in the vertical direction, the horizontal direction, or both directions.

**21. Difference between AWT and Swing**

There are many differences between java awt and swing that are given below.

Java AWT	Java Swing
AWT components are platform-dependent.	Java swing components are platform-independent.
AWT components are heavyweight.	Swing components are lightweight.
AWT doesn't support pluggable look and feel.	Swing supports pluggable look and feel.
AWT provides less components than Swing.	Swing provides more powerful components such as tables, lists, scrollpanes, colorchooser, tabbedpane etc.
AWT doesn't follow MVC (Model View Controller) where model represents data, view represents presentation and controller acts as an interface between model and view.	Swing follows MVC.

**22. What is a container class?**

Container classes are classes that can have other components on it. So for creating a GUI, we need at least one container object. There are 3 types of containers.

Panel: It is a pure container and is not a window in itself. The sole purpose of a Panel is to organize the components on to a window.

Frame: It is a fully functioning window with its title and icons.

Dialog: It can be thought of like a pop-up window that pops out when a message has to be displayed. It is not a fully functioning window like the Frame.

**23. What is a layout manager and what are different types of layout managers available in java AWT?**

A layout manager is an object that is used to organize components in a container. The different layouts available are FlowLayout, BorderLayout, CardLayout, GridLayout and GridBagLayout.

**24. How are the elements of different layouts organized?**

- FlowLayout* - The elements of a FlowLayout are organized in a top to bottom, left to right fashion
- BorderLayout* - The elements of a BorderLayout are organized at the borders (North, South, East and West) and the center of a container.
- CardLayout* - The elements of a CardLayout are stacked, on top of the other, like a deck of cards.
- GridLayout* - The elements of a GridLayout are of equal size and are laid out using the square of a grid

## *GridBagLayout*

- The elements of a GridBagLayout are organized according to a grid. However, the elements are of different size and may occupy more than one row or column of the grid. In addition, the rows and columns may have different sizes. The default Layout Manager of Panel and Panel sub classes is FlowLayout.

### **25. Why would you use Swing Utilities.invoke And Wait or Swing Utilities.invoke Later?**

To make update in a Swing component but not in a callback. And If the update to be happened immediately (perhaps for a progress bar component) then use invokeAndWait. When the update response is not need immediately, then use invokeLater.

### **26. What is an event and what are the models available for event handling?**

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### **27. What is the difference between scrollbar and scrollpane?**

A Scrollbar is a Component, but not a Container whereas Scrollpane is a Container and handles its own events and perform its own scrolling.

### **28. Why won't the JVM terminate when I close all the application windows?**

The AWT event dispatcher thread is not a daemon thread. You must explicitly call System.exit to terminate the JVM.

### **29. What is meant by controls and what are different types of controls in AWT?**

Controls are components that allow a user to interact with your application and the AWT supports the following types of controls: Labels, Push Buttons, Check Boxes, Choice Lists, Lists, Scrollbars, and Text Components. These controls are subclasses of Component.

### **30. What is the difference between a Choice and a List?**

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### **32. What class is the top of the AWT event hierarchy?**

The java.awt.AWTEvent class is the highest-level class in the AWT event-class hierarchy.

**33. What is the difference between a MenuItem and a CheckboxMenuItem?**

The CheckboxMenuItem class extends the MenuItem class to support a menu item that may be checked or unchecked.

**34. What is source and listener?**

*source* : A source is an object that generates an event. This occurs when the internal state of that object changes in some way.

*listener* : A listener is an object that is notified when an event occurs. It has two major requirements. First, it must have been registered with one or more sources to receive notifications about specific types of events. Second, it must implement methods to receive and process these notifications.

**35. How can I create my own GUI components?**

Custom graphical components can be created by producing a class that inherits from java.awt.Canvas. Your component should override the paint method, just like an applet does, to provide the graphical features of the component.

**PART-B**

1. Create a simple menu application that enables a user to select one of the following items: (16) (IT2301 APR/MAY-2015)
  - a. Radio1      b. Radio2      c. Radio3      d. Radio4      e. Radio5
  - i. From the menu bar of the application
  - ii. From a pop-up menu
  - iii. From a toolbar
2. Add tooltips to each menu item that indicates some information about the Radio station such as type of music and its broadcast frequency.
3. Write a program to create a frame with the following menus, such that the corresponding geometric object is created when a menu is clicked. (IT2301 MAY/JUNE-2014)
  - a. Circle. (4)
  - b. Rectangle. (4)
  - c. Line. (4)
  - d. Diagonal for the rectangle. (4)
4. Write a program to simulate the layout and working of a calculator. (16) (IT2301 MAY/JUNE-2014)
5. Explain in detail about AWT event hierarchy. (16) (IT2301 MAY/JUNE-2014)

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