FACULTY OF ENGINEERING & TECHNOLOGY

BCS-503: Object Oriented Techniques

Lecture-33

Preeti Singh
Computer Science & Engineering

In this PPT, you will learn to:

❖**Explain the Abstract Window Toolkit (AWT)**

❖**Define an Applet**

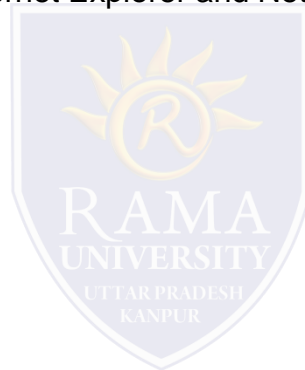❖**Differentiate between Java Applications and Java Applets**

❖**Create an Applet**

THE AWT TOOLKIT

▪The Abstract Window Toolkit (AWT) is a set of Java classes that allow the programmer to create a Graphical User Interface (GUI) and accept user input through the keyboard and the mouse.

▪They are heavyweight components of Java Foundation Classes (JFC). The java.awt package contains all classes for creating user interfaces and for painting graphics and images.

▪The AWT has several subsystems that support the development and creation of an attractive and efficient GUI. The subsystems include:

- ▪Containers

- ▪Components

- ▪Layout managers

- ▪Graphics and drawing capabilities

- ▪Fonts

- ▪Events
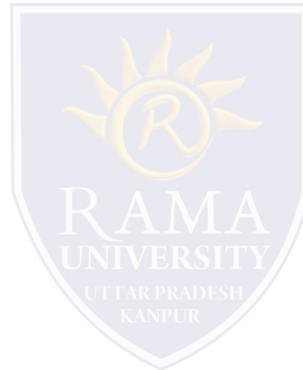
APPLETS

- An Applet is a Java program that can be embedded in an HTML page and executed on a Java enabled browser.

- Created by subclassing from the java.applet.Applet class.

- Examples of Java enabled web browsers are Internet Explorer and Netscape Communicator.

DIFFERENCE BETWEEN APPLETS AND APPLICATIONS

▪An Applet is basically designed for deploying on the web.
An application is designed to work as a standalone program.

▪Applets are created by extending the java.applet.Applet class.
There is no such constraint for an application.

▪Applets run on any browser.
Applications run using Java interpreter.

▪Execution of Applets begins with the init() method.
Execution of applications begins with main() method.

▪Applet must contain at least one public class failing which the compiler reports an error. It is not mandatory to declare main() for an applet.

▪In case of application, main() has to be included in a public class.
Output to an Applet's window is done by using different AWT methods such as drawString(). In case of an application System.out.println() method is used.
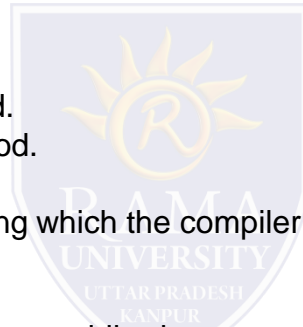
The methods are as follows:

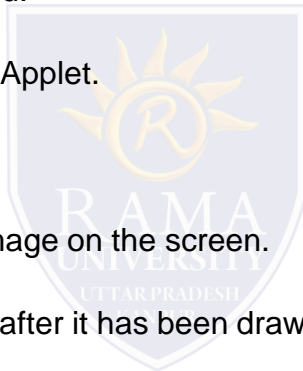**init()**: called during initialization.

start(): starts the Applet once it is initialized.

stop(): used to pause the execution of an Applet.

destroy(): used to destroy the Applet.

paint():used to display a line, text or an image on the screen.

**repaint()** : used to paint the Applet again after it has been drawn once.

```java
import java.awt.*;
import java.applet.*;
public class FirstApplet extends Applet
{
  String str;
  public void init()
  {
    str = "Java is interesting!";
  }
  public void paint(Graphics g)
  {
    g.drawString(str, 70, 80);
  }
}
```

Output

Applet Viewer: Firstapplet _ □ ×
Applet

Java is interesting!

REFERENCES

1. James Rumbaughet. al, "Object Oriented Modeling and Design", PHI

2. Grady Booch, James Rumbaugh, Ivar Jacobson, "The Unified Modeling Language User Guide", Pearson Education

3. Naughton, Schildt, "The Complete Reference JAVA2", TMH

4. Mark Priestley "Practical Object-Oriented Design with UML", TMH

5. Booch, Maksimchuk, Engle, Young, Conallen and Houstan, "Object Oriented Analysis and Design with Applications",

Pearson Education

6. Pandey, Tiwari, " Object Oriented Programming with JAVA" , Acme Learning

7. https://www.javatpoint.com/java-tutorial

8. https://www.tutorialspoint.com/java/index.htm

9. https://www.tutorialspoint.com/object_oriented_analysis_design/index.htm
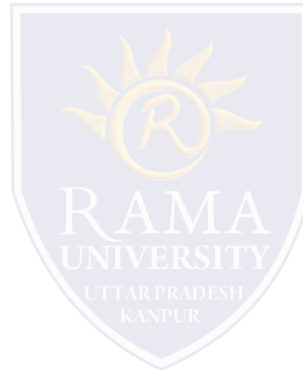
10. https://www.slideshare.net/niitstudentcare/
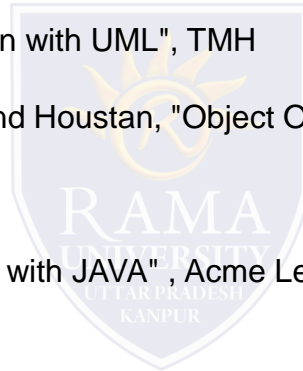
Multiple Choice Question:

Q1. Which of these functions is called to display the output of an applet?

a) display()

b) paint()

c) displayApplet()

d) PrintApplet()
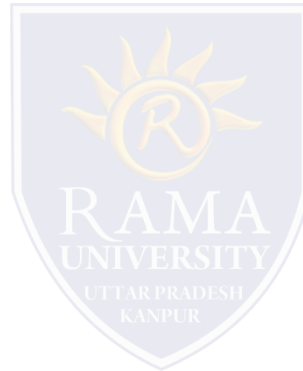
Multiple Choice Question:

Q2. Which of these methods can be used to output a string in an applet?
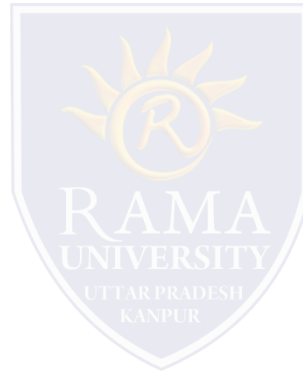
a) display()

b) print()

c) drawString()

d) transient()

Multiple Choice Question:

Q3. Which of these methods is a part of Abstract Window Toolkit (AWT) ?

    a) display()

    b) paint()

    c) drawString()

    d) transient()

Multiple Choice Question:

Q4. Which of these modifiers can be used for a variable so that it can be accessed from any thread or parts of a program?

a) transient

b) volatile

c) global

d) No modifier is needed

Multiple Choice Question:

Q5. Which of these operators can be used to get run time information about an object?

a) getInfo

b) Info

c) instanceof

d) getinfoof

Summary

In this PPT, you learned that:

➢ An Applet is a Java program that can be executed with the help of a Java enabled browser.

➢ Every user-defined Applet must extend the java.applet.Applet class.

➢ A user-defined Applets inherits all the methods of Applet class.

➢ <applet>..</applet> tags are used within an HTML file to embed a class file.