Course: MCA
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Paper Name- Object Oriented Programming
Topic- **Applet** – Concept
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Applet – Concept

Applets are small Internet-based program written in Java, a programming language for the Web and can be downloaded by any computer. The applet is also capable of running in HTML. The applet is usually embedded in an HTML page on a Web site and can be executed from within a browser. After an applet arrives on the client, it has limited access to resources so that it can produce a graphical user interface

Benefits of Java Applet

- They are very secure.
- It works at client side so less response time.
- Applets can be executed by browsers running under different platforms.

Disadvantage of java Applet

- One disadvantage of Applets is that plugins are required at the client browser for executing applets.

Life Cycle of Java Applet

An applet undergoes various stages between its creation of objects and object removal as the work of the applet will get done. This cycle is known as Applet life cycle, where each state is signified by methods. In the life of execution, the applet exists (lives) in one of these 5 states. All of these methods have a name and they are called as callback methods. These methods are named so because they are called automatically by the browser when required for smooth execution of the applet. Here, programmers write the above-mentioned methods with some code but never calls. Following are the methods for a full applet cycle.

init() method– In this state all memory initialization work done
start() method – This state start the applet
paint() method – This state show GUI output on the scree
stop() method – Stop all the process
destroy() method – this is the last state where all memory destroyed related to an applet.

Applet life cycle methods are callback methods because they are called implicitly by the browser for the smooth execution of the applet. The browser should provide an environment known as a container for the execution of the applet. Following are the responsibilities of the browser.

For the smooth execution, it should call the callback methods at appropriate times.
It is responsible to maintain the Applet Life Cycle.
It should have the capability to communicate between applets, applet to JavaScript and HTML, applet to browser, etc.

Now Example

To Create applet we need to use 2 packages The first import statement is for the **Abstract Window Toolkit (AWT)** classes. Applets interact with the user through the AWT and not through the console-based I/O classes. and the 2nd package is An applet package. An Applet must be a subclass of the **java.applet.Applet** class.
The Applet class provides the standard interface between the applet and the browser environment. Swing provides a special subclass of the Applet class called **javax.swing.JApplet.**
The JApplet class should be used for all applets that use Swing components to construct their graphical user interfaces (GUIs). The browser's Java Plug-in software manages the lifecycle of an Applet. Java Applet can be run by 2 ways The first way is, applet in Java can appear in a frame of the web page, and 2nd way is we can use **AppletViewer** stand-alone tool for testing them.

simple Program to demonstrate Applet in Java:

```
import java.applet.Applet;
import java.awt.Graphics;
public class exApplet extends Applet {
    public void paint(Graphics g) {
        g.drawString("Hello World!", 50, 25);
        g.drawRect(40,40,80,80);
    }
}
```
Now you have to create an HTML File that Includes the Applet.

Using a text editor, create a file named Hello.html in the same directory that contains exApplet.class. This HTML file should contain the following text:

```
<html>

<head>
    <TITLE> A Simple Program </TITLE>
</head>

<body>
    Here is the output of my program:
    <applet code="exApplet" width="150" height="250"></applet>
</body>

</html>
```