Applet and graphics programming

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Applet Programming

- Applets are small Java programs that are primarily used in Internet computing.
- It can be run using the Applet Viewer or any Web browser that supports Java.
- An applet, like any application program, can do many things for us.
- It can perform arithmetic operations, display graphics, play sounds, accept user input, create animation, and play interactive games.

Types of Applets

- Local Applets

  An applet developed locally and stored in a local system is known as a local applet.

- Remote Applets

  A remote applet is that which is developed by someone else and stored on a remote computer.

  It needs an internet connection to run.

Applet Vs Applications

Application	Applet
Applications are stand-alone programs that can be run independently without having to use a web browser.	Applets are small Java programs that are designed to be included in a HTML web document. They require a Java-enabled browser for execution.
Java applications have full access to local file system and network.	Applets have no disk and network access.
It requires a main method() for its execution.	It does not require a main method() for its execution.
Applications can run programs from the local system.	Applets cannot run programs from the local machine.
An application program is used to perform some task directly for the user.	An applet program is used to perform small tasks or part of it.
It can access all kinds of resources available on the system.	It can only access the browser specific services.

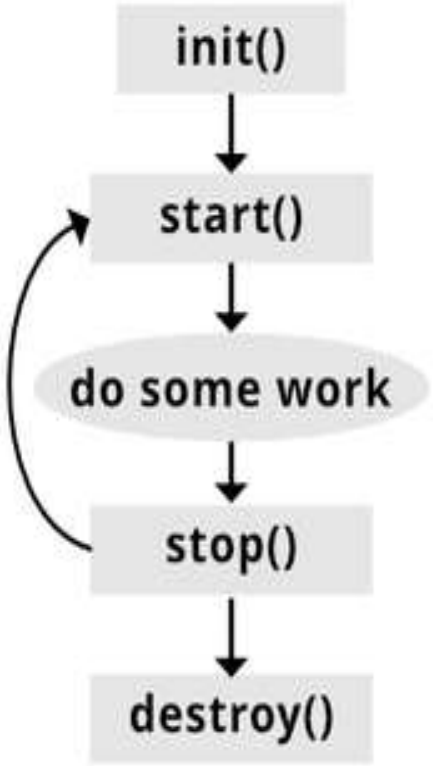
Applet creation

Steps to write an Applet:

- Building an applet code **(.java file)**
- Creating an executable applet **(*.class file)**
- Designing a Web page using **HTML tags**
- Preparing **<APPLET>** tag
- Incorporating <APPLET> tag into the Web page
- Create the HTML file
- Test the applet code

Life Cycle Of an Applet

The applet states include: – Born or initialization state – Running state – Idle state – Dead or destroyed state



- init() and destroy() are only called once each
- start() and stop() are called whenever the browser enters and leaves the page
- do some work is code called by the listeners that may exist in the applet

Applet Lifecycle

1. **void init()**: This init() method is the first method of a java applet. This is used to initialize the applet when the applet begins to execute
2. **void start()**: void start() this method is called automatically after the init() method, and it is used to start the Applet and to implementation of an applet
3. **void stop()**: void stop() is used to stop the Applet or to stop the running applet
4. **void destroy()**: void destroy() is used to destroy the Applet / to Terminate the applet.

Display state

Applet moves to the display state whenever it has to perform some output operations on the screen.

- This will happens after the applet enters into the running state.
- The paint( ) method is called to accomplish this task.
- Almost every applet will have a paint( ) method.

```
public void paint (Graphics g)
  { //statements }
```

Advantages and Disadvantages of an Applet

Advantages of Applet

- It runs inside the browser and works on the Client-side, so it takes less time to respond.
- It is more Secured
- It can be Executed By multi-platforms with any Browsers, i.e., Windows, Mac Os, Linux Os.

Disadvantages of Applet

- A plugin is required at the client browser(User Side) to execute an Applet.

Java Applet Syntax

```
import java.applet.Applet;
import java.awt.Graphics;
public class First extends Applet
{
 public void paint(Graphics g)
 {
    Type your code here
 }
}
```

Run an Applet

There are two ways to execute a Java Applet:

- By using an HTML file
- By using the appletviewer tool

Applet Exmple

```
import java.applet.Applet;
import java.awt.Graphics;
public class myapplet extends Applet
{
  public void paint(Graphics g)
  {
    g.drawString("Peace be with you",150,150);
  }
  }
```

- Save the program: **myapplet.java**
- Compile the file : **javac myapplet.java**

Incorporate the applet tag into the HTML program

Applet Tag

It supplies the name of the applet to be loaded and tells the browser how much space the applet requires.

<APPLET> tag specifies three things:

- Name of the applet
- Width of the applet (in pixels)
- Height of the applet (in pixels)

HTML file

myfirstapplet.html

```
<html>
<body>
<applet code="myapplet.class"
   width="300"
   height="300">
</applet>
</body>
</html>
```

Run the html program

Run the Java Applet using appletviewer tool

```
//Myapplet.java
import java.applet.Applet;
import java.awt.Graphics;
public class Myapplet extends Applet
{
  public void paint(Graphics g)
  {
    g.drawString("welcome to applet",150,150);
  }
}
/*  <applet code=" Myapplet.class“
          width="300" height="300">
</applet> */
```

Run the Applet program in command prompt:

To Compile:

c:\>javac MyApplet.java

To run:

c:\>appletviewer MyApplet.java