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## Applet in JAVA

Applet :-

- An Applet is a Java Program that can be embedded into a web page.
- It runs inside the web browser and works at client side.
- An applet is embedded in an HTML Page using the APPLET tag.

Creation :- To create an applet, a class must class extends java.applet.  
Appletclass `java.applet.Applet`

**Note** An applet does not have any main() method. It is viewed using JVM.

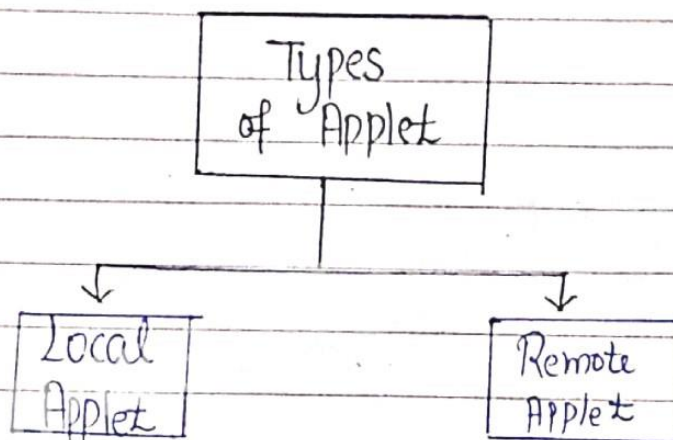
- Output of an applet window is not performed by `System.out.println()`. It is handled with various AWT methods, such as `drawString`.
- It is secured.



## Types of Applets in Java:-

There are two types of applets that a web page can contain.

1. Local Applet
2. Remote Applet



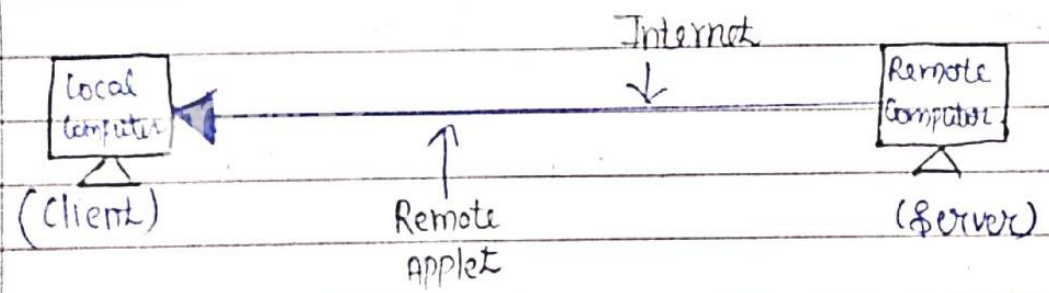
### 1. Local Applet :-

- Local Applet is ~~used~~ written on our own, and then we will embed into web pages.
- Local Applet is developed locally and stored in the local system.
- It is specified by the file name or path name.



## 2 Remote Applet :-

- A remote applet is designed and developed by another developer.
- It is available on a remote computer that is connected to the internet.
- To run the applet stored in remote computer our system is connected to the internet then we can download run it.



### Difference between Local Applet and Remote Applet :-

Local Applet	Remote Applet
1. Local Applet is available on our computer.	1. Remote Applet is not available on our computer.
2. We don't need internet connection.	2. We need an internet connection.
3. There is no need to define the Applet's URL in Local Applets.	3. We need to define the Applet's URL in Remote Applet.

## \* Life cycle of Java Applet :-

1. Applet is initialized
2. Applet is started
3. Applet is painted
4. Applet is stopped.
5. Applet is destroyed.

o The applet life cycle can be defined as the process of how the object is created, started, stopped and destroyed during the execution of its application.

o It basically has five core methods :-

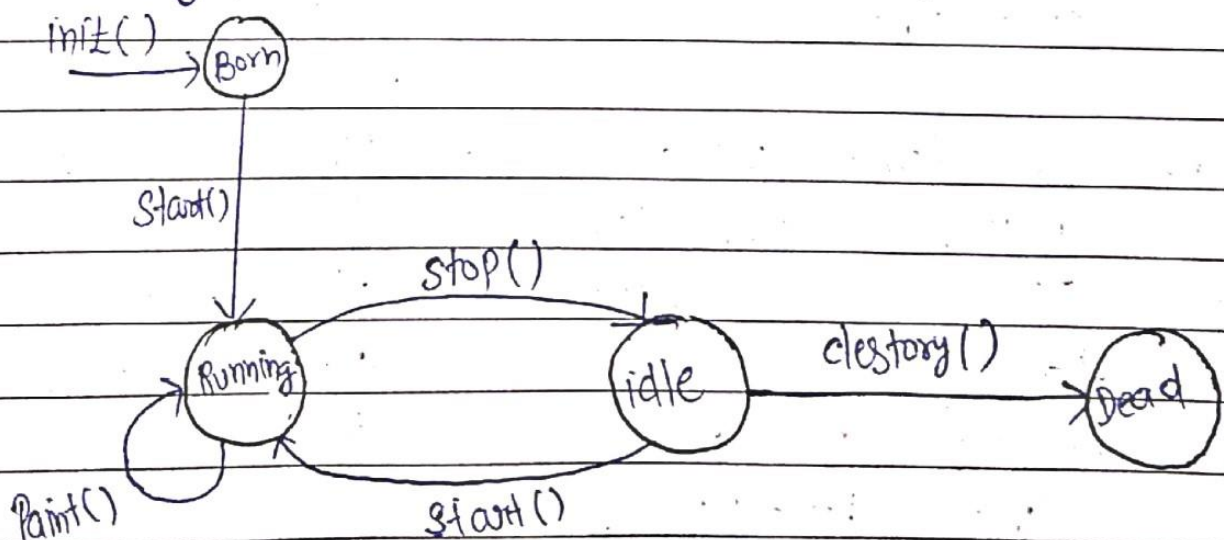
init()

start()

stop()

paint()

destroy()





\* java.applet.Applet class :- It provides four life cycle methods of applet.

1. public void init() :- It is used to initialize the Applet.

- o It is invoked only once.
- o The init() method is the first method to be called.

2. public void start() :- It is invoked after the init() method.

- o It is used to start the applet.
- o It is also called to restart an applet after it has been stopped.

3. public void stop() :-

- o It is used to stop the applet.
- o The stop() is invoked when Applet is stop or browser is minimized.

4. public void destroy() :- It is used to destroy the Applet.

- o It is invoked only once.

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java.awt.Component class :- provides life cycle methods of applet.

public void paint (Graphics g) :-

- o It is used to paint the Applet.
- o It provides Graphics class object that can be used for drawing oval, rectangle, arc etc.
- o paint() is also called when the applet begins execution.



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## \* Running Applet :-

There are two ways to run an applet-

1. By html file.
2. By appletviewer tool

Example:- (by html file)

To create an applet and compile it: After that create an html file and place the applet code in html file.

```
import java.applet.*;
import java.awt.*;
public class Jp extends applet
```

```
{
```

```
    public void paint (Graphics g)
```

```
    {
```

```
        g.drawString ("jwebdevelopers", 150, 150);
```

```
    }
```

```
}
```

myapplet.html

```
<html>
```

```
<body>
```

\_ / \_ / \_

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

## # Example 2 (by applet viewer)

To execute the applet by appletviewer tool, create an applet that contains applet tag in comment and compile it.

```
// Jp.java
```

```
import java.applet.*;
import java.awt.*;
public class Jp extends Applet
{
```

```
    public void paint (Graphics g)
    {
```

```
        g.drawString ("jpweb developers", 150, 150);
```

```
    }
```

```
/*
```

```
<applet code="Jp.class" width="300" height="300">
  </applet >
```

```
*/
```





# \* Displaying Graphics in applet :-

Java.awt.Graphics class provide many methods for graphics programming.

## Commonly used Methods :-

1. public void drawString (String str, int x, int y) is used to draw the specified string.
2. public void drawRect (int x, int y, int width, int height)  
It draws a rectangle with the specified width and height.
3. drawOval (int x, int y, int width, int height) :-  
It is used to draw oval with the specified width and height.
4. drawLine (int x1, int y1, int x2, int y2) :- is used to draw the line between the points (x1, y1) and (x2, y2).
5. drawArc (int x, int y, int width, int height, int startAngle, int arcAngle).  
is used to draw a arc. (circular)

6. `setColor (Color c)`: is used to set the graphics current color to specified color.

7. `setFont (Font font)`: is used to set the graphics current font to specified font.

(1) Draw a line using `drawLine()` method

- o It is the simplest shape that you can draw with graphics class is a line
- o `drawLine()` method is used to draw a line.

Syntax:- `drawLine (int x1, int y1, int x2, int y2)`

Parameters:-

`x1` → It takes the first point's x coordinate.

`y1` → It takes the first point's y coordinate.

`x2` → It takes second point's x coordinate.

`y2` → It takes second point's y coordinate.

Example:-

```
----- import java.applet.*;  
import java.awt.*;  
public class Myapplet extends Applet  
{  
}
```



```
public void paint (Graphics g)
```

{

```
g.drawLine (20, 20, 100, 20); // horizontal
```

```
g.drawLine (20, 20, 20, 100); // Vertical.
```

}

}

```
//<APPLET CODE="Myapplet.class" width="200" height="150">
```

```
</APPLET>
```

### ② Draw Rectangle in Java Applet :-

◦ drawRect() is used to draw a Rectangle in Java.

◦ drawRect(int x, int y, int width, int height)

#### Example :-

```
import java.applet.*;
```

```
import java.awt.*;
```

```
public class Myapplet extends Applet
```

{

```
public void paint (Graphics g)
```

{

```
g.drawRect (20, 20, 70, 50);
```

```
g.fillRect (20, 20, 70, 50);
```

}

}

Colored →

```
</APPLET CODE="Myapplet.class" width="200"
```

```
height="150" > </APPLET>
```

### ③ Circles and Ellipses in Java applet :-

- In Java, the Graphics doesn't have any method for circles and ellipses.
- drawOval() methods can be used to draw a circle or an ellipse.
- drawOval() takes four arguments :-  
(The first two represent the top-left corner of the imaginary rectangle).  
(The other two represent the width and height of the oval itself)

#### Note :-

If the width and height are the same, the oval becomes a circle.

#### Example :-

```
import java.awt.*;
import java.applet.*;
public class Myapplet extends Applet
{
    public void paint(Graphics g)
    {
        g.drawOval(20, 20, 70, 50);
        g.setColor(Color.green);
        g.fillOval(70, 30, 100, 100);
    }
}
```



```
}  
}  
  
// <APPLET code="Myapplet.class" width="200"  
height="150"> </APPLET>
```

④) Draw a arc in Java applet :-

- o An arc can be drawn using the drawArc() method.

Example:-

```
import java.awt.*;  
import java.applet.*;  
public class Myapplet extends Applet  
{  
    public void paint (Graphics g)  
    {  
        g.drawArc (60, 125, 80, 40, 180, 180);  
        g.fillArc (60, 125, 80, 40, 180, 180);  
    }  
}
```

```
// <APPLET CODE="Myapple.class" width="480"  
height="360">  
</APPLET>
```

## ⑤ draw Polygon in Java applet :-

◦ We can draw Polygon using drawPolygon().

◦ This method takes three parameters.

void drawPolygon (int x[], int y[], int n)

array of integers having x coordinates      y coordinates      points required

### Example

```
import java.awt.*;  
import java.applet.*;  
public class poly extends Applet
```

```
{  
    int x[] = {20, 150, 80};  
    int y[] = {80, 20, 80};
```

```
    public void paint (Graphics g)
```

```
    {  
        g.drawPolygon (x, y, 3);
```

```
    }
```

```
/*
```

```
<APPLET code="Poly.class" width="200" height="150">  
</APPLET>
```