



Java Programming for Applet

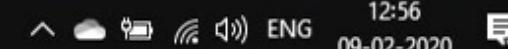


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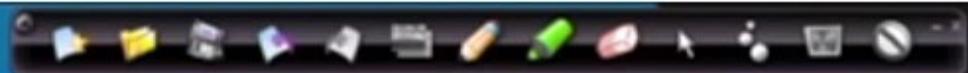
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12:56

09-02-2020



What is an applet?

Java programs are available in two flavors

Applet

- A **Java applet** is a program that appears embedded in a web document and applet come into effect when the browser browse the web page.

Application

- It is similar to all other kind of programs like in C, C++, Python etc. to solve a problem.

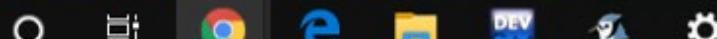


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How an applet looks like?

Typically, a Java applet looks as below.



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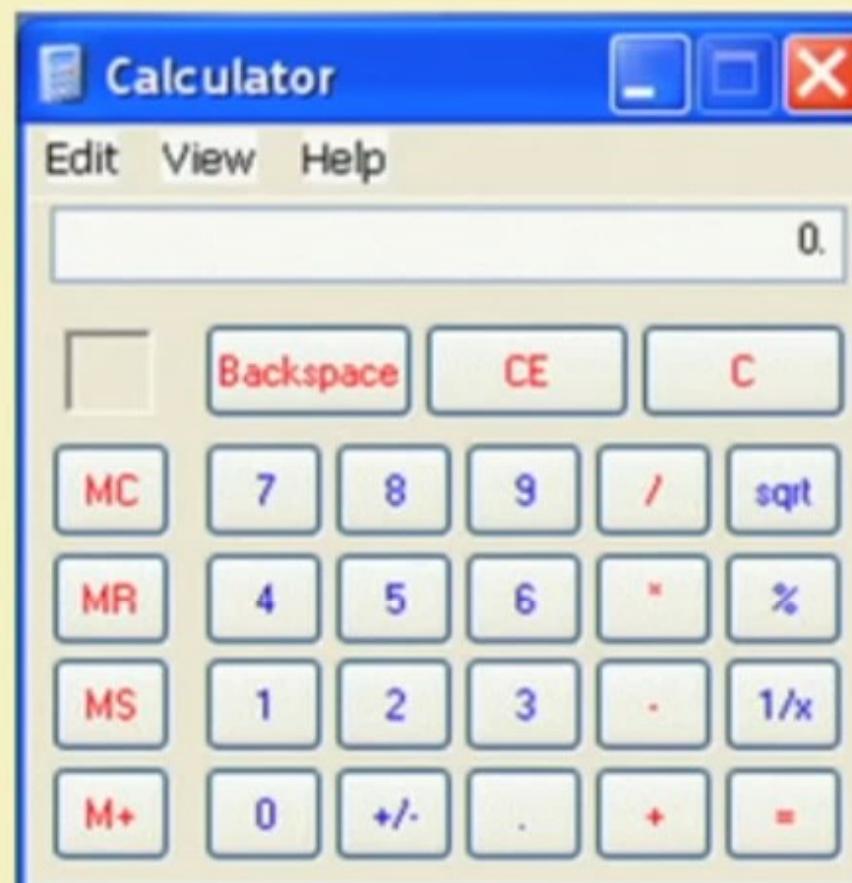
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How an applet looks like?

Typically, a Java applet looks as below.



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Applet program writing

```
// Your first Java applet
// An applet to print Hello World

import java.applet.Applet;
import java.awt.Graphics;

public class HelloWorld extends Applet{
    public void paint(Graphics g){
        g.drawString("Hello World!", 150, 150);
    }
}
```



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Applet program writing

```
// Your first Java applet
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```



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Building an applet

Edit → Save → Compile

- Edit the code in the same fashion as an application
- The name of the applet will be same as the public class here

HelloWorld.java





Building an applet

Edit → Save → Compile

The program can be compiled in the same fashion as a Java application is compiled. That is,

```
javac HelloWorld.java
```



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Building an applet

Edit → Save → Compile

After the successful compilation, the `javac` will produce a file named

`HelloWorld.class`



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Hosting an applet with HTML

Edit an HTML file to host the applet just created. The HTML file will look like as:

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



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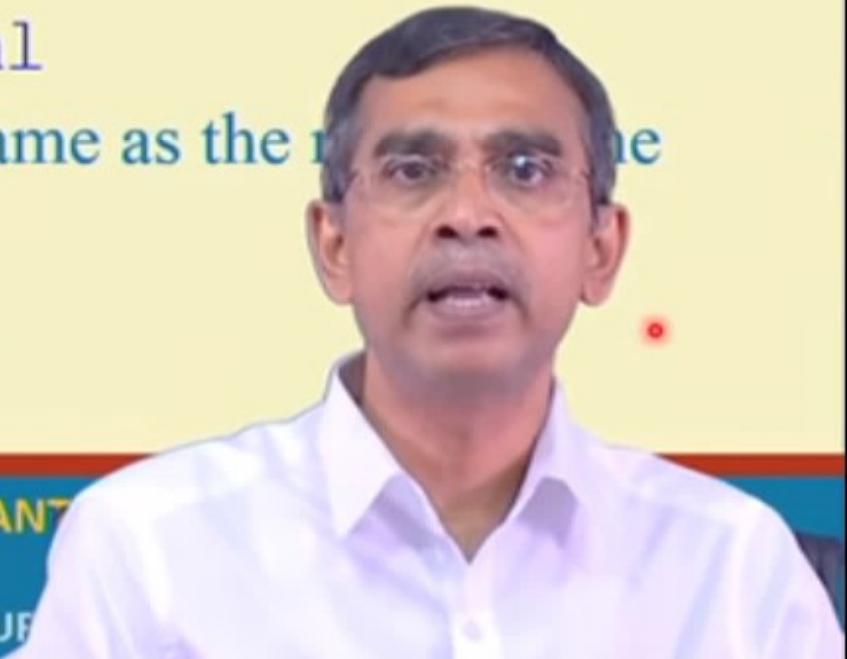
Hosting an applet with HTML

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

- Write this program using any editor, for example, Notepad, Wordpad, etc.
- Save this to file giving a file name `HelloJava.html`
Note: The name of the file is not necessarily be the same as the name of the class; but extension should be the `.html`
- Now the applet is ready for its execution!



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Running an applet

Execution

- A **.html** file can be run with any browser such as Internet Explorer, Mozilla, Safari, Google Chrome, etc.
- Java has its own program called **appletviewer** to run an applet.

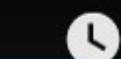


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Running an applet

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Execution

- Open Command prompt and go to the program directory
- Run applet by typing appletviewer <file name>.html

```
Command Prompt
C:\Users\          \Desktop> appletviewer HelloWorld.html
```

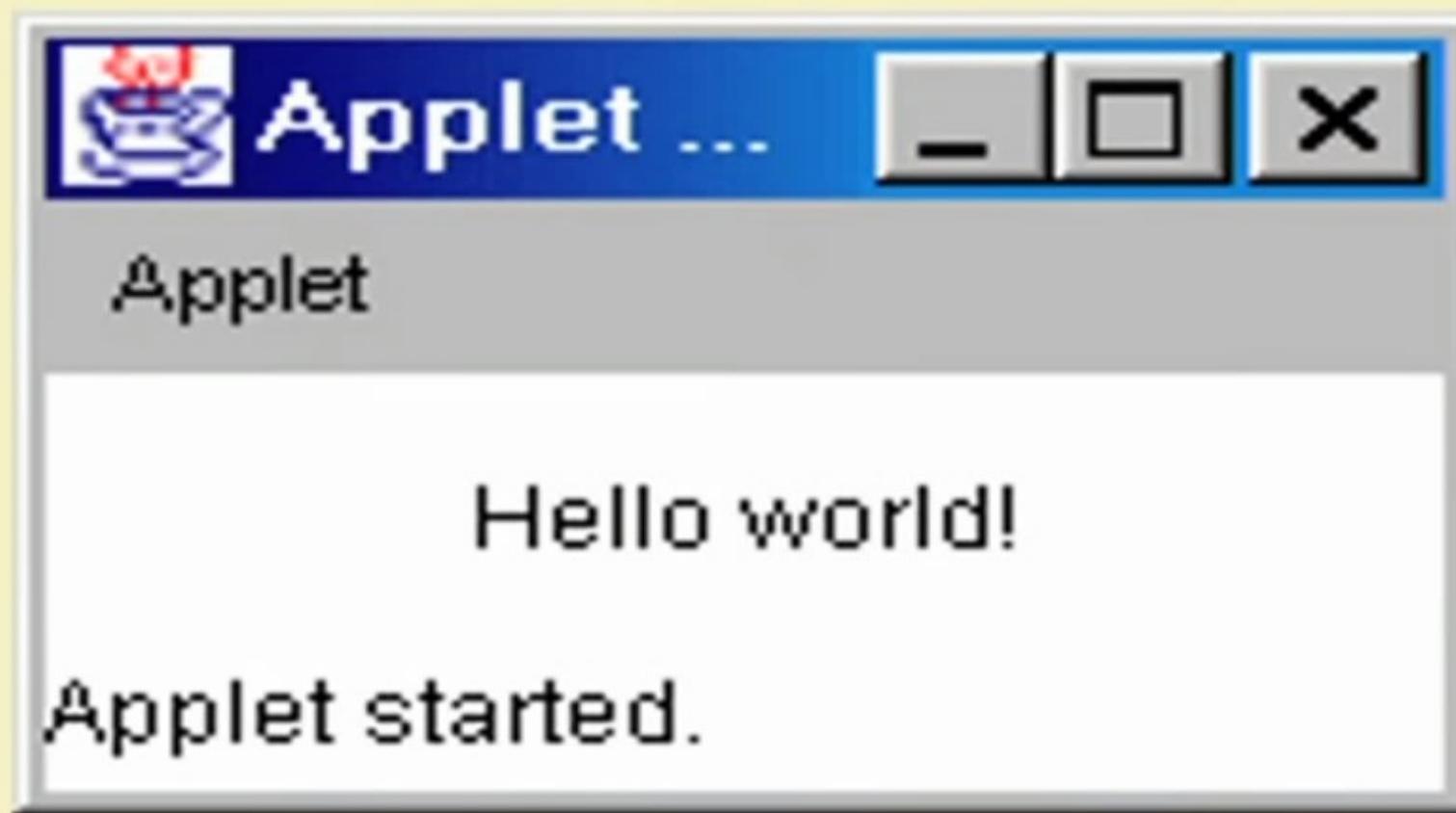
- Alternatively, double click on the .html file





Running an applet

Execution



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Applet revisited

```
import java.applet.Applet;
import java.awt.Graphics;

public class HelloWorld extends Applet{
    public void paint(Graphics g){
        g.drawString("Hello World!", 150, 150);
    }
}
```

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



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Structure of an Applet



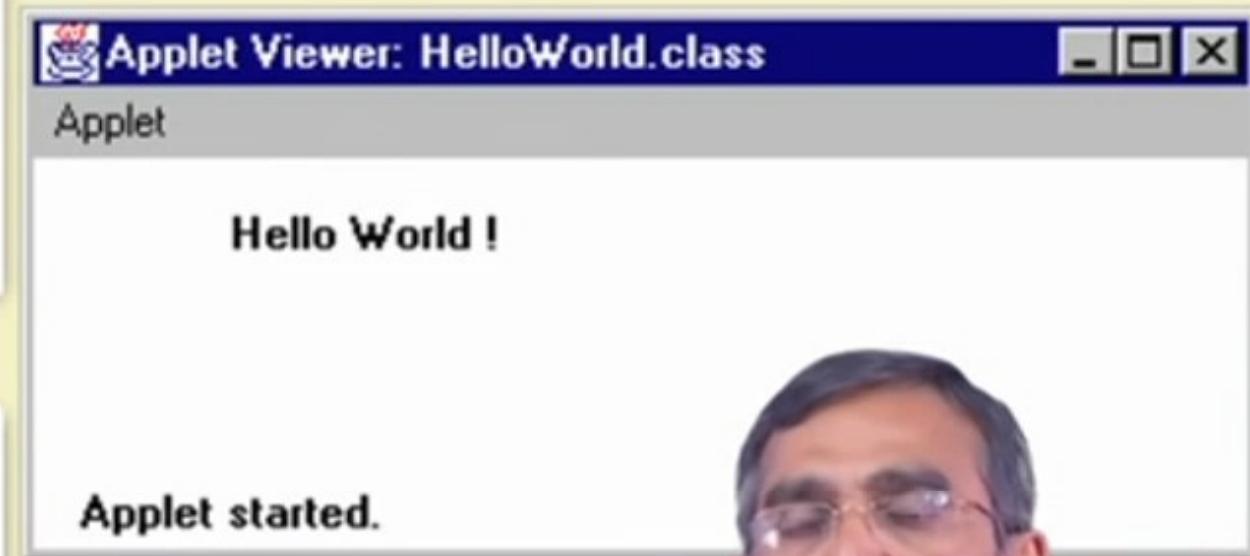


Applet revisited

```
import java.applet.Applet;
import java.awt.Graphics;

public class HelloWorld extends Applet{
    public void paint(Graphics g){
        g.drawString("Hello World!", 150, 150);
    }
}
```

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



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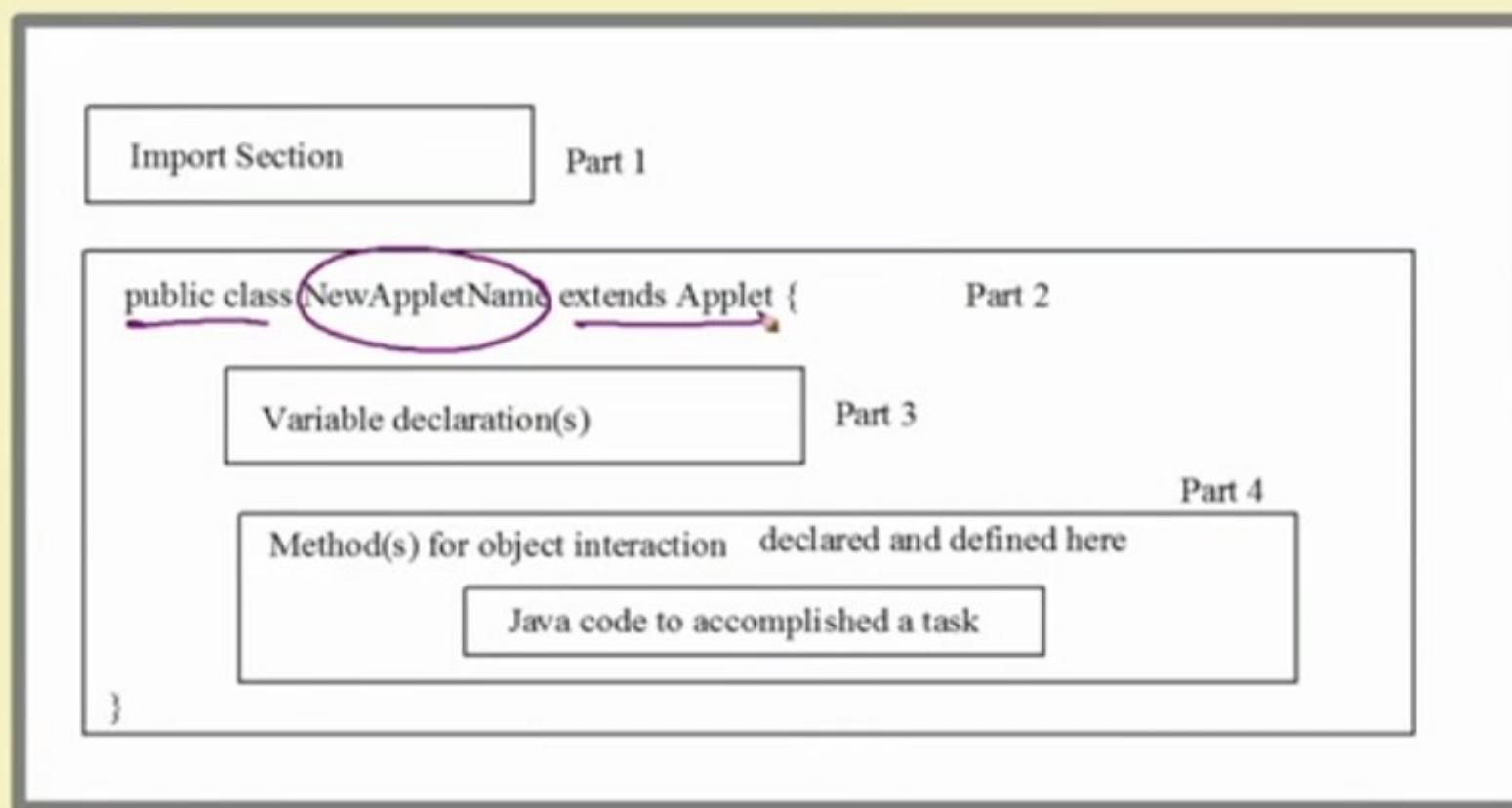
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Basic structure of an applet



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Basic structure of an applet

Import Section

Part 1

```
public class NewAppName extends Applet {
```

Part 2

✓ Variable declaration(s)

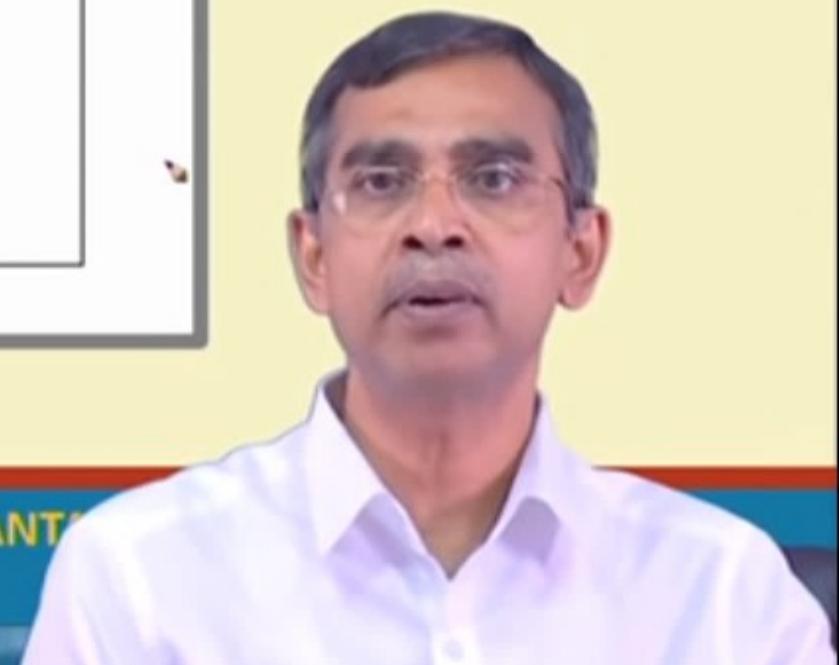
Part 3

✓ Method(s) for object interaction declared and defined here

Java code to accomplish a task

Part 4

```
}
```



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Basic structure of an applet

Import Section

Part 1

public class NewAppName extends Applet {

Part 2

Variable declaration(s)

Part 3

Method(s) for object interaction declared and defined here

Part 4

Java code to accomplish a task

}

```
import java.applet.Applet;
import java.awt.Graphics;

public class HelloWorld extends Applet{
    public void paint(Graphics g){
        g.drawString("Hello World!", 150, 150);
    }
}
```



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Basic methods in applet

- public void **init()**
 - To initialize or pass input to an applet
- public void **start()**
 - The **start()** method is called after the **init()** method, it starts an applet
- public void **stop()**
 - To stop a running applet



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Basic methods in applet

- public void **paint (Graphics g)**
 - To draw something within an applet
- public void **destroy()**
 - To remove an applet from memory completely

```
import java.applet.Applet;
import java.awt.Graphics;

public class HelloWorld extends Applet{
    public void paint(Graphics g){
        g.drawString("Hello World!", 150, 150);
    }
}
```



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Basic methods in applet

```
// Use of init( ) method in an applet //

import java.applet.Applet;
import java.awt.Graphics;

public class HelloWorld extends Applet{
    public void init() {
        resize(200,200);
    }

    public void paint(Graphics g){
        g.drawString("Hello World!",150,150);
    }
}
```



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Basic methods in applet

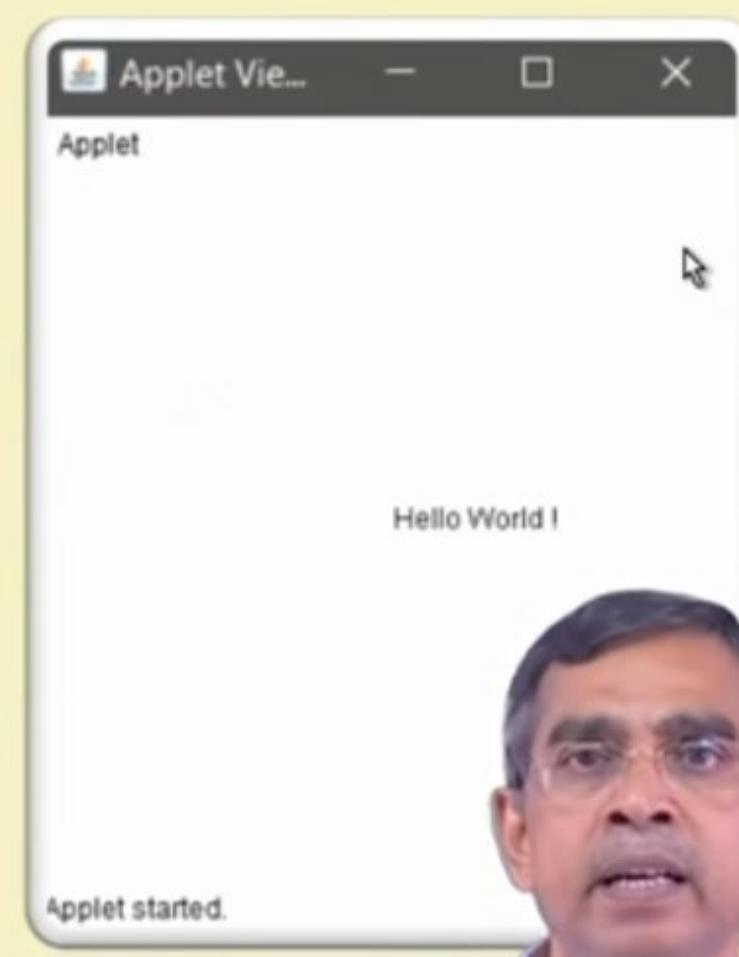
```
// Use of init( ) method in an applet //

import java.applet.Applet;
import java.awt.Graphics;

public class HelloWorld extends Applet{

    public void paint(Graphics g){
        g.drawString("Hello World!", 150, 150);
    }
}
```

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



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Basic methods in applet

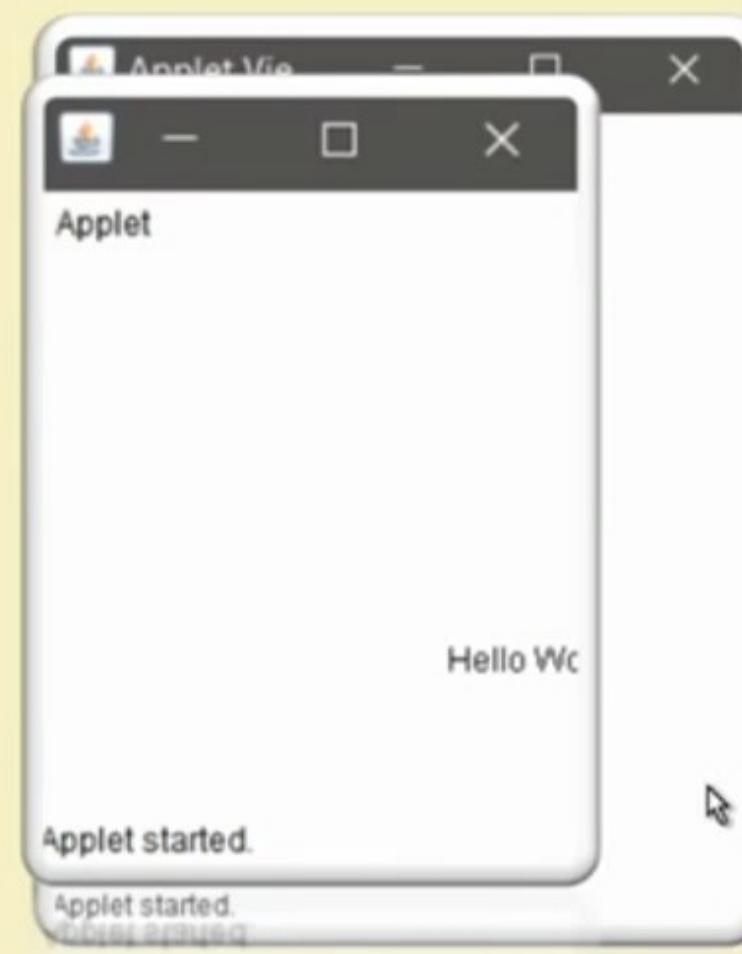
```
// Use of init( ) method in an applet //

import java.applet.Applet;
import java.awt.Graphics;

public class HelloWorld extends Applet{
    public void init() {
        resize(200,200);
    }

    public void paint(Graphics g){
        g.drawString("Hello World!",150,150);
    }
}
```

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



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Input to an Applet



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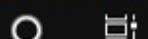


Input passing to an applet

```
// Use of init( ) to pass value through HTML to applet //  
  
import java.applet.*;  
import java.awt.*;  
  
public class RectangleTest extends Applet {  
    int x, y, w, h;  
    public void init ( ) {  
        x = Integer.parseInt(getParameter (" xValue" ));  
        y = Integer.parseInt(getParameter (" yValue" ));  
        w = Integer.parseInt(getParameter (" wValue" ));  
        h = Integer.parseInt(getParameter (" hValue" ));  
    }  
  
    public void paint ( Graphics g ) {  
        g.drawRect (x, y, w, h );  
    }  
}
```



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Input passing to an applet

```
// Use of init( ) to pass value through HTML to applet //

import java.applet.*;
import java.awt.*;

public class RectangleTest extends Applet {
    int x, y, w, h;
    public void init ( ) {
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        y = Integer.parseInt(getParameter (" yValue" ));
        w = Integer.parseInt(getParameter (" wValue" ));
        h = Integer.parseInt(getParameter (" hValue" ));
    }

    public void paint ( Graphics g ) {
        g.drawRect (x, y, w, h );
    }
}
```



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Input passing to an applet

Corresponding HTML document containing this applet and providing parameter values will be :

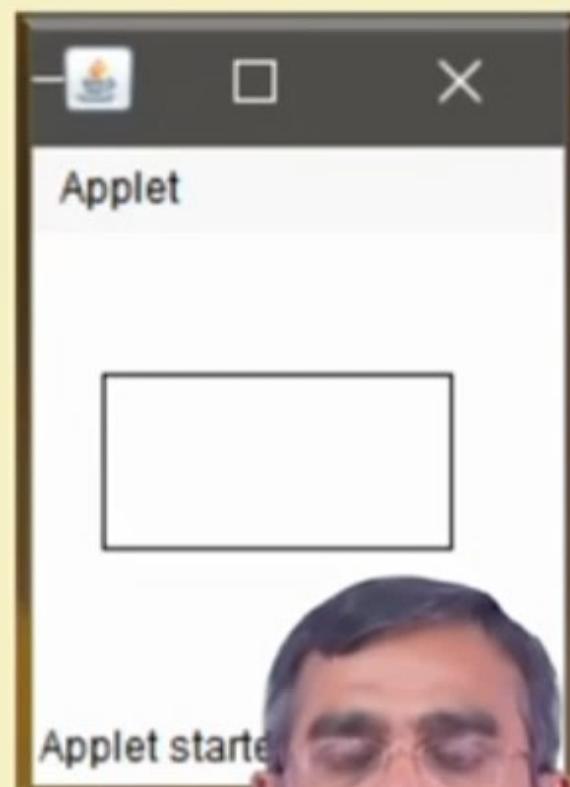
```
<applet code = " RectangleTest" width = 150 height = 100 >
    < param name = xValue value = 20 >
    < param name = yValue value = 40 >
    < param name = wValue value = 100>
    < param name = hValue value = 50 >
</applet >
```





Input passing to an applet

```
<applet code = " RectangleTest" width = 150 height = 100 >
    < param name = xValue value = 20 >
    < param name = yValue value = 40 >
    < param name = wValue value = 100>
    < param name = hValue value = 50 >
</applet >
```



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Input passing to an applet

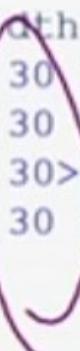
```
<applet code = " RectangleTest" width = 150 height = 100 >
    < param name = xValue value = 30 >
    < param name = yValue value = 30 >
    < param name = wValue value = 30>
    < param name = hValue value = 30 >
</applet >
```





Input passing to an applet

```
<applet code = " RectangleTest" width = 150 height = 100 >
    < param name = xValue value = 30 >
    < param name = yValue value = 30 >
    < param name = wValue value = 30>
    < param name = hValue value = 30 >
</applet >
```



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Input passing to an applet

```
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import java.awt.*;

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    int x, y, w, h;
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        x = Integer.parseInt(getParameter (" xValue" ));
        y = Integer.parseInt(getParameter (" yValue" ));
        w = Integer.parseInt(getParameter (" wValue" ));
        h = Integer.parseInt(getParameter (" hValue" ));
    }

    public void paint ( Graphics g ) {
        g.drawRect(x, y, w, h);
        g.drawString(" --- " + u),
    }
}
```



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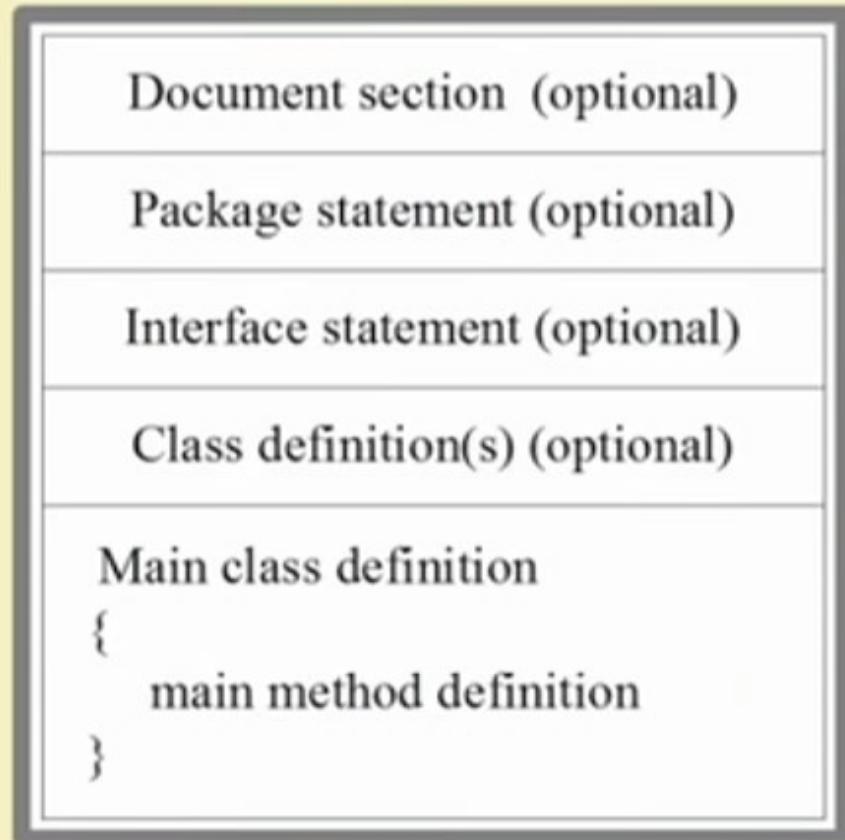
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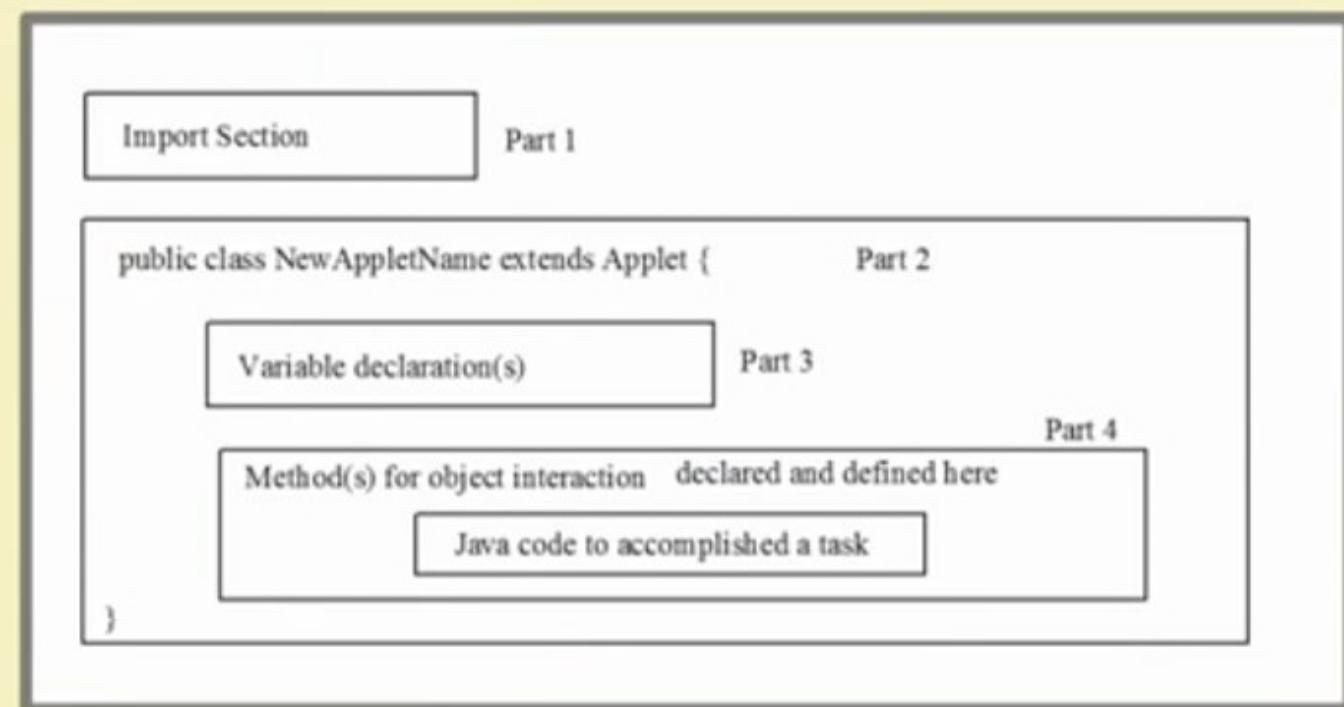
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Application versus applet



Basic structure of an Application



Basic structure of an Applet



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Application versus applet

- Applets **do not use main() method** for initiating the execution of code. Applets, when loaded, automatically call certain methods of **Applet class** to start and execute the code in applets.
- Unlike application (stand alone), applets **cannot be run independently**. They are to be **embedded in HTML pages** as applet code, which browser can run.
- Applet **cannot read from or write to a file** in the local computers.
- Applet **cannot communicate with other servers** in the networks.
- Applet **cannot run any program** from local computers.
- Applets are **restricted from using libraries** from other languages, such as, C, C++, etc.



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Questions to think...

- Why there are so many restrictions in applet programming?
- Can an application and applet be built together?



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