APPLETS

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INTRODUCTION

- Applet is a small program
  - can be placed on a **web page**
  - will be executed by the **web browser**
  - give web pages **"dynamic content"**
  - Applet class is one of the AWT components

- Java applets are usually graphical
  - **Draw graphics** in a defined screen area
  - Enable user interaction with **GUI elements**

TYPES OF APPLET

1. **LOCAL APPLET**
   - Developed and Stored in a **local system**
   - **No net connection** needed
   - It will search the directories in the local system and locates and loads the specified applet.
2. **REMOTE APPLET**
   - Developed by **some one**
   - Stored on a **remote computer** connected to the internet
   - Download the remote applet into our system
   - To download we must need to know the **URL**

CONTRAST APPLICATION WITH APPLET

APPLICATION	APPLET
•Object class extended •Class not declared `public` •Has a `main()` •`static` keyword used •Uses `System.exit(1)`	•`JApplet` class extended •class declared to be `public` •`init()` instead of `main()` •`init()` not declared with static keyword

ADVANTAGES AND DISADVANTAGES OF APPLET

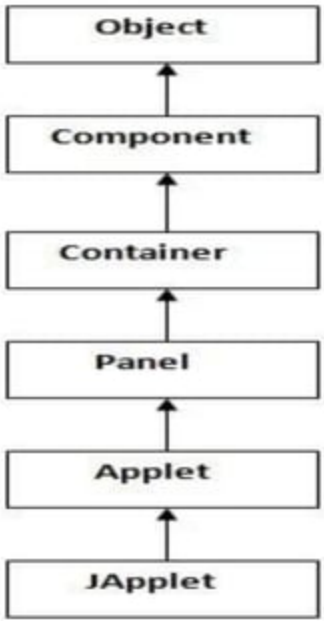
Advantages

- It works at client side so **less response time.**
- **Secured**
- It can be executed by browsers running under **many plateforms**, including Linux, Windows, Mac Os etc.

Disadvantages

- **Plugin** is required at client browser to execute applet.

HIERARCHY OF APPLET



PREPARING TO WRITE APPLET

Understand

- When to use
- How it works
- Features of it
- Where to start

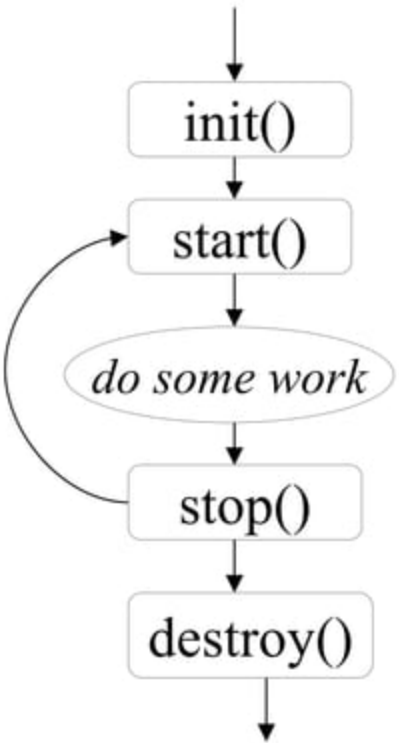
STEPS IN DEVELOPMENT OF APPLET

1. Build an applet code (.java)
2. Create an executable applet (.class)
3. Desigining a web page using HTML tags
4. Prepare <APPLET> Tag
5. Incorporate <APPLET> Tag into web page
6. Create HTML file
7. Test the Applet

LIFECYCLE OF JAVA APPLET

- Applet is **initialized**.
- Applet is **started**.
- Applet is **painted**.
- Applet is **stopped**.
- Applet is **destroyed**.

Methods are called in this order



- 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 your *listeners*
- paint is called when the applet needs to be repainted

APPLET METHODS

public void init ()
public void start ()
public void stop ()
public void destroy ()
public void paint (Graphics)
Also:
public void repaint()
public void update (Graphics)
public void showStatus(String)
public String getParameter(String)

LIFECYCLE METHODS FOR APPLET:

java.applet.Applet class

It provides 4 life cycle methods of applet.

- **public void init():** is used to initialized the Applet. It is invoked only once.
- **public void start():** is invoked after the init() method or browser is maximized. It is used to start the Applet.
- **public void stop():** is used to stop the Applet. It is invoked when Applet is stop or browser is minimized.
- **public void destroy():** is used to destroy the Applet.

java.awt.Component class

- **public void paint(Graphics g):** is used to paint the Applet. It provides Graphics class object that can be used for drawing oval, rectangle, arc etc.

public void init ( )

- This is the first method to execute
- It is an ideal place to initialize variables
- It is the best place to define the GUI Components (buttons, text fields, scrollbars, etc.), lay them out, and add listeners to them
- Almost every applet you ever write will have an init( ) method

public void start ( )

- Not always needed
- Called after init( )
- Called each time the page is loaded and restarted
- Used mostly in conjunction with stop( )
- start() and stop( ) are used when the Applet is doing time-consuming calculations that you don't want to continue when the page is not in front

public void stop( )

- Not always needed
- Called when the browser leaves the page
- Called just before destroy( )
- Use stop( ) if the applet is doing heavy computation that you don't want to continue when the browser is on some other page
- Used mostly in conjunction with start()

public void destroy( )

- Rarely needed
- Called after stop( )
- Use to explicitly release system resources (like threads)
- System resources are usually released automatically

SAMPLE GRAPHICS METHODS

- A Graphics is something you can paint on

g.drawString("Hello", 20, 20); Hello

g.drawRect(x, y, width, height);

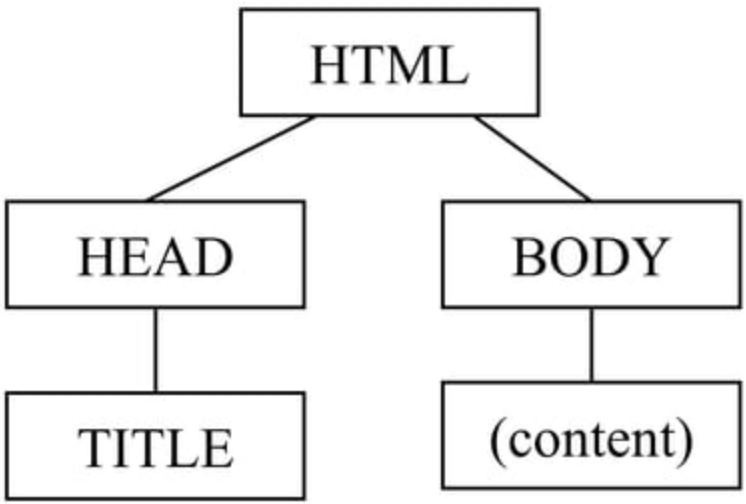
g.fillRect(x, y, width, height);

g.drawOval(x, y, width, height);

g.fillOval(x, y, width, height);

g.setColor(Color.red);

STRUCTURE OF AN HTML PAGE



- Most HTML tags are containers.
- A container is <tag> to </tag>

APPLETS AND WEB PAGES – HTML

- Create the web page code using a text editor
- Save it with an .html suffix
- Open this file with appletviewer or with a web browser that supports Java
- Java Plug-in must be installed (part of J2SDK 1.4.1 from Sun)

```
<HTML>
<HEAD>
</HEAD>
<BODY>
<APPLET CODE = . . . >
</APPLET>
</BODY>
</HTML>
```

SYNTAX

```
import java.applet.Applet;
import java.awt.Graphics;
……
…….
pub.lic class Appletname extends Applet
{
 …..
  ……
 public void paint(Graphics g)
{ ….
….
}
```

SIMPLE EXAMPLE OF APPLET

To execute the applet by html file, create an applet and compile it. After that create an html file and place the applet code in html file. Now click the html file.

//First.java

```
import java.applet.Applet;
import java.awt.Graphics;
public class First extends Applet{

public void paint(Graphics g)
{
g.drawString("welcome",150,150);
}

}
```

//myapplet.html

```
<html>
<body>
<applet code="First.class" width="300" h
eight="300">
</applet>
</body>
</html>
```

EXECUTING AND RUNNING AN APPLET

There are two ways to run an applet

- By html file.
- By appletViewer tool (for testing purpose).

Execute the applet by appletviewer tool, write in command prompt:

- **c:\>javac First.java**
- **c:\>appletviewer First.java**

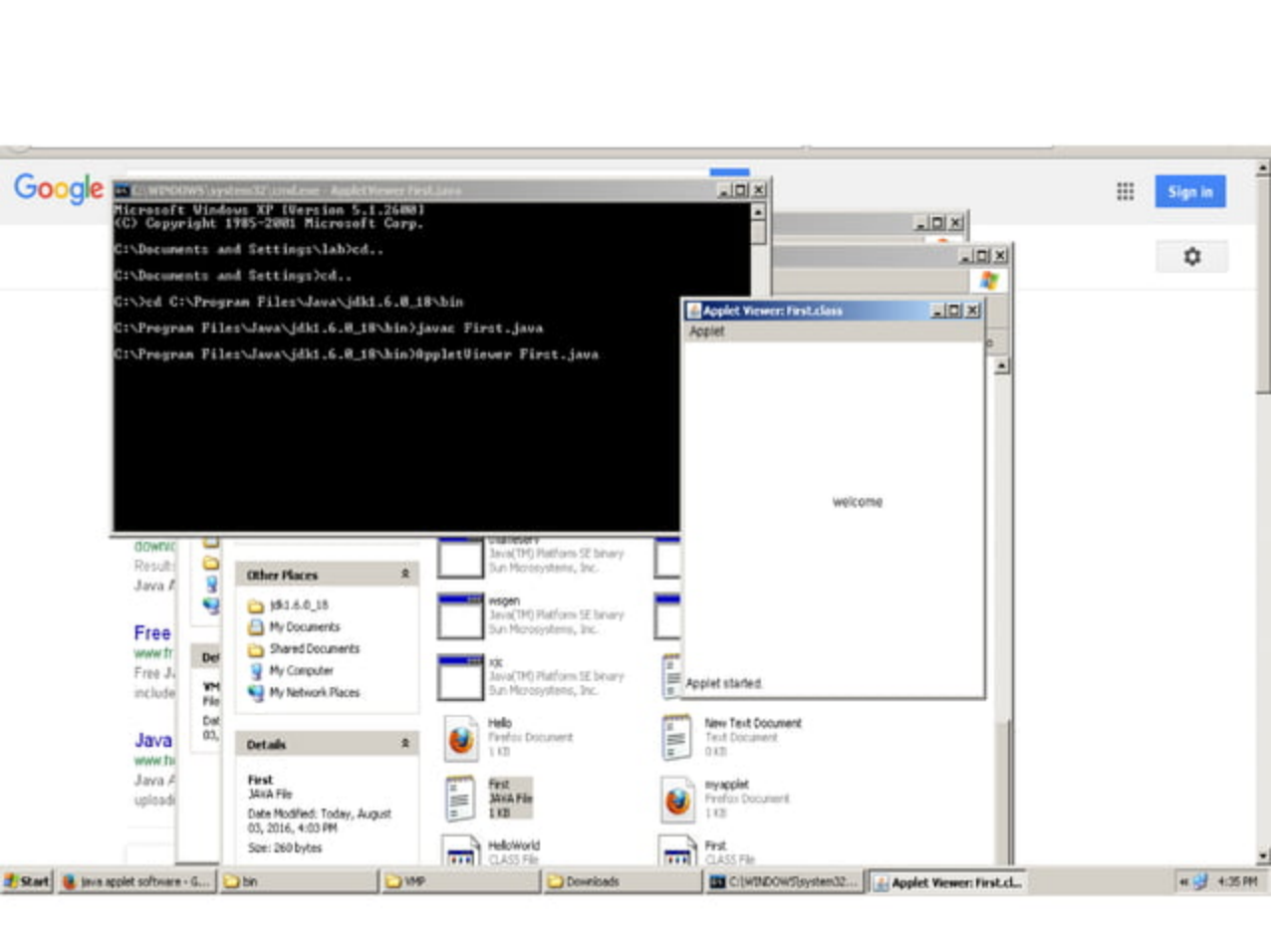
SIMPLIFIED PROGRAM

```
import java.applet.Applet;
import java.awt.Graphics;
/*<applet code="First.class" width="300" height="300">
</applet>*/

public class First extends Applet{

public void paint(Graphics g){
g.drawString("Welcome to Java Programming!",150,150);
}

}
```


Google
Sign in
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\lab>cd..
C:\Documents and Settings>cd..
C:\>cd C:\Program Files\Java\jdk1.6.0_18\bin
C:\Program Files\Java\jdk1.6.0_18\bin>javac First.java
C:\Program Files\Java\jdk1.6.0_18\bin>AppletViewer First.java
Applet Viewer: First.class
Applet
welcome
Applet started
Other Places
jdk1.6.0_18
My Documents
Shared Documents
My Computer
My Network Places
Details
First
JAVA File
Date Modified: Today, August 03, 2016, 4:03 PM
Size: 260 bytes
wsgen
xjc
Hello
Firefox Document
1 KB
First
JAVA File
1 KB
HelloWorld
CLASS File
New Text Document
Text Document
0 KB
myapplet
Firefox Document
1 KB
First
CLASS File
Start
java applet software - G...
bin
VMP
Downloads
C:\WINDOWS\system32...
Applet Viewer: First.cl...
4:35 PM

APPLICATIONS

- QuickTime movies
- Flash movies
- Windows Media Player
- 3D modeling
- Browser games