 *DEPARTMENT OF INFORMATION TECHNOLOGY*

Experiment No.12

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| Experiment No | 12 | |
| Experiment Title | Write programs based on Applet programming in java. | |
| Resources / Apparatus Required | Java SE(JDK)8u102 ,  gedit text editor | PC |
| Objectives | The objective of this experiment is to learn programs based on applet programming in java. | |
| Theory | An **applet** is a Java program that runs in a Web browser. An applet can be a fully functional Java application because it has the entire Java API at its disposal.  **Lifecycle of Java Applet**   1. Applet is initialized. 2. Applet is started. 3. Applet is painted. 4. Applet is stopped. 5. Applet is destroyed.   These import statements bring the classes into the scope of our applet class −   * java.applet.Applet * java.awt.Graphics   Without those import statements, the Java compiler would not recognize the classes Applet and Graphics, which the applet class refers to.  **Lifecycle methods for Applet:**  The java.applet.Applet class has 4 life cycle methods and java.awt.Component class provides 1 life cycle methods for an applet.  java.applet.Applet class  For creating any applet java.applet.Applet class must be inherited. It provides 4 life cycle methods of applet.   1. **public void init():** is used to initialized the Applet. It is invoked only once. 2. **public void start():** is invoked after the init() method or browser is maximized. It is used to start the Applet. 3. **public void stop():** is used to stop the Applet. It is invoked when Applet is stop or browser is minimized. 4. **public void destroy():** is used to destroy the Applet. It is invoked only once.   java.awt.Component class  The Component class provides 1 life cycle method of applet.   1. **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.   **How to run an Applet?**  There are two ways to run an applet   1. By html file. 2. By appletViewer tool (for testing purpose).  Displaying Graphics in Applet java.awt.Graphics class provides many methods for graphics programming. Commonly used methods of Graphics class:  1. **public abstract 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):** draws a rectangle with the specified width and height. 3. **public abstract void fillRect(int x, int y, int width, int height):** is used to fill rectangle with the default color and specified width and height. 4. **public abstract void drawOval(int x, int y, int width, int height):** is used to draw oval with the specified width and height. 5. **public abstract void fillOval(int x, int y, int width, int height):** is used to fill oval with the default color and specified width and height. 6. **public abstract void drawLine(int x1, int y1, int x2, int y2):** is used to draw line between the points(x1, y1) and (x2, y2). 7. **public abstract boolean drawImage(Image img, int x, int y, ImageObserver observer):** is used draw the specified image. 8. **public abstract void drawArc(int x, int y, int width, int height, int startAngle, int arcAngle):** is used draw a circular or elliptical arc. 9. **public abstract void fillArc(int x, int y, int width, int height, int startAngle, int arcAngle):** is used to fill a circular or elliptical arc. 10. **public abstract void setColor(Color c):** is used to set the graphics current color to the specified color. 11. **public abstract void setFont(Font font):** is used to set the graphics current font to the specified font.  Java AWT Example To create simple awt example, you need a frame. There are two ways to create a frame in AWT.  By extending Frame class (inheritance)  By creating the object of Frame class (association)  All Java programs can be classified as Applications and Applets. The striking differences are that applications contain main() method where as applets do not. One more is, applications can be executed at DOS prompt and applets in a browser.  . | |
| Program & output | A)    import java.applet.\*; import java.awt.\*; public class First12 extends Applet  {  public void paint(Graphics g)  {  g.fillOval(10,0,200,200);  g.fillOval(40,50,50,10);  g.fillOval(120,50,50,10);  g.drawLine(105,55,105,100);  g.drawArc(65,80,85,75,180,180) ;}  } /\* <applet code="First12.class" width="300" height="300">  </applet> \*/  C:\Users\Mahesh\Desktop\Untitled.png  C:\Users\Mahesh\Downloads\Screenshot from 2016-10-04 15-31-16 (6).png    B)  import java.applet.Applet;  import java.awt.\*;  public class GraphicsDemok extends Applet  {  public void paint(Graphics g)  {  g.setColor(Color.red); g.drawString("welcome-to-appletworld-in-java", 150, 150); g.setColor(Color.blue); g.drawRect(500,350,150,150); g.fillRect(500,350,150,150); g.setColor(Color.blue); g.drawOval(600,50,250,250);  g.drawArc(750,450,150,150,0,180); g.fillOval(300,150,150,150); g.setColor(Color.red); g.fillArc(300,450,150,150,0,180); g.setColor(Color.blue);  g.drawLine(50,30,400,30);} }  /\*  <applet code="GraphicsDemok.class" width="1000" height="1000"> </applet>  \*/  C:\Users\Mahesh\Desktop\oopm exp 12\Untitled 13.png  C:\Users\Mahesh\Desktop\oopm exp 12\Untitled 12.png | |
| Conclusion | Thus, we have learnt programs based on applet programming in java. | |