**GUI - Drawing Strings**

**1. Create a JFrame with the title “Sample”**

|  |
| --- |
| import javax.swing.\*;  import java.awt.\*;  class GUI  {  JFrame f;  int width = 600, height = 100;    public GUI()  {  f = new JFrame("Title");    DrawPanel pane = new DrawPanel(width, height);    f.add(pane);    f.setSize(width, height);  f.setVisible(true);    }//end default constructor    public static void main (String[] args)  {  new GUI();    }//end main  }//end class GUI  class DrawPanel extends JPanel  {  int width, height;    public DrawPanel(int w, int h)  {  this.width = w;  this.height = h;  repaint();    }//end default constructor    public void paintComponent (Graphics g)  {  super.paintComponent(g);  String text = "Sample";    //Centering the text on the panel  FontMetrics fm = g.getFontMetrics();    int x = (width - fm.stringWidth(text)) / 2;  int y = fm.getHeight() - 1;    g.drawString(text, x, y);    }//end paintComponent  }//end class DrawPanel |

Example 1,

**import javax.swing.JFrame;**

**import javax.swing.JPanel;**

**import java.awt.Container;**

**import javax.swing.JComponent;**

**import java.awt.Graphics;**

**class GUIGreet**

**{**

**public GUIGreet()**

**{**

**JFrame frame = new JFrame("Graphical Greeting");**

**DrawPanel pane = new DrawPanel();**

**frame.add(pane);**

**frame.setSize(400, 100);**

**frame.setVisible(true);**

**}//end default constructor**

**public static void main (String[] args)**

**{**

**new GUIGreet();**

**}//end main**

**}//end class GUIGreet**

**class DrawPanel extends JPanel**

**{**

**public DrawPanel()**

**{**

**repaint();**

**}//end default constructor**

**public void paintComponent (Graphics g)**

**{**

**super.paintComponent(g);**

**g.drawString("Hello, world", 150, 50);**

**}//end paintComponent**

**}//end class DrawPanel**

2. **Rewrite the lines that would have to be changed in the program Example 1 if the import statements were omitted.**

|  |
| --- |
| javax.swing.JFrame frame = new javax.swing.JFrame("Graphical Greeting");  class DrawPanel extends javax.swing.JPanel{}  public void paintComponent (java.awt.Graphics g){} |

**3. In Example 1, explain what would happen if the call to drawString were changed to**

**g.drawString("Hello world", 0, 0);**

|  |
| --- |
| The String will not appear on the JFrame because the coordinate of the String starts from the bottom left of the String. Thus, when (0,0) coordinate is given to the drawString, it does not appear on the screen. |

4. **Example 4 is given below,**

**import javax.swing.\*;**

**import java.awt.\*;**

**import java.awt.event.\*;**

**public class RevisedGreet**

**{**

**public static void main(String[] args)**

**{**

**JFrame frame = new JFrame("Big Greeting");**

**BigGreet greet = new BigGreet();**

**frame.add(greet);**

**frame.setSize(400,100);**

**frame.setVisible(true);**

**frame.setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);**

**}//end main**

**}//end class RevisedGreet**

**class BigGreet extends JPanel**

**{**

**public BigGreet ()**

**{**

**repaint();**

**}**

**public void paintComponent (Graphics g)**

**{**

**super.paintComponent(g);**

**Font largeSerifFont = new Font("Serif", Font.PLAIN, 40);**

**g.setFont(largeSerifFont);**

**g.drawString("Hello, world", 100, 50);**

**}//end paintComponent**

**}//end class**

**What changes would have to be made to produce a greeting that was**

**(a) italicized?**

|  |
| --- |
| Font largeSerifFont = new Font("Serif", Font.ITALIC, 40); |

**(b) bold and italicized?**

|  |
| --- |
| Font largeSerifFont = new Font("Serif", Font.BOLD | Font.ITALIC, 40); |

**5. Write a program that will draw your name and address in a window (pick an appropriate size), as they would appear on an envelope. Try to have the output appear near the centre (does not need to be exact) of the content pane. Change the font type and size, and add some color to your text.**

|  |
| --- |
| import javax.swing.\*;  import java.awt.\*;  class GUI  {  JFrame f;  int width = 550, height = 300;    public GUI()  {  f = new JFrame("ENVELOPE");    Draw drawPanel = new Draw(width, height);  f.add(drawPanel);    f.setSize(width, height);  f.setVisible(true);  f.setLocationRelativeTo(null);  f.setResizable(false);    }//end default constructor    public static void main (String[] args)  {  new GUI();    }//end main    }//end class GUI  class Draw extends JPanel  {  int width, height;  String [] info = {"CANADA", "15, 15, TORONTO, ON M3C1X6 ", "DON MILLS COLLEGIATE INSTITUTE"};  String [] user = {"ASHISH HATTIMARE", "205, WYNFORD DRIVE", "TORONTO, ON M3C3P4", "CANADA"};    public Draw(int w, int h)  {  width = w;  height = h;  repaint();  }//end default constructor    public void paintComponent (Graphics g)  {  super.paintComponent(g);    //Color the envelope white  g.setColor(Color.WHITE);  g.fillRect(0, 0, width, height);    //Color the border of the envelope  g.setColor(Color.BLUE);  g.drawRect(10, 10, width - 27, height - 50);  g.setColor(Color.RED);  g.drawRect(5, 5, width - 17, height - 40);    Font font = new Font("Courier New", Font.PLAIN, 13);  FontMetrics fm = g.getFontMetrics();  g.setFont(font);    //Sender's Address  g.setColor(Color.RED);    for(int i = 0; i < user.length; i++)  {  g.drawString(user[i], 20, 17 \* (1 + i) + 12);  }    //Receiver's Address at the center  int x, y;  g.setColor(Color.BLUE);    for(int i = 0; i < info.length; i++)  {  x = (width - fm.stringWidth(info[i])) / 2;  y = height / 2 + fm.getAscent() - 17 \* i;    g.drawString(info[i], x, y);  }    }//end paintComponent(Graphics)    }//end class Draw |
| Screenshot: |