KC GROUP OF RESEARCH & PROFESSIONAL INSTITUTE
PANDOGA UNA H.P

CORE JAVA LAB

Subject Code:- CS-512

Department of Computer Science & Engineering

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Sr.No.	PRACTICAL
1	Demonstrating the use of method of math class.
2	Programs to implement the methods of string class.
3	To demonstrate the interface.
4	To demonstrate inheritance.
5	To demonstrate super and this.
6	To demonstrate static variable and methods.
7	To demonstrate exceptions
8	To demonstrate file input stream and file output stream classes
9	To demonstrate mouse and keyboard events in an applet
10	To demonstrate the creation of a frame.
11	To demonstrate checkboxes with proper events
12	To demonstrate scroll bars with proper events
13	To demonstrate menu bars and menus
14	To demonstrate dialog boxes

Program – 1

Demonstrating the use of methods in math class.

```
package infoJava;
public class Opr {
public static void main(String[]args)
{
	int a=10;
	int b=20;
	double c=2.145;

	System.out.println(Math.max(a, b));
	System.out.println(Math.min(a, b));
	System.out.println(Math.abs(c));
	System.out.println(Math.cos(c));
	System.out.println(Math.multiplyExact(a,b));

}

}
```

Output:

```
20
10
2.145
-0.5431663470050839
20
```

Program – 2

Programs to implement the methods of string class.

```
package infoJava;
public class swintut {

	public static void main(String[] args) {

	String s="Yuvraj";
	System.out.println(s.length());
	System.out.println(s.charAt(1));
	System.out.println(s.replace('a', 'b'));
	System.out.println(s.startsWith("pr"));
	System.out.println(s.toLowerCase());
	System.out.println(s.endsWith("ka"));
	System.out.println(s.substring(2, 5));
	System.out.println(s.equals("Yuvraj"));
	}
}
```

Output:

```
8
r
Yuvraj
true
Yuvraj
true
iya
true
```

Program - 3

To demonstrate interface

```
importjava.io.*;

// A simple interface
interfaceIn1
{
 // public, static and final
 finalinta = 10;

 // public and abstract
 voiddisplay();
}

// A class that implements the interface.
classTestClass implementsIn1
{
 // Implementing the capabilities of
 // interface.
 publicvoiddisplay()
 {
 System.out.println("interface Example");
 }

 publicstaticvoidmain (String[] args)
 {
 TestClass t = newTestClass();
 t.display();
 System.out.println(a);
 }
}
```

Output:

```
interface Example
10
```

Program - 4

To demonstrate inheritance.

```
1. class Employee{
2. float salary=40000;
3. }
4. class Programmer extends Employee{
5. int bonus=10000;
6. public static void main(String args[]){
7. Programmer p=new Programmer();
8. System.out.println("Programmer salary is:"+p.salary);
9. System.out.println("Bonus of Programmer is:"+p.bonus);
10. }
11. }
```

Output:

```
Programmer salary is:40000.0
 Bonus of programmer is:10000
```

Program -5

To demonstrate super and this.

```
1. class Animal{
2. String color="white";
3. }
4. class Dog extends Animal{
5. String color="black";
6. void printColor(){
7. System.out.println(color);//prints color of Dog class
8. System.out.println(super.color);//prints color of Animal class
9. }
10. }
11. class TestSuper1{
12. public static void main(String args[]){
13. Dog d=new Dog();
14. d.printColor();
15. }}
```

Output:

```
black
White
```

Program – 6

To demonstrate static variable and methods.

```
1. class Calculate{
2. static int cube(int x){
3. return x*x*x;
4. }
5.
6. public static void main(String args[]){
7. int result=Calculate.cube(5);
8. System.out.println(result);
9. }
10. }
```

Output:

125

Program - 7

To demonstrate exceptions

```
1. public class JavaExceptionExample{
2. public static void main(String args[]){
3. try{
4. //code that may raise exception
5. int data=100/0;
6. }catch(ArithmeticException e){System.out.println(e);}
7. //rest code of the program
8. System.out.println("rest of the code...");
9. }
10. }
```

Output

```
Exception in thread main java.lang.ArithmeticException:/ by zero
rest of the code...
```

Program – 8

To demonstrate file input stream and file output stream classes

File Input stream

```
1. import java.io.FileOutputStream;
2. public class FileOutputStreamExample {
3. public static void main(String args[]){
4. try{
5. FileOutputStream fout=new FileOutputStream("D:\\testout.txt");  6.
fout.write(65);
7. fout.close();
8. System.out.println("success...");
9. }catch(Exception e){System.out.println(e);}   }  }
```

Output

Success...

File Output Stream

```
1. import java.io.FileOutputStream;
2. public class FileOutputStreamExample {
3. public static void main(String args[]){
4. try{
5. FileOutputStream fout=new FileOutputStream("D:\\testout.txt");  6.
String s="Welcome to javaTpoint.";
7. byte b[]=s.getBytes();//converting string into byte array  8.
fout.write(b);
9. fout.close();
10. System.out.println("success...");
11. }catch(Exception e){System.out.println(e);}   }
```

Output Success...

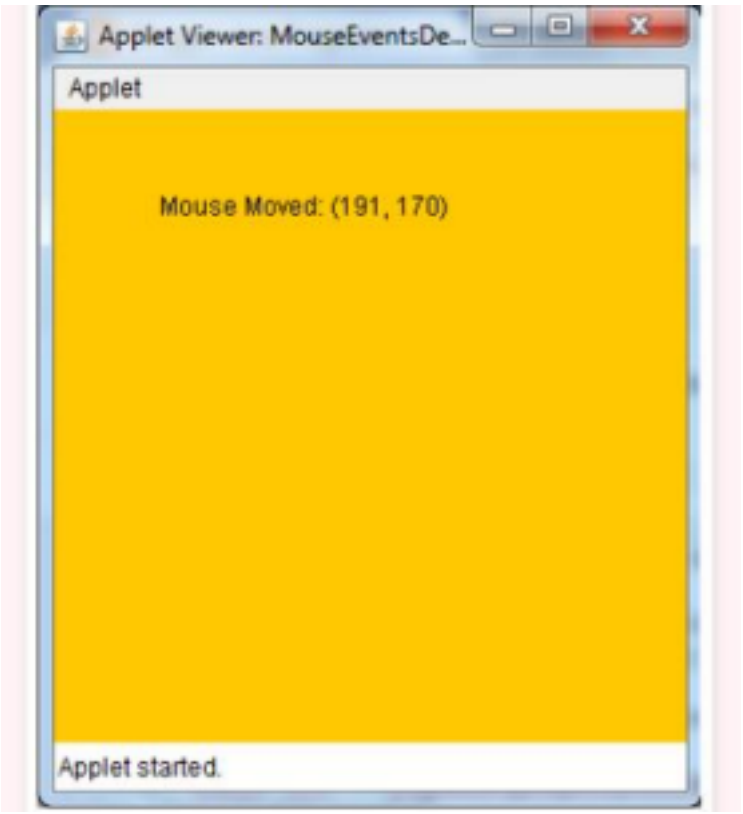
Program – 9

To demonstrate mouse and keyboard events in an applet

```
1. importjava.applet.*;
2. importjava.awt.*;
3. importjava.awt.event.*;
4.
5. /* <APPLET CODE="MouseEventsDemo.class" WIDTH="300" HEIGHT="300"> 6.
</APPLET>
7. */
8.
9. publicclassMouseEventsDemoextendsAppletimplementsMouseListener,Mou
seMotionListener{
10.
11. String message ="";
12.
13. publicvoidinit(){
14.
15. setBackground(Color.YELLOW);
16. addMouseListener(this);
17. addMouseMotionListener(this);
18. }
19.
20. publicvoidpaint(Graphics g){
21. g.drawString(message,50,50);
22. }
23.
24. publicvoidmouseEntered(MouseEvent me){
25. setBackground(Color.PINK);
26. message ="Mouse Entered: ("+me.getX()+", "+me.getY()+")"; 27.
repaint();
28. }
29.
30. publicvoidmouseExited(MouseEvent me){
31. setBackground(Color.RED);
32. message ="Mouse Exited: ("+me.getX()+", "+me.getY()+")";
33. repaint();
```

```
34. }


35.
36. publicvoidmouseClicked(MouseEvent me){
37. setBackground(Color.CYAN);
38. message ="Mouse Clicked: ("+me.getX()+", "+me.getY()+")"; 39.
repaint();
40. }
41.
42. publicvoidmousePressed(MouseEvent me){
43. setBackground(Color.MAGENTA);
44. message ="Mouse Pressed: ("+me.getX()+", "+me.getY()+")"; 45.
repaint();
46. }
47.
48. publicvoidmouseReleased(MouseEvent me){
49. setBackground(Color.GREEN);
50. message ="Mouse Released: ("+me.getX()+", "+me.getY()+")"; 51.
repaint();
52. }
53.
54. publicvoidmouseMoved(MouseEvent me){
55. setBackground(Color.ORANGE);
56. message ="Mouse Moved: ("+me.getX()+", "+me.getY()+")"; 57.
repaint();
58. }
59.
60. publicvoidmouseDragged(MouseEvent me){
61. setBackground(Color.GRAY);
62. message ="Mouse Dragged: ("+me.getX()+", "+me.getY()+")"; 63.
repaint();
64. }
```

Output


Applet Viewer: MouseEventsDe...
Applet
Mouse Moved: (191, 170)
Applet started.

Program – 10

To demonstrate the creation of a frame.

```
import javax.swing.*;

// inheriting JFrame
public class test2 extends JFrame
{
 JFrame frame;
 test2()
 {
 setTitle("this is also a title");

 // create button
 JButton button = new JButton("click");

 button.setBounds(165, 135, 115, 55);

 // adding button on frame
 add(button);

 // setting close operation
 setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

 setSize(400, 500);
 setLayout(null);
 setVisible(true);
 }

 public static void main(String[] args)
 {
 new test2();
 }
}
```

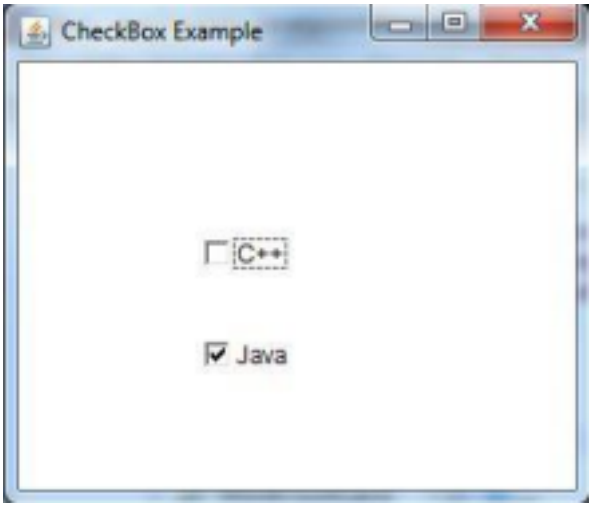
Output :

Program – 11

To demonstrate checkboxes with proper events

```
1. import java.awt.*;
2. public class CheckboxExample
3. {
4. CheckboxExample(){
5. Frame f= new Frame("Checkbox Example");
6. Checkbox checkbox1 = new Checkbox("C++");
7. checkbox1.setBounds(100,100, 50,50);
8. Checkbox checkbox2 = new Checkbox("Java", true);
9. checkbox2.setBounds(100,150, 50,50);
10. f.add(checkbox1);
11. f.add(checkbox2);
12. f.setSize(400,400);
13. f.setLayout(null);
14. f.setVisible(true);
15. }
16. public static void main(String args[])
17. {
18. new CheckboxExample();
19. }
```

Output:



Program – 12

To demonstrate scroll bars with proper events

```
1. import java.awt.*;
2. import java.awt.event.*;
3. class ScrollbarExample{
4. ScrollbarExample(){
5. Frame f= new Frame("Scrollbar Example");
6. final Label label = new Label();
7. label.setAlignment(Label.CENTER);
8. label.setSize(400,100);
9. final Scrollbar s=new Scrollbar();
10. s.setBounds(100,100, 50,100);
11. f.add(s);f.add(label);
12. f.setSize(400,400);
13. f.setLayout(null);
14. f.setVisible(true);
15. s.addAdjustmentListener(new AdjustmentListener() {  16. public void
adjustmentValueChanged(AdjustmentEvent e) {  17.
label.setText("Vertical Scrollbar value is:"+ s.getValue());  18. }
19. });
20. }
21. public static void main(String args[]){
22. new ScrollbarExample();
23. }
24. }
```

Output:

Program – 13

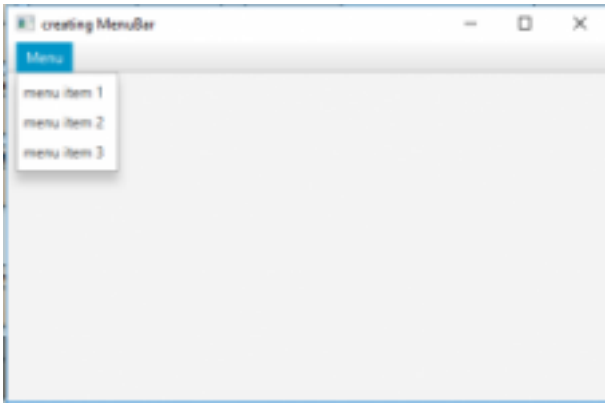
To demonstrate menu bars and menus

```
import javafx.application.Application;
import javafx.scene.Scene;
import javafx.scene.control.Button;
import javafx.scene.layout.*;
import javafx.event.ActionEvent;
import javafx.event.EventHandler;
import javafx.scene.control.*;
import javafx.stage.Stage;
import javafx.scene.control.Alert.AlertType;
import java.time.LocalDate;
public class MenuBar_1 extends Application {

 // launch the application
 public void start(Stage s)
 {
 // set title for the stage
 s.setTitle("creating MenuBar");

 // create a menu
 Menu m = new Menu("Menu");

 // create menuitems
 MenuItem m1 = new MenuItem("menu item 1");
 MenuItem m2 = new MenuItem("menu item 2");
 MenuItem m3 = new MenuItem("menu item 3");

 // add menu items to menu
 m.getItems().add(m1);
 m.getItems().add(m2);
 m.getItems().add(m3);

 // create a menubar
 MenuBar mb = new MenuBar();

 // add menu to menubar
 mb.getMenus().add(m);
```

```
// create a VBox
VBoxvb = new VBox(mb);

// create a scene
Scene sc = new Scene(vb, 500, 300);
```


```
// set the scene
s.setScene(sc);

s.show();
}

public static void main(String args[])
{
// launch the application
launch(args);
}
}
```

Output:



Program – 14

To demonstrate dialog boxes

```
1. import java.awt.*;
2. import java.awt.event.*;
3. public class DialogExample {
4. private static Dialog d;
5. DialogExample() {
6. Frame f= new Frame();
7. d = new Dialog(f , "Dialog Example", true);
8. d.setLayout( new FlowLayout() );
9. Button b = new Button ("OK");
10. b.addActionListener ( new ActionListener()
11. {
12. public void actionPerformed( ActionEvent e )
13. {
14. DialogExample.d.setVisible(false);
15. }
16. });
17. d.add( new Label ("Click button to continue."));
18. d.add(b);
19. d.setSize(300,300);
20. d.setVisible(true);
21. }
22. public static void main(String args[])
23. {
24. new DialogExample();
25. }
26. }
```

Output: