Calculator.java

```
1  import java.awt.EventQueue;
2
3  import javax.swing.JFrame;
4  import javax.swing.JPanel;
5  import javax.swing.border.EmptyBorder;
6  import javax.swing.SpringLayout;
7  import java.awt.Window.Type;
8  import java.awt.Color;
9  import javax.swing.JButton;
10 import java.awt.event.ActionListener;
11 import java.util.Scanner;
12 import java.awt.event.ActionEvent;
13 import java.awt.Font;
14 import java.awt.SystemColor;
15 import javax.swing.UIManager;
16 import javax.swing.ImageIcon;
17
18 public class pbl extends JFrame {
19
20     private JPanel contentPane;
21
22     /**
23      * Launch the application.
24      */
25     public static void main(String[] args) {
26         EventQueue.invokeLater(new Runnable() {
27             public void run() {
28                 try {
29                     pbl frame = new pbl();
30                     frame.setVisible(true);
31                 } catch (Exception e) {
32                     e.printStackTrace();
33                 }
34             }
35         });
36     }
37
38     /**
39      * Create the frame.
40      */
41     public pbl() {
42         setBackground(Color.CYAN);
43         setTitle("Scientific calculator");
44         setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
45         setBounds(100, 100, 926, 688);
46         contentPane = new JPanel();
47         contentPane.setBackground(new Color(0, 255, 255));
48         contentPane.setForeground(new Color(0, 255, 255));
49         contentPane.setBorder(new EmptyBorder(5, 5, 5, 5));
50
51         setContentPane(contentPane);
52         SpringLayout sl_contentPane = new SpringLayout();
53         contentPane.setLayout(sl_contentPane);
54
55         JButton btnNewButton = new JButton("Add");
56         sl_contentPane.putConstraint(SpringLayout.NORTH, btnNewButton, 27,
SpringLayout.NORTH, contentPane);
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57          sl_contentPane.putConstraint(SpringLayout.WEST, btnNewButton, 10,
    SpringLayout.WEST, contentPane);
58          sl_contentPane.putConstraint(SpringLayout.SOUTH, btnNewButton, 75,
    SpringLayout.NORTH, contentPane);
59          btnNewButton.setIcon(null);
60          btnNewButton.setForeground(Color.MAGENTA);
61          btnNewButton.setBackground(Color.ORANGE);
62          btnNewButton.addActionListener(new ActionListener() {
63              public void actionPerformed(ActionEvent e) {
64                  Scanner sc=new Scanner(System.in);
65                  System.out.println("Enter First  number ");
66                  int x=sc.nextInt();
67                  System.out.println("Enter Second   number ");
68                  int y=sc.nextInt();
69                  System.out.println(x+y);
70              }
71          });
72          contentPane.add(btnNewButton);
73
74          JButton btnDiv = new JButton("Div");
75          sl_contentPane.putConstraint(SpringLayout.NORTH, btnDiv, 0,
    SpringLayout.NORTH, btnNewButton);
76          sl_contentPane.putConstraint(SpringLayout.WEST, btnDiv, 43,
    SpringLayout.EAST, btnNewButton);
77          sl_contentPane.putConstraint(SpringLayout.SOUTH, btnDiv, 48,
    SpringLayout.NORTH, btnNewButton);
78          btnDiv.setForeground(Color.RED);
79          btnDiv.setFont(new Font("Kohinoor Devanagari", Font.PLAIN, 13));
80          btnDiv.addActionListener(new ActionListener() {
81              public void actionPerformed(ActionEvent e) {
82                  Scanner sc=new Scanner(System.in);
83                  System.out.println("Enter First  number ");
84                  int x=sc.nextInt();
85                  System.out.println("Enter Second   number ");
86                  int y=sc.nextInt();
87                  System.out.println(x/y);
88              }
89          });
90          btnDiv.setBackground(Color.BLACK);
91          contentPane.add(btnDiv);
92
93          JButton btnSub = new JButton("Sub");
94          sl_contentPane.putConstraint(SpringLayout.WEST, btnSub, 342,
    SpringLayout.WEST, contentPane);
95          sl_contentPane.putConstraint(SpringLayout.EAST, btnDiv, -68,
    SpringLayout.WEST, btnSub);
96          sl_contentPane.putConstraint(SpringLayout.NORTH, btnSub, 1,
    SpringLayout.NORTH, btnNewButton);
97          btnSub.setForeground(Color.BLUE);
98          btnSub.addActionListener(new ActionListener() {
99              public void actionPerformed(ActionEvent e) {
100                 Scanner sc=new Scanner(System.in);
101                 System.out.println("Enter First  number ");
102                 int x=sc.nextInt();
103                 System.out.println("Enter Second   number ");
104                 int y=sc.nextInt();
105                 System.out.println(x-y);
106
107             }
108         });
109         btnSub.setFont(new Font("Kohinoor Devanagari", Font.PLAIN, 13));
110         btnSub.setBackground(Color.YELLOW);
```

```
111         contentPane.add(btnSub);
112 
113         JButton btnMul = new JButton("Mul");
114         sl_contentPane.putConstraint(SpringLayout.WEST, btnMul, 539,
    SpringLayout.WEST, contentPane);
115         sl_contentPane.putConstraint(SpringLayout.EAST, btnSub, -74,
    SpringLayout.WEST, btnMul);
116         sl_contentPane.putConstraint(SpringLayout.NORTH, btnMul, 9,
    SpringLayout.NORTH, btnNewButton);
117         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnMul, 48,
    SpringLayout.NORTH, btnNewButton);
118         btnMul.setForeground(Color.RED);
119         btnMul.addActionListener(new ActionListener() {
120             public void actionPerformed(ActionEvent e) {
121                 Scanner sc=new Scanner(System.in);
122                 System.out.println("Enter First  number ");
123                 int x=sc.nextInt();
124                 System.out.println("Enter Second   number ");
125                 int y=sc.nextInt();
126                 System.out.println(x*y);
127 
128             }
129         });
130         btnMul.setFont(new Font("Kohinoor Devanagari", Font.PLAIN, 13));
131         btnMul.setBackground(Color.GRAY);
132         contentPane.add(btnMul);
133 
134         JButton btnConversions = new JButton("Conversions");
135         sl_contentPane.putConstraint(SpringLayout.EAST, btnMul, -73,
    SpringLayout.WEST, btnConversions);
136         sl_contentPane.putConstraint(SpringLayout.NORTH, btnConversions, -4,
    SpringLayout.NORTH, btnMul);
137         sl_contentPane.putConstraint(SpringLayout.WEST, btnConversions, -180,
    SpringLayout.EAST, contentPane);
138         sl_contentPane.putConstraint(SpringLayout.EAST, btnConversions, -46,
    SpringLayout.EAST, contentPane);
139         btnConversions.addActionListener(new ActionListener() {
140             public void actionPerformed(ActionEvent e) {
141                  Scanner sc=new Scanner(System.in);
142                   System.out.println("Enter which coversion you want to perform "
    );
143                   System.out.println("Enter 1 for degree to radians , 2 for
    radians to degrees ,3 for celcius to farheniet ,4 for celcuis to kelvin");
144 
145                   int g=sc.nextInt();
146                   if(g==1) {
147                       System.out.println("Enter the value in degrees");
148                       int t=sc.nextInt();
149                       System.out.println("Your valur in radians is "+
    Math.toRadians(t));
150                   }
151                   else if(g==2){
152                       System.out.println("Enter the value in radians");
153                       int t=sc.nextInt();
154                       System.out.println("Your valur in radians is "+
    Math.toDegrees(t));
155                   }
156                   else if(g==3) {
157                       System.out.println("Enter the values in celcius");
158                       int h=sc.nextInt();
159                       double j=(((9/5)*h)+32);
160                       System.out.println("The value in farheniet is" + j);
161 
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                    }
                    else if(g==4) {
                        System.out.println("Enter the values in celcius");
                        int h=sc.nextInt();
                        double j=h+273;
                        System.out.println("The value in kelvin is" + j);

                    }




            }
        });
        btnConversions.setForeground(Color.MAGENTA);
        btnConversions.setFont(new Font("Kohinoor Devanagari", Font.PLAIN, 13));
        btnConversions.setBackground(new Color(34, 139, 34));
        contentPane.add(btnConversions);

        JButton btnMatrices = new JButton("Matrices");
        sl_contentPane.putConstraint(SpringLayout.NORTH, btnMatrices, 55, SpringLayout.SOUTH, btnNewButton);
        sl_contentPane.putConstraint(SpringLayout.SOUTH, btnMatrices, -471, SpringLayout.SOUTH, contentPane);
        sl_contentPane.putConstraint(SpringLayout.EAST, btnMatrices, -812, SpringLayout.EAST, contentPane);
        sl_contentPane.putConstraint(SpringLayout.EAST, btnNewButton, 0, SpringLayout.EAST, btnMatrices);
        btnMatrices.addActionListener(new ActionListener() {
            public void actionPerformed(ActionEvent e) {
                Scanner s=new Scanner(System.in);
                System.out.println("Enter first index of array (m terms)");
                 int h=s.nextInt();
                 System.out.println("Enter second  index of array (n terms)");
                 int k=s.nextInt();
                 int a[][]=new int[h][k];
                 int b[][]=new int[h][k];
                  int c[][]=new int[h][k];
                  Scanner sc=new Scanner(System.in);
                  for(int i=0;i<h;i++) {
                      for(int  j=0;j<k;j++) {
                          System.out.println("Enter the elements of matrices");
                          a[i][j]=sc.nextInt();
                      }
                  }
                  for(int i=0;i<h;i++) {
                      for(int  j=0;j<k;j++) {
                          System.out.println("Enter the elements of matrices");
                          b[i][j]=sc.nextInt();
                      }

                  }
                  System.out.println("Enter which operation do you want to perform on matrices (Enter 1 for addition,2 for Substraction,3 for division,4 for multiplication)");
                  int g=sc.nextInt();
                  if(g==1) {
                  for(int i=0;i<h;i++) {
                      for(int  j=0;j<k;j++) {
                          System.out.println("Addition of elements is ");
                          System.out.println(a[i][j]+b[i][j]);
```

```
                    }

                }
                }
                else if(g==2) { for(int i=0;i<h;i++) {
                    for(int  j=0;j<k;j++) {
                        System.out.println("Substraction  of elements is ");
                        System.out.println(a[i][j]-b[i][j]);

                    }

                }
                }

                else if(g==3) {  for(int i=0;i<h;i++) {
                    for(int  j=0;j<k;j++) {
                        System.out.println("Division  of elements is ");
                        System.out.println(a[i][j]/b[i][j]);

                    }

                } }
                else if(g==4) {  for(int i=0;i<h;i++) {
                    for(int  j=0;j<k;j++) {
                        System.out.println("Multiplication  of elements is ");
                        System.out.println(a[i][j]*b[i][j]);

                    }

                }

              }









            }
        });
        btnMatrices.setForeground(SystemColor.controlHighlight);
        btnMatrices.setBackground(new Color(205, 133, 63));
        contentPane.add(btnMatrices);

        JButton btnPercentage = new JButton("Percentage");
        sl_contentPane.putConstraint(SpringLayout.WEST, btnPercentage, 147,
SpringLayout.WEST, contentPane);
        btnPercentage.addActionListener(new ActionListener() {
            public void actionPerformed(ActionEvent e) {
                Scanner sc=new Scanner(System.in);
                System.out.println("Enter total no of marks ");
                int d=sc.nextInt();
                System.out.println("Enter  no of marks u obtained ");
                int k=sc.nextInt();
                double perc=((k*100)/d);
                System.out.println("Congratulations you have obtained"    +perc+
"Percentage");
            }
        });
        sl_contentPane.putConstraint(SpringLayout.NORTH, btnPercentage, 0,
SpringLayout.NORTH, btnMatrices);
```

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275         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnPercentage, 0,
    SpringLayout.SOUTH, btnMatrices);
276         sl_contentPane.putConstraint(SpringLayout.EAST, btnPercentage, 170,
    SpringLayout.EAST, btnMatrices);
277         btnPercentage.setForeground(Color.RED);
278         btnPercentage.setBackground(new Color(255, 160, 122));
279         contentPane.add(btnPercentage);
280 
281         JButton btnPercentage_1 = new JButton("Exponent");
282         sl_contentPane.putConstraint(SpringLayout.WEST, btnPercentage_1, 68,
    SpringLayout.EAST, btnPercentage);
283         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnSub, -53,
    SpringLayout.NORTH, btnPercentage_1);
284         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnPercentage_1, 0,
    SpringLayout.SOUTH, btnMatrices);
285         btnPercentage_1.addActionListener(new ActionListener() {
286             public void actionPerformed(ActionEvent e) {
287                 Scanner sc=new Scanner(System.in);
288                 System.out.println("Enter the number whose exponent is to be
    calculated ");
289                 double x=sc.nextInt();
290                 System.out.println(Math.exp(x));
291 
292 
293 
294 
295             }
296         });
297         sl_contentPane.putConstraint(SpringLayout.NORTH, btnPercentage_1, 0,
    SpringLayout.NORTH, btnMatrices);
298         btnPercentage_1.setForeground(Color.BLUE);
299         btnPercentage_1.setBackground(new Color(138, 43, 226));
300         contentPane.add(btnPercentage_1);
301 
302         JButton btnPercentage_1_1 = new JButton("Cube");
303         sl_contentPane.putConstraint(SpringLayout.WEST, btnPercentage_1_1, 539,
    SpringLayout.WEST, contentPane);
304         sl_contentPane.putConstraint(SpringLayout.EAST, btnPercentage_1, -69,
    SpringLayout.WEST, btnPercentage_1_1);
305         sl_contentPane.putConstraint(SpringLayout.NORTH, btnPercentage_1_1, -48,
    SpringLayout.SOUTH, btnMatrices);
306         btnPercentage_1_1.addActionListener(new ActionListener() {
307             public void actionPerformed(ActionEvent e) {
308                 Scanner sc=new Scanner(System.in);
309                 System.out.println("Enter Base number");
310                 double d=sc.nextInt();
311                 double v=3.0;
312                 System.out.println(Math.pow(d,v));
313             }
314         });
315         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnPercentage_1_1, 0,
    SpringLayout.SOUTH, btnMatrices);
316         btnPercentage_1_1.setForeground(Color.ORANGE);
317         btnPercentage_1_1.setBackground(new Color(0, 0, 255));
318         contentPane.add(btnPercentage_1_1);
319 
320         JButton btnPercentage_1_1_1 = new JButton("Square");
321         sl_contentPane.putConstraint(SpringLayout.WEST, btnPercentage_1_1_1, 760,
    SpringLayout.WEST, contentPane);
322         sl_contentPane.putConstraint(SpringLayout.EAST, btnPercentage_1_1_1, -37,
    SpringLayout.EAST, contentPane);
323         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnConversions, -52,
    SpringLayout.NORTH, btnPercentage_1_1_1);
```

```
324         sl_contentPane.putConstraint(SpringLayout.EAST, btnPercentage_1_1, -97,
    SpringLayout.WEST, btnPercentage_1_1_1);
325         sl_contentPane.putConstraint(SpringLayout.NORTH, btnPercentage_1_1_1, -48,
    SpringLayout.SOUTH, btnMatrices);
326         btnPercentage_1_1_1.addActionListener(new ActionListener() {
327             public void actionPerformed(ActionEvent e) {
328                 Scanner sc=new Scanner(System.in);
329                 System.out.println("Enter Base number");
330                 double d=sc.nextInt();
331                 double v=2.0;
332                 System.out.println(Math.pow(d,v));
333             }
334         });
335         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnPercentage_1_1_1, 0,
    SpringLayout.SOUTH, btnMatrices);
336         btnPercentage_1_1_1.setForeground(Color.MAGENTA);
337         btnPercentage_1_1_1.setBackground(new Color(211, 211, 211));
338         contentPane.add(btnPercentage_1_1_1);
339 
340         JButton btnFactorial = new JButton("Factorial");
341         sl_contentPane.putConstraint(SpringLayout.NORTH, btnFactorial, 263,
    SpringLayout.NORTH, contentPane);
342         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnFactorial, 132,
    SpringLayout.SOUTH, btnMatrices);
343         btnFactorial.addActionListener(new ActionListener() {
344             public void actionPerformed(ActionEvent e) {
345                 Scanner sc=new Scanner(System.in);
346                 int i,fact=1;
347                 System.out.println("Enter the no which factorial is to be
    calculated ");
348                   int no=sc.nextInt();
349                   for(i=1;i<=no;i++){
350                       fact=fact*i;
351                   }
352                   System.out.println("Factorial of "+no+" is: "+fact);
353             }
354         });
355         sl_contentPane.putConstraint(SpringLayout.WEST, btnFactorial, 0,
    SpringLayout.WEST, btnMatrices);
356         btnFactorial.setForeground(UIManager.getColor("Button.select"));
357         btnFactorial.setBackground(new Color(240, 230, 140));
358         contentPane.add(btnFactorial);
359 
360         JButton btnFibonacci = new JButton("Fibonacci");
361         sl_contentPane.putConstraint(SpringLayout.WEST, btnFibonacci, 55,
    SpringLayout.EAST, btnFactorial);
362         btnFibonacci.addActionListener(new ActionListener() {
363             public void actionPerformed(ActionEvent e) {
364                 Scanner sc=new Scanner(System.in);
365                  System.out.println("Enter n terms upto which fibonacci is been
    calculated ");
366                  int n = sc.nextInt(), firstTerm = 0, secondTerm = 1;
367                     System.out.println("Fibonacci Series till " + n + " terms:");
368                     for (int i = 1; i <= n; ++i) {
369                       System.out.println(firstTerm + ", ");
370                       int nextTerm = firstTerm + secondTerm;
371                       firstTerm = secondTerm;
372                       secondTerm = nextTerm;
373                     }
374             }
375         });
```

```
376         sl_contentPane.putConstraint(SpringLayout.NORTH, btnFibonacci, -48,
    SpringLayout.SOUTH, btnFactorial);
377         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnFibonacci, 0,
    SpringLayout.SOUTH, btnFactorial);
378         btnFibonacci.setForeground(new Color(255, 20, 147));
379         btnFibonacci.setBackground(new Color(224, 255, 255));
380         contentPane.add(btnFibonacci);
381 
382         JButton btnSin = new JButton("Sin");
383         sl_contentPane.putConstraint(SpringLayout.WEST, btnSin, 342,
    SpringLayout.WEST, contentPane);
384         sl_contentPane.putConstraint(SpringLayout.EAST, btnFibonacci, -69,
    SpringLayout.WEST, btnSin);
385         sl_contentPane.putConstraint(SpringLayout.NORTH, btnSin, 0,
    SpringLayout.NORTH, btnFactorial);
386         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnSin, 0,
    SpringLayout.SOUTH, btnFactorial);
387         btnSin.addActionListener(new ActionListener() {
388             public void actionPerformed(ActionEvent e) {
389                 Scanner sc=new Scanner(System.in);
390                 System.out.println("Enter Decimal   number whose sine value is to
    be calculated ");
391                 double d=sc.nextInt();
392                 System.out.println(Math.sin(d));
393             }
394         });
395         btnSin.setForeground(new Color(255, 140, 0));
396         btnSin.setBackground(new Color(0, 255, 0));
397         contentPane.add(btnSin);
398 
399         JButton btnCos = new JButton("Cos");
400         sl_contentPane.putConstraint(SpringLayout.WEST, btnCos, 550,
    SpringLayout.WEST, contentPane);
401         sl_contentPane.putConstraint(SpringLayout.EAST, btnSin, -89,
    SpringLayout.WEST, btnCos);
402         sl_contentPane.putConstraint(SpringLayout.NORTH, btnCos, 0,
    SpringLayout.NORTH, btnFactorial);
403         btnCos.addActionListener(new ActionListener() {
404             public void actionPerformed(ActionEvent e) {
405                 Scanner sc=new Scanner(System.in);
406                 System.out.println("Enter Decimal   number whose cos value is to
    be calculated ");
407                 double d=sc.nextInt();
408                 System.out.println(Math.cos(d));
409             }
410         });
411         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnCos, 0,
    SpringLayout.SOUTH, btnFactorial);
412         btnCos.setForeground(new Color(0, 0, 255));
413         btnCos.setBackground(new Color(255, 0, 0));
414         contentPane.add(btnCos);
415 
416         JButton btnTan = new JButton("LOG");
417         sl_contentPane.putConstraint(SpringLayout.EAST, btnCos, -114,
    SpringLayout.WEST, btnTan);
418         sl_contentPane.putConstraint(SpringLayout.WEST, btnTan, -139,
    SpringLayout.EAST, contentPane);
419         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnTan, 0,
    SpringLayout.SOUTH, btnFactorial);
420         btnTan.addActionListener(new ActionListener() {
421             public void actionPerformed(ActionEvent e) {
422                 Scanner sc=new Scanner(System.in);
423                 System.out.println("Enter Decimal   number whose LOG  is to be
    calculated ");
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```
424                 double d=sc.nextInt();
425                 System.out.println(Math.log(d));
426             }
427         });
428         sl_contentPane.putConstraint(SpringLayout.NORTH, btnTan, 0,
    SpringLayout.NORTH, btnFactorial);
429         sl_contentPane.putConstraint(SpringLayout.EAST, btnTan, -51,
    SpringLayout.EAST, contentPane);
430         btnTan.setForeground(new Color(0, 128, 128));
431         btnTan.setBackground(new Color(240, 248, 255));
432         contentPane.add(btnTan);
433 
434         JButton btnPower = new JButton("POWER");
435         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnPower, 120,
    SpringLayout.SOUTH, btnFactorial);
436         sl_contentPane.putConstraint(SpringLayout.EAST, btnPower, -812,
    SpringLayout.EAST, contentPane);
437         btnPower.addActionListener(new ActionListener() {
438             public void actionPerformed(ActionEvent e) {
439                 Scanner sc=new Scanner(System.in);
440                 System.out.println("Enter Base number");
441                 double d=sc.nextInt();
442                 System.out.println("Enter Exponent number");
443                 double v=sc.nextInt();
444                 System.out.println(Math.pow(d,v));
445             }
446         });
447         sl_contentPane.putConstraint(SpringLayout.NORTH, btnPower, 72,
    SpringLayout.SOUTH, btnFactorial);
448         btnPower.setForeground(new Color(255, 99, 71));
449         btnPower.setBackground(Color.PINK);
450         contentPane.add(btnPower);
451 
452         JButton btnRoot = new JButton("Root");
453         sl_contentPane.putConstraint(SpringLayout.WEST, btnRoot, 169,
    SpringLayout.WEST, contentPane);
454         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnRoot, 0,
    SpringLayout.SOUTH, btnPower);
455         sl_contentPane.putConstraint(SpringLayout.EAST, btnRoot, 159,
    SpringLayout.EAST, btnPower);
456         btnRoot.addActionListener(new ActionListener() {
457             public void actionPerformed(ActionEvent e) {
458                 Scanner sc=new Scanner(System.in);
459                 System.out.println("Enter Decimal   number whose root  is to be
    calculated ");
460                 double d=sc.nextInt();
461                 System.out.println(Math.sqrt(d));
462 
463 
464 
465             }
466         });
467         sl_contentPane.putConstraint(SpringLayout.NORTH, btnRoot, 0,
    SpringLayout.NORTH, btnPower);
468         btnRoot.setForeground(new Color(255, 160, 122));
469         btnRoot.setBackground(Color.PINK);
470         contentPane.add(btnRoot);
471 
472         JButton btnPower_2 = new JButton("Floord");
473         sl_contentPane.putConstraint(SpringLayout.NORTH, btnPower_2, 0,
    SpringLayout.NORTH, btnPower);
474         sl_contentPane.putConstraint(SpringLayout.WEST, btnPower_2, 79,
    SpringLayout.EAST, btnRoot);
```

```
475         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnPower_2, 0,
    SpringLayout.SOUTH, btnPower);
476         btnPower_2.addActionListener(new ActionListener() {
477             public void actionPerformed(ActionEvent e) {
478                 Scanner sc=new Scanner(System.in);
479                 System.out.println("Enter First  number ");
480                 double  x=sc.nextInt();
481                 System.out.println("Enter Second   number ");
482                 double  y=sc.nextInt();
483                 System.out.println((x/y));
484
485
486             }
487         });
488         btnPower_2.setForeground(new Color(128, 0, 0));
489         btnPower_2.setBackground(Color.PINK);
490         contentPane.add(btnPower_2);
491
492         JButton btnPower_3 = new JButton("Complex");
493         sl_contentPane.putConstraint(SpringLayout.EAST, btnPower_2, -82,
    SpringLayout.WEST, btnPower_3);
494         sl_contentPane.putConstraint(SpringLayout.NORTH, btnPower_3, 0,
    SpringLayout.NORTH, btnPower);
495         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnPower_3, 0,
    SpringLayout.SOUTH, btnPower);
496         btnPower_3.addActionListener(new ActionListener() {
497             public void actionPerformed(ActionEvent e) {
498                 Scanner sc=new Scanner(System.in);
499                    System.out.println("Enter Real part of complex number ");
500                    int h=sc.nextInt();
501                    System.out.println("Enter imagnary part of complex number ");
502                    int j=sc.nextInt();
503                    System.out.println("Your complex number is "+ h + "+" +  "i"
    +j);
504                    System.out.println("Enter 1 to calculate the Magnitude of
    complex number , 2 to calculate the angle ");
505                    int c=sc.nextInt();
506                    if(c==1) {
507                        System.out.println("The magnitude of complex number is " +
    Math.hypot(h, j));
508                    }
509                    else if(c==2) {
510                        System.out.println("The angle of complex number is " +
    Math.atan2(j, h));
511                    }
512                }
513
514         });
515         btnPower_3.setForeground(new Color(255, 165, 0));
516         btnPower_3.setBackground(new Color(128, 128, 0));
517         contentPane.add(btnPower_3);
518
519         JButton btnPower_4 = new JButton("Inverses");
520         sl_contentPane.putConstraint(SpringLayout.EAST, btnPower_3, -114,
    SpringLayout.WEST, btnPower_4);
521         sl_contentPane.putConstraint(SpringLayout.NORTH, btnPower_4, 0,
    SpringLayout.NORTH, btnPower);
522         sl_contentPane.putConstraint(SpringLayout.WEST, btnPower_4, 0,
    SpringLayout.WEST, btnTan);
523         sl_contentPane.putConstraint(SpringLayout.EAST, btnPower_4, 96,
    SpringLayout.WEST, btnTan);
524         btnPower_4.addActionListener(new ActionListener() {
525             public void actionPerformed(ActionEvent e) {
```

```
526                 Scanner sc=new Scanner(System.in);
527                   System.out.println("Enter the no whose inverse is to be calculated ");
528                   System.out.println("Enter 1 for sin inverse ,2 for cos inverse, 3 for tan inverse ");
529                   int h=sc.nextInt();
530                   System.out.println("Enter the value");
531                   double j=sc.nextInt();
532                   if(h==1) {
533                       System.out.println("Sine inverse of following number is " + Math.asin(j));
534
535                   }
536                   else if(h==2) {
537                       System.out.println("cos inverse of following number is " + Math.acos(j));
538
539                   }
540                   else if(h==3) {
541                       System.out.println("tan inverse of following number is " + Math.atan(j));
542
543                   }
544               }
545           });
546           sl_contentPane.putConstraint(SpringLayout.SOUTH, btnPower_4, 0, SpringLayout.SOUTH, btnPower);
547           btnPower_4.setForeground(new Color(255, 99, 71));
548           btnPower_4.setBackground(Color.PINK);
549           contentPane.add(btnPower_4);
550
551           JButton btnHypotenuse = new JButton("Hypotenuse");
552           btnHypotenuse.addActionListener(new ActionListener() {
553               public void actionPerformed(ActionEvent e) {
554                   Scanner sc=new Scanner(System.in);
555                   System.out.println("Enter the values ");
556                   int x=sc.nextInt();
557                   int y=sc.nextInt();
558                   System.out.println(Math.hypot(x, y));
559               }
560           });
561           sl_contentPane.putConstraint(SpringLayout.NORTH, btnHypotenuse, 43, SpringLayout.SOUTH, btnRoot);
562           sl_contentPane.putConstraint(SpringLayout.WEST, btnHypotenuse, 0, SpringLayout.WEST, btnRoot);
563           sl_contentPane.putConstraint(SpringLayout.SOUTH, btnHypotenuse, -128, SpringLayout.SOUTH, contentPane);
564           sl_contentPane.putConstraint(SpringLayout.EAST, btnHypotenuse, 390, SpringLayout.WEST, contentPane);
565           btnHypotenuse.setForeground(new Color(255, 0, 255));
566           btnHypotenuse.setBackground(Color.PINK);
567           contentPane.add(btnHypotenuse);
568
569           JButton btnExit = new JButton("EXIT");
570           btnExit.addActionListener(new ActionListener() {
571               public void actionPerformed(ActionEvent e) {
572                   System.exit(0);
573               }
574           });
575           sl_contentPane.putConstraint(SpringLayout.NORTH, btnExit, 40, SpringLayout.SOUTH, btnPower_3);
576           sl_contentPane.putConstraint(SpringLayout.WEST, btnExit, 140, SpringLayout.EAST, btnHypotenuse);
```

```
577         sl_contentPane.putConstraint(SpringLayout.SOUTH, btnExit, 88,
    SpringLayout.SOUTH, btnPower_3);
578         sl_contentPane.putConstraint(SpringLayout.EAST, btnExit, 325,
    SpringLayout.EAST, btnHypotenuse);
579         btnExit.setForeground(new Color(127, 255, 212));
580         btnExit.setBackground(Color.PINK);
581         contentPane.add(btnExit);
582     }
583 }
```