

1)

```
import java.util.*;
```

```
class Height
```

```
{
    private int feet;
    private int inches;

    public void getDistance()
    {
        Scanner sc=new Scanner(System.in);

        System.out.print("Enter feet: ");
        feet=sc.nextInt();
        System.out.print("Enter inches: ");
        inches=sc.nextInt();
    }
    public void showDistance()
    {
        System.out.println("Feet: "+ feet + "\tInches: "+ inches);
    }

    public void addDistance(Height H1, Height H2)
    {
        inches=H1.inches+H2.inches;
        feet=H1.feet+H2.feet+(inches/12);
        inches=inches% 12;
    }
}
```

```
public class Main
```

```
{
    public static void main(String []s)
    {
        try
        {

            Height H1=new Height();
            Height H2=new Height();
            Height H3=new Height();

            //read first Height
            System.out.println("Author:D.Aditya Varma\nSAP ID:51834693");
            System.out.println("Enter first Height: ");
            H1.getDistance();

            //read second Height
            System.out.println("Enter second Height: ");
            H2.getDistance();

            //add heights
            H3.addDistance(H1,H2);
        }
    }
}
```

```
        //print Height
        System.out.println("Total Height is:" );
        H3.showDistance();
    }
    catch (Exception e)
    {
        System.out.println("Exception occurred :"+ e.toString());
    }
}
}
```

Output:

A screenshot of a terminal window with a dark background. The window has a title bar with a close button (an 'x'), the title 'Terminal', and a maximize button (two overlapping squares). The output text is displayed in green. It shows the author's name and SAP ID, followed by prompts for two heights. The first height is entered as 5 feet and 6 inches. The second height is entered as 4 feet and 8 inches. The program then calculates and displays the total height as 10 feet and 2 inches, and finally prints 'Process finished.'

```
Author:D.Aditya Varma
SAP ID:51834693
Enter first Height:
Enter feet: 5
Enter inches: 6
Enter second Height:
Enter feet: 4
Enter inches: 8
Total Height is:
Feet: 10 Inches: 2

Process finished.
```

```

2)abstract class Furniture {

    protected String color;
    protected int width;
    protected int height;
    public abstract void accept();
    public abstract void display();
}

    class chair extends Furniture {
    private int numOf_legs;

    public void accept() {

        color = "Brown";
        width = 36;
        height = 48;
        numOf_legs = 4;
    }
    public void display() {
        System.out.println("DISPLAYING VALUE FOR CHAIR");
        System.out.println("=====");
        System.out.println("Color is" + color);
        System.out.println("Width is" + width);
        System.out.println("Height is" + height);
        System.out.println("Number of legs is" + numOf_legs);
        System.out.println(" ");
    }
}

class Bookshelf extends Furniture {

    private int numOf_shelves;

    public void accept() {

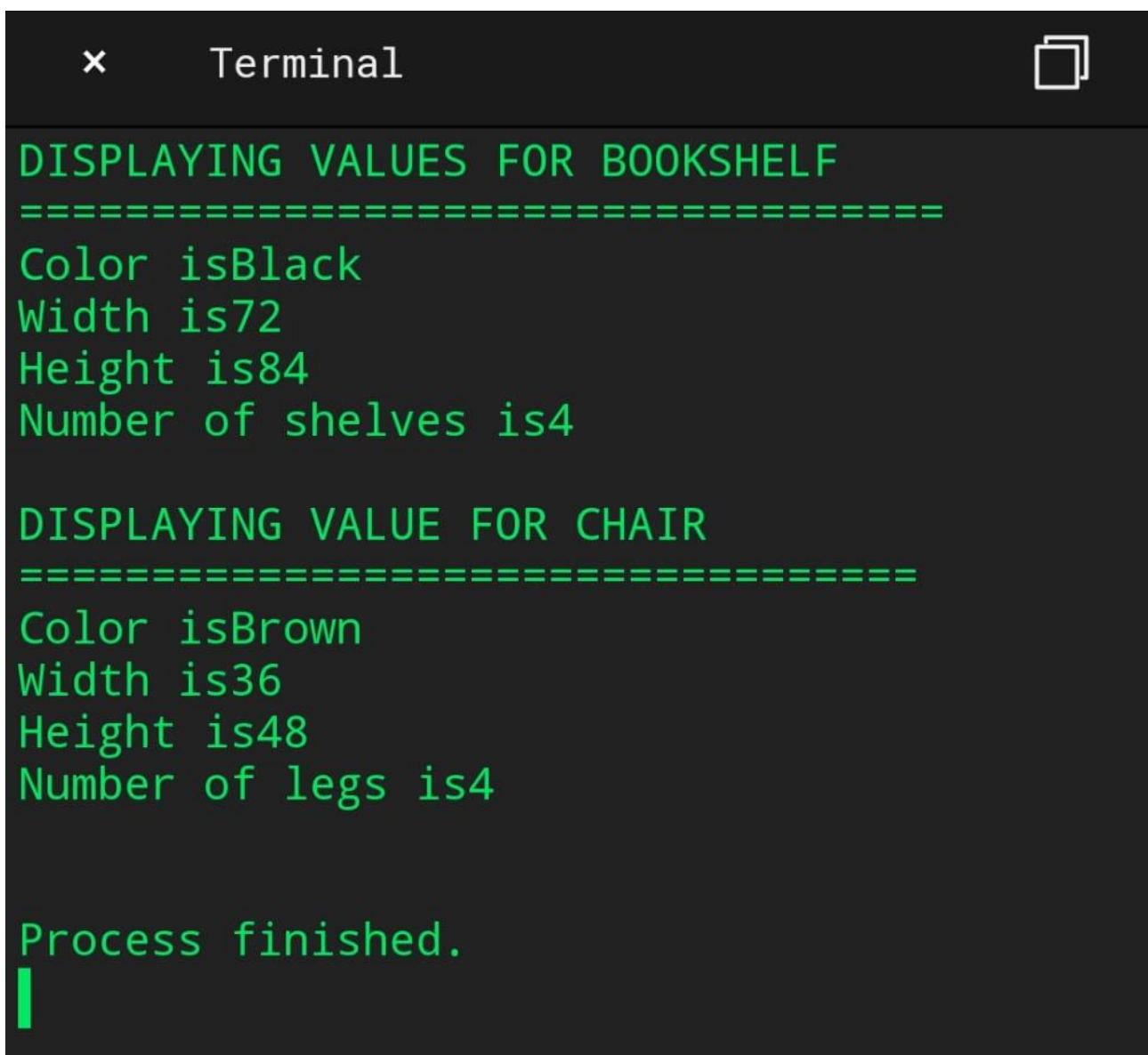
        color ="Black";
        width = 72;
        height = 84;
        numOf_shelves = 4;
    }
    public void display () {
        System.out.println("DISPLAYING VALUES FOR BOOKSHELF");
        System.out.println
        ("=====");


        System.out.println("Color is" + color);
        System.out.println("Width is" + width);
        System.out.println("Height is" + height);
        System.out.println("Number of shelves is" + numOf_shelves);
        System.out.println(" ");
    }
}

```

```
class FurnitureDemo {  
    public static void main(String[] args) {  
        Bookshelf b1 = new Bookshelf();  
        b1.accept();  
        b1.display();  
  
        chair c1 = new chair ();  
        c1.accept();  
        c1.display();  
  
    }  
}
```

Output:

A terminal window titled "Terminal" with a close button (X) and a maximize button (square icon). The output is displayed in green text on a dark background. It shows the execution of the FurnitureDemo class, displaying values for a Bookshelf and a chair. The Bookshelf output includes color (isBlack), width (is72), height (is84), and number of shelves (is4). The chair output includes color (isBrown), width (is36), height (is48), and number of legs (is4). The process finishes with a green cursor line.

```
×      Terminal        
  
DISPLAYING VALUES FOR BOOKSHELF  
=====
```

Color isBlack
Width is72
Height is84
Number of shelves is4

```
DISPLAYING VALUE FOR CHAIR  
=====
```

Color isBrown
Width is36
Height is48
Number of legs is4

```
Process finished.  
|
```

```
3)import java.util.*;

class Main
{
    public static int[] remove(int[] x, int key) {

        List<Integer> result = new ArrayList<>();

        for (int y: x) {
            if (y != key) {
                result.add(y);
            }
        }

        return result.stream()
            .mapToInt(Integer::intValue)
            .toArray();
    }

    public static void main(String[] args) {
        int[] x = { 1, 4, 1, 3, 1, 2, 1, 0 };
        int key = 1;

        x = remove(x, key);
        System.out.println("Author:D.Aditya Varma\nSAP ID:51834693");
        System.out.println(Arrays.toString(x));
    }
}
```

Output:

```
× Terminal

Author:D.Aditya Varma
SAP ID:51834693
[4, 3, 2, 0]

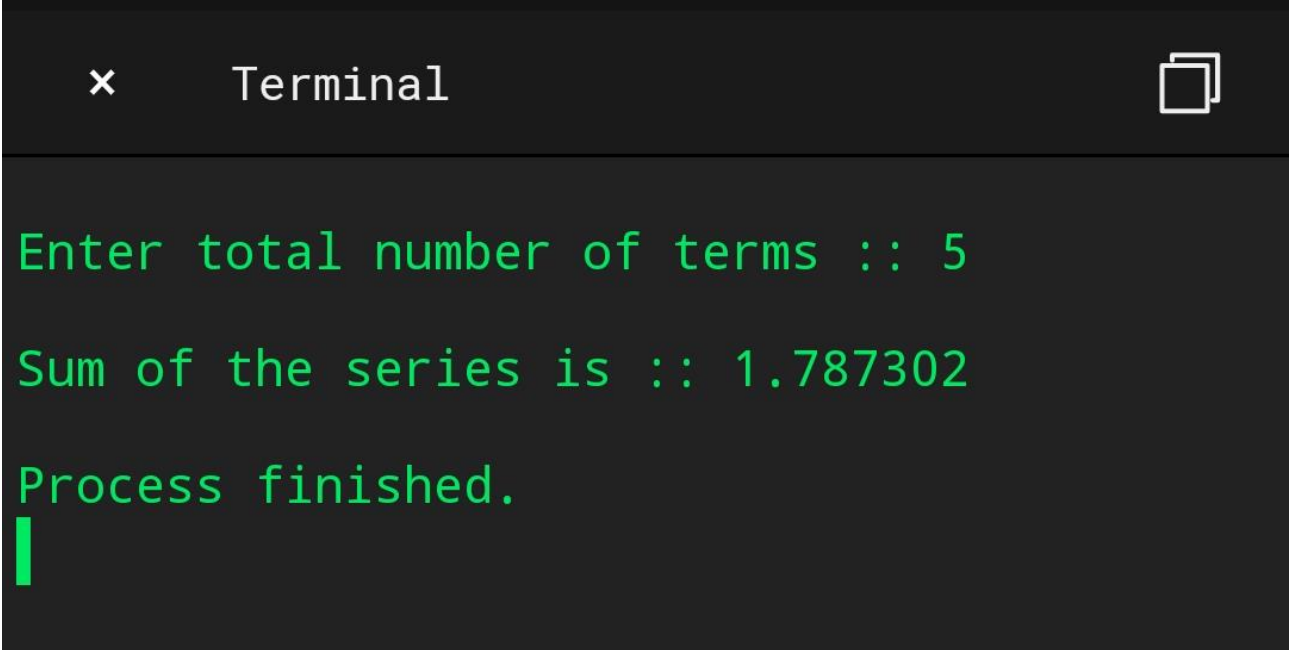
Process finished.
|
```


```

4)public class Main
{
    public static void main(String[] args)
    {
        int i,j,k;
        for(i=1;i<=5;i++)
        {
            for(j=5;j>i;j--)
            {
                System.out.print(" ");
            }
            if(i%2!=0)
            {
                for(j=1,k=1;j<=2*i-1;j++)
                {
                    if(j<i)
                    {
                        System.out.print(k);
                        k++;
                    }
                    else
                    {
                        System.out.print(k);
                        k--;
                    }
                }
            }
            else
            {
                for(j=1,k=i;j<=2*i-1;j++)
                {
                    if(j<i)
                    {
                        System.out.print(k);
                        k--;
                    }
                    else
                    {
                        System.out.print(k);
                        k++;
                    }
                }
            }
            System.out.println();
        }
    }
}

```

Output:

A terminal window with a dark background. The title bar at the top shows a close button (x), the word "Terminal", and a maximize button. The output text is displayed in green. It shows the user input "5" for the number of terms, the calculated sum "1.787302", and a confirmation message "Process finished." followed by a green cursor line.

```
× Terminal   
  
Enter total number of terms :: 5  
Sum of the series is :: 1.787302  
Process finished.  
|
```

```
5)import java.util.Scanner;
```

```
public class DemoTranslation {  
public static void main(String[] args) {  
int n;  
float sum;  
int count;
```

```
System.out.print("\nEnter total number of terms :: ");  
n = STDIN_SCANNER.nextInt();
```

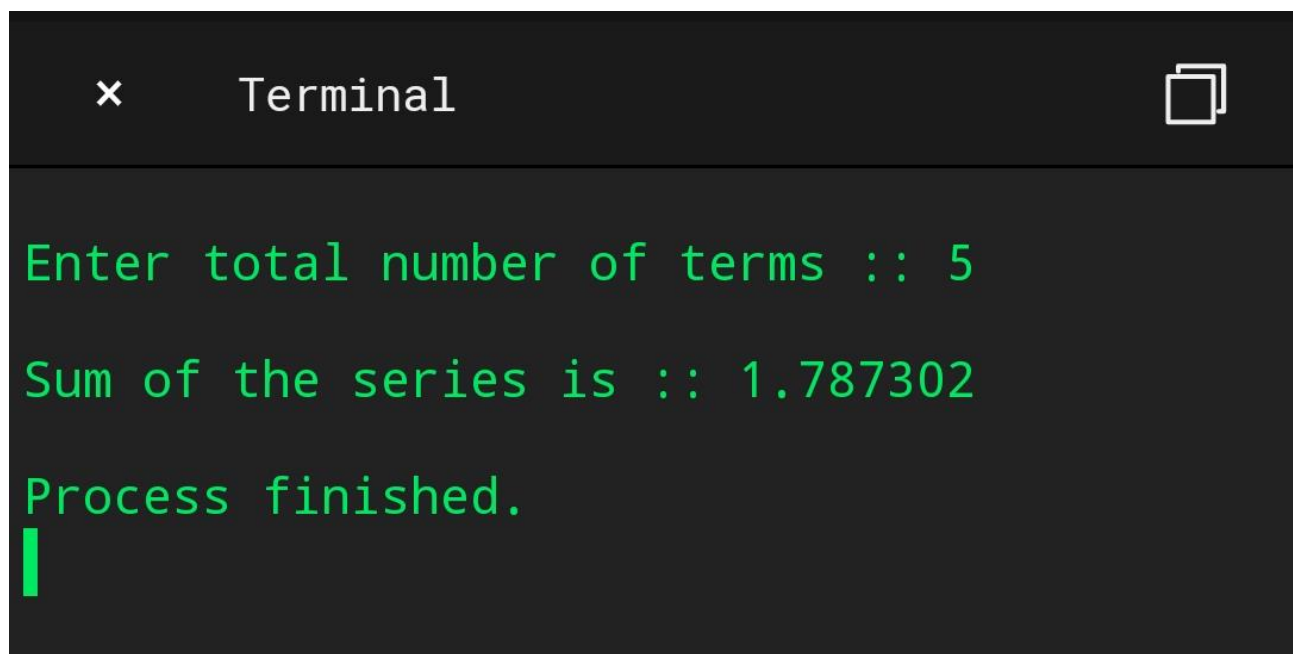
```
sum = 0.0f;
```

```
count = 1;  
for(int i = 1; i <= n; i++) {  
sum = sum + (float)Math.pow(count, 2) / (float)Math.pow(count, 3);  
count += 2;  
}
```

```
System.out.printf("\nSum of the series is :: %f\n", sum);  
}
```

```
public final static Scanner STDIN_SCANNER = new Scanner(System.in);  
}
```

Output:

A terminal window titled "Terminal" with a close button (X) and a maximize button (square icon). The terminal displays the output of the Java program in green text on a dark background. The output consists of three lines: "Enter total number of terms :: 5", "Sum of the series is :: 1.787302", and "Process finished." followed by a green cursor bar.

```
× Terminal
```

```
Enter total number of terms :: 5  
Sum of the series is :: 1.787302  
Process finished.  
|
```