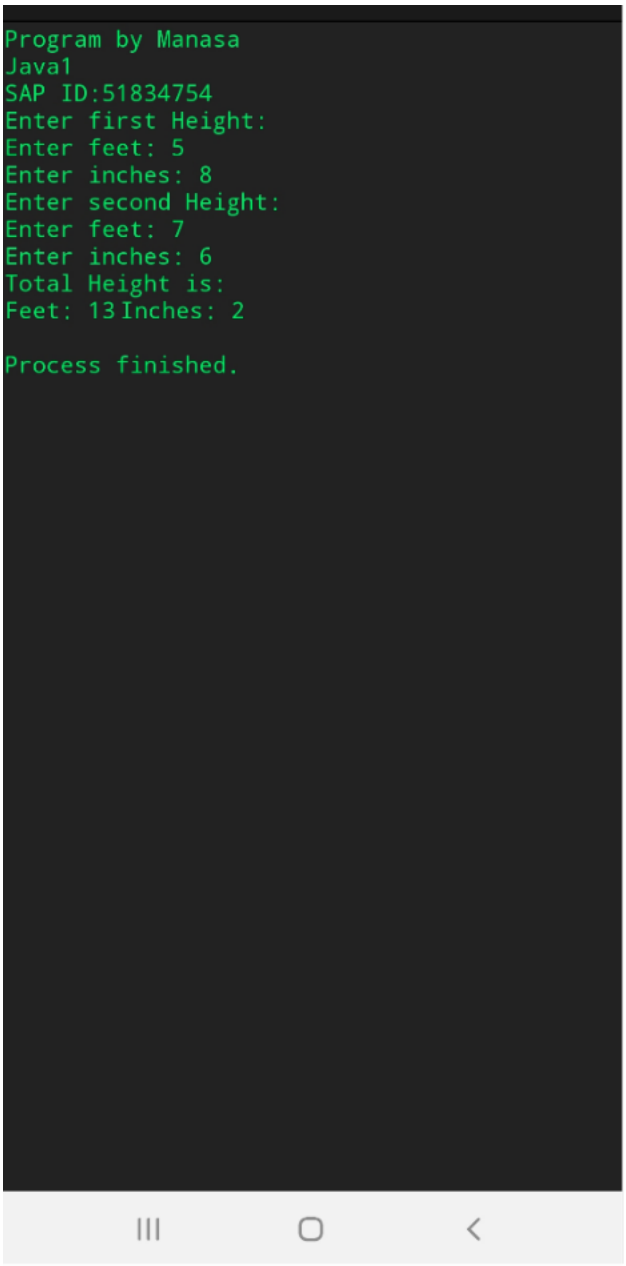
Question 1:

```
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("Program by Manasa \nJava1\nSAP ID:51834754");
      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());
    }
  }
}
```



QUESTION 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(" ");
 }
```

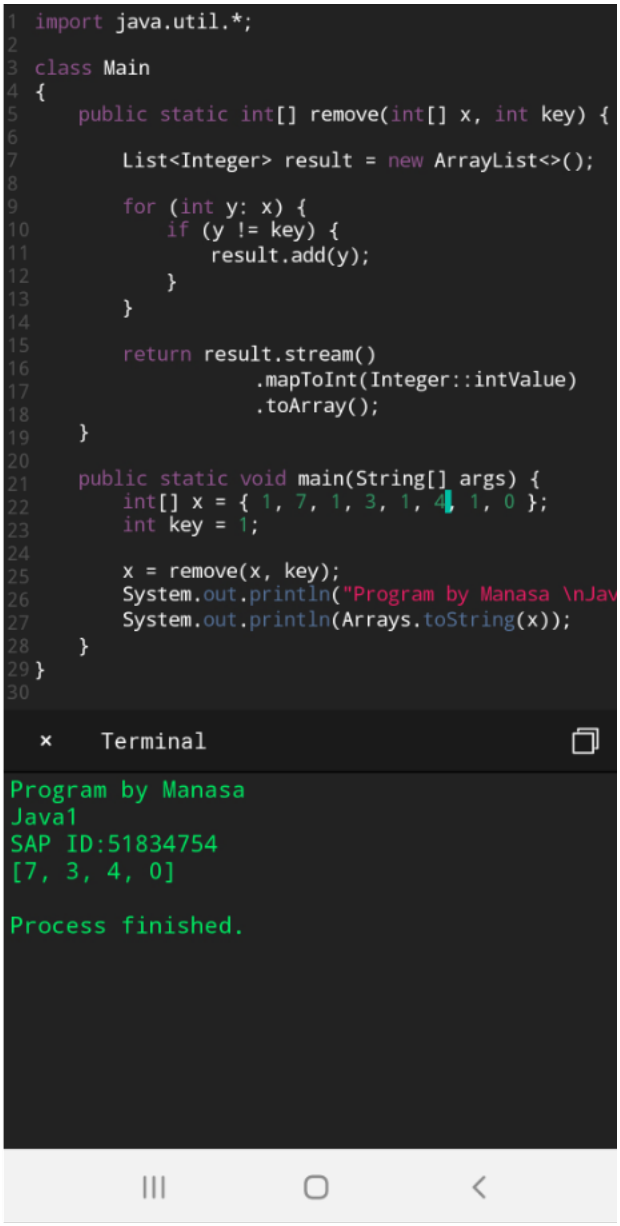
```
}

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)   {
   System.out.println("Program by Manasa\nJava1\nSap:51834754");
  Bookshelf b1 = new Bookshelf();
  b1.accept();
  b1.display();



  chair c1 = new chair ();
  c1.accept();
  c1.display();


 }
 }
```

QUESTION 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, 7, 1, 3, 1, 4, 1, 0 };
		int key = 1;

		x = remove(x, key);
		System.out.println("Program by Manasa \nJava1\nSAP ID:51834754");
		System.out.println(Arrays.toString(x));
	}
}
```



QUESTION 4:

import java.util.*;

```
public class PalindromePattern

{

   public static void main(String[] args)

   {

      int i,j,k;

      Scanner sc=new Scanner(System.in);
      System.out.println("Program by Manasa\nJava1\nSap:51834754");

      System.out.println("enter no.of rows");



     int n=sc.nextInt();



      for(i=0; i<n; i++)

      {
```

```
//inotializing k as one

 k=1;

 for(j=0; j<(n+i); j++)

 {

   if(j<n-i-1)

   //prints space in the less than n-i-2 places

       System.out.print(" ");

    else

    {

      // else prints k

       System.out.print(+ k);

       if(j<(n-1))

      //  if j is greater than n-1
```

```
            //increases to k+1

                k++;



              else

              //if not k as k-1

                k--;

          }

      }



      System.out.println(" ");

  }

  }
```

}

```java
import java.util.*;
public class PalindromePattern
{
    public static void main(String[] args)
    {
        int i,j,k;
        Scanner sc=new Scanner(System.in);
        System.out.println("Program by Manasa\nJava
        System.out.println("enter no.of rows");

       int n=sc.nextInt();

        for(i=0; i<n; i++)
        {
          //inotializing k as one
            k=1;
            for(j=0; j<(n+i); j++)
            {
               if(j<n-i-1)
               //prints space in the less than n-i-
                    System.out.print(" ");
                else
                {
                  // else prints k
                    System.out.print(+ k);
                    if(i<(n-1))
```

```
Terminal
Program by Manasa
Java1
Sap:51834754
enter no.of rows
5
    1
   121
  12321
 1234321
123454321

Process finished.
```

QUIZ MARKS : 17