WEEK 4

4.Develop a Java program to create an abstract class named Shape that contains two integers and an empty method named printArea(). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contain only the method printArea() that prints the area of the given shape.

```
import java.util.Scanner;
abstract class Shape{
  int b,h;
  void printArea(){}
}
class Rectangle extends Shape{
  Rectangle(int a,int c){
     b=a;
     h=c;
  void printArea(){
     System.out.println("Area of the rectangle is "+(b*h));
  }
}
class Triangle extends Shape{
  Triangle(int a,int c){
     b=a;
     h=c;
  void printArea(){
     System.out.println("Area of the triangle is "+(b*h/2));
  }
}
class Circle extends Shape{
  Circle(int a){
    b=h=a;
  void printArea(){
     System.out.println("Area of the circle is "+(Math.PI*b*h));
```

```
}
class Lab_4{
  public static void main(String[] args) {
     Scanner s=new Scanner(System.in);
     int shape;
     System.out.println("Enter the shape\n1.Rectangle\n2.Triangle\n3.Circle\n4.Exit");
   do {
     shape=s.nextInt();
     if(shape==1){
       System.out.println("Enter breadth and height");
       int a=s.nextInt();
       int c=s.nextInt();
       Rectangle r=new Rectangle(a, c);
       r.printArea();
     }else if(shape==2){
       System.out.println("Enter side length and height");
       int a=s.nextInt();
       int c=s.nextInt();
       Triangle r=new Triangle(a, c);
       r.printArea();
     }else if(shape==3){
       System.out.println("Enter radius");
       int a=s.nextInt();
       Circle r=new Circle(a);
       r.printArea();
   }while (shape!=4);
     s.close();
  }
}
```

```
Enter the shape

1.Rectangle

2.Triangle

3.Circle

4.Exit

1
Enter breadth and height

2 4
Area of the rectangle is 8

2
Enter side length and height

2 4
Area of the triangle is 4

3
Enter radius

1
Area of the circle is 3.141592653589793

4
```

4. Develop an abstract class shape which has theo integers and has a method to print Asda. Develop 3 child classes too Rechargle, Taxangle impost java. util. Scannes; abstract class Shape & inf b, n: void paint Aaoa (183 class Rodavgle untends Shaper Restaugle (int a, int c) ? void paint Ason ()[System out paintly ("Area of the redangle is + (684); class Taiangle oxfords Shape & Tarangle (int a, int c) & b=a; 1 void paint Asea E) & System . Out paintly ('Assa of the triangle is + (b* b/h));

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-	ciscule (int a)
	b= h= aj
	}
	void paint Aacal) (
	System out paint In ("Area of the circula in
	+ (Hath. PJ + 6 * h));
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1)
1	The week have the second
1	Class Lab 46
1	public static void main (String asgris) [Scanner 5 - New Scanner (System in)]
1	Scarred (System in)
1	ind alone:
	Sustain out Daintly ("Enter the shape in
1	1. Rectangle In 2. Taiangle In 3. (ixcele In 4. Bril")
1	do £
	shape = s. next Int ();
	102=201
	System out printly ("Enler broodth and height");
	int a= s. hent Inthi
	int e= s. nextInto;
	Rectangle a = new Rectangle (a,c);
	a- paint Ason ().
	3 else if (shape == 2) {
1	System out paintly (" Enter side length and
	height");
	int a=s. head Int();
	inf (= 8 now Inf();
	Triangle f= new Triangle (q,c);
1	t-mpaintAsa();
1	J also il (also as = 3) [
1	System out psintly ("Ender sodiu");
1	System out Palmin (Ender sodius);

inf a= s- next Into; (iscle z = now (iscle (a); a (. paint Aam (); 3 while (shapel= 4); Output: Enter the shape 1. Redangle Enter boradth and height Asea of circle 3.14