LAB 4:

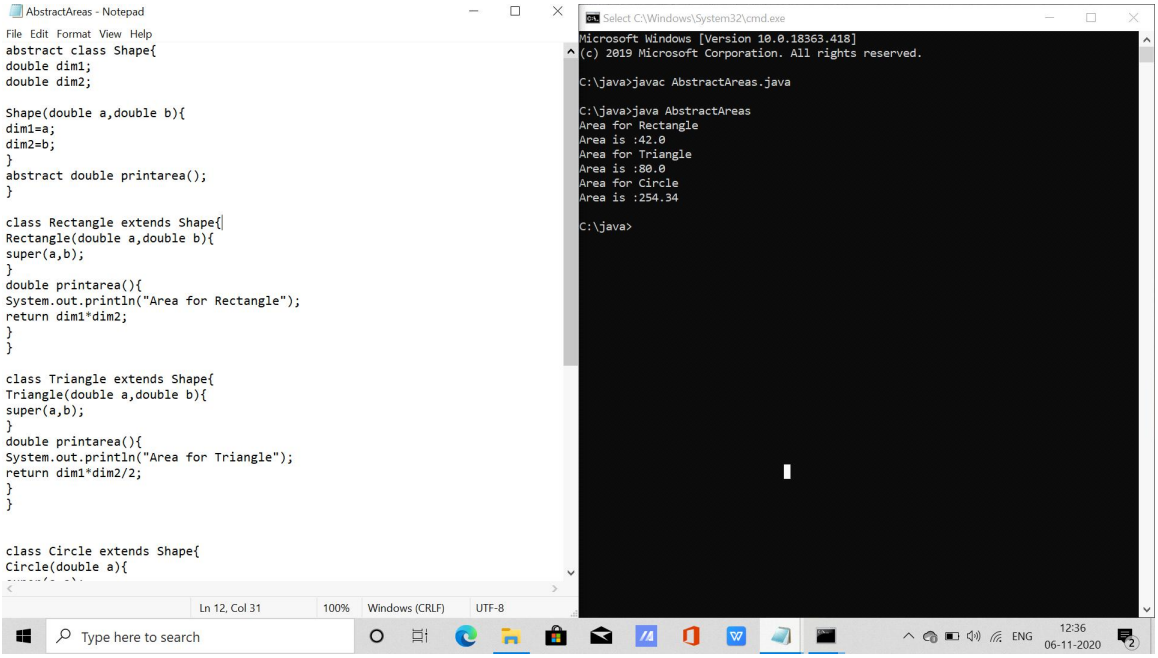
PROGRAM:-

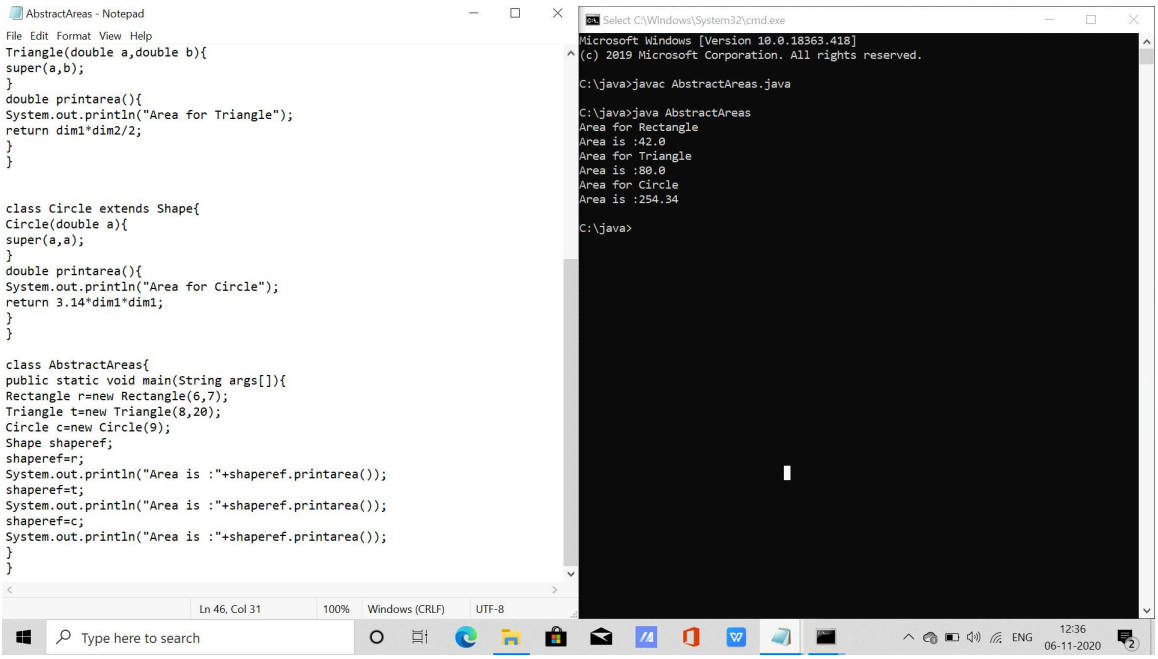
```
abstract class Shape{
double dim1;
double dim2;

Shape(double a,double b){
dim1=a;
dim2=b;
}
abstract double printarea();
}

class Rectangle extends Shape{
Rectangle(double a,double b){
super(a,b);
}
double printarea(){
System.out.println("Area for Rectangle");
return dim1*dim2;
}
}

class Triangle extends Shape{
```

```
Triangle(double a,double b){
super(a,b);
}
double printarea(){
System.out.println("Area for Triangle");
return dim1*dim2/2;
}
}


class Circle extends Shape{
Circle(double a){
super(a,a);
}
double printarea(){
System.out.println("Area for Circle");
return 3.14*dim1*dim1;
}
}

class AbstractAreas{
public static void main(String args[]){
Rectangle r=new Rectangle(6,7);
Triangle t=new Triangle(8,20);
Circle c=new Circle(9);
```

```
Shape shaperef;

shaperef=r;

System.out.println("Area is :"+shaperef.printarea());

shaperef=t;

System.out.println("Area is :"+shaperef.printarea());

shaperef=c;

System.out.println("Area is :"+shaperef.printarea());

}

}
```

SCREENSHOTS OF PROGRAM AND OUTPUT:-





WRITTEN PROGRAM:-

Develop a Java program to create an abstract class named shape that contains 2 integers and an empty method name printarea(). Provide 3 classes named Rectangle, Triangle and Circle such that each one of class extends the class shape. Each one of the classes contain only the method printArea() that prints the area of given shape.

Program

```
abstract class Shape{
double dim1;
double dim2;

Shape(double a, double b){
dim1 = a;
dim2 = b;
}
abstract double ~~area~~ printarea();
}

class Rectangle extends Shape{
Rectangle(double a, double b){
super(a,b);
}
double printarea(){
System.out.println("Area of rectangle:");
return dim1 * dim2;
}
}
```

```
class Triangle extends Shape {
Triangle (double a, double b) {
super(a,b);
}
double printarea() {
System.out.println("Area for Triangle");
return dim1 * dim2/2;
}
}

class Circle extends Shape {
Circle (double a) {
super(a);
}
double printarea() {
System.out.println(" Area for circle");
return 3.14 * dim1 * dim1;
}
}

class AbstractAreas {
public static void main(String args[]) {
Rectangle r = new Rectangle(6,7);
Triangle t = new Triangle(8,20);
Circle c = new Circle(9);
Shape shaperef;
shaperef = r;
System.out.println(" Area is" + shaperef.printarea());
shaperef = t;
System.out.println(" Area is" + shaperef.printarea());
shaperef = c;
System.out.println(" Area is " + shaperef.printarea());
}
}
```