```
//Q1
package Task;
public class Main {

    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        Customer customer = new Customer(123, "Ali Ahmed", 15);
        Account account = new Account(customer.getID(), customer, 1000.0);
        Invoice invoice = new Invoice(customer.getID(), customer, 20.0);

        System.out.println(account);
        System.out.println(invoice.getAmount());
        System.out.println();

        account.withdraw(700);
        System.out.println(account);
        System.out.println();

        account.withdraw(600);
        System.out.println(account);
    }

}
```

```
package Task;
public class Account {
    int ID;
    double balance;
    Customer customer;

    public Account(int ID, Customer customer, double balance) {
        this.ID = ID;
        this.balance = balance;
        this.customer = customer;
    }

    public Account(int ID, Customer customer) {
        this.ID = ID;
        this.customer = customer;
    }

    public int getID(){
        return this.ID;
    }

    public Customer getCustomer(){
        return this.customer;
    }

    public double getBalance(){
```

```
        return this.balance;
    }

    public void setBalance(double balance){
        this.balance = balance;
    }

    public String toString(){
        return String.format("%sBlance = %.2f", customer, getBalance());
    }

    public String getCustomerName(){
        return this.customer.getName();
    }

    public Account deposit(double amount){
        balance += amount;
        return this;
    }

    public Account withdraw(double amount){
        if(balance >= amount)
            balance -= amount;
        else
            System.out.println("Amount withdrawn exceeds the current balance!");
        return this;
    }
}
```

```
package Task;
public class Customer {
    int ID;
    String name;
    int discount;

    public Customer(int ID, String name, int discount){
        this.ID = ID;
        this.name = name;
        this.discount = discount;
    }

    public int getID(){
        return this.ID;
    }

    public String getName(){
        return this.name;
    }

    public int getDiscount(){
        return this.discount;
    }
```

```
    public void setDiscount(int discount){
        this.discount = discount;
    }

    @Override
    public String toString(){
        return String.format("Name : %s\nID   : %s\n", name, ID);
    }
}
```

```
package Task;
public class Invoice {
    int ID;
    Customer customer;
    double amount;

    public Invoice(int ID, Customer customer, double amount) {
        this.ID = ID;
        this.customer = customer;
        this.amount = amount;
    }

    public int getID(){
        return ID;
    }

    public Customer getCustomer(){
        return customer;
    }

    public String getAmount(){
        return String.format("Amount = %.0f.", amount);
    }

    public void setAmount(double amount){
        this.amount = amount;
    }

    public String getCustomerName(){
        return customer.getName();
    }

    public double getAmountAfterDiscount(){
        return amount;
    }
}
```

==========
===

```
//Q2.
package Main;
public class Main {

    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        MyPoint myPoint1 = new MyPoint(0, 0);
        MyPoint myPoint2 = new MyPoint(5, 5);
        MyPoint myPoint3 = new MyPoint(0, 2);

        MyCircule myCircule = new MyCircule(myPoint1, 5);
        System.out.println(myCircule);
        System.out.println("Area : " + myCircule.getArea());
        System.out.println("Circumference : " + myCircule.getCircumference());

        MyTriangle myTriangle = new MyTriangle(myPoint1, myPoint2, myPoint3);
        System.out.println(myTriangle);
        System.out.println("Perimeter = " + myTriangle.getPerimeter());

    }

}
```

```
package Main;
public class MyPoint {
    private int x = 0;
    private int y = 0;

    public MyPoint() {
    }

    public MyPoint(int x, int y) {
        this.x = x;
        this.y = y;
    }
    public int getX() {
        return x;
    }
    public void setX(int x) {
        this.x = x;
    }

    public int getY() {
        return y;
    }

    public void setY(int y) {
        this.y = y;
    }
```

```
    public void setXY(int x, int y){
        this.x = x;
        this.y = y;
    }

    public int[] getXY(){
        return new int [] {getX(), getY()};
    }

    @Override
    public String toString(){
        return String.format("(%d, %d)", getX(), getY());
    }

    public double distance(int x, int y){
        return Math.sqrt(Math.pow(x - this.x, 2) + Math.pow(y - this.y, 2));
    }

    public double distance(MyPoint another){
        return distance(another.getX(), another.getY());
    }

    public double distance(){
        return distance(0, 0);
    }
}
```

```
package Main;
public class MyCircule {
    private MyPoint center = new MyPoint(0, 0);
    private int radius = 1;

    public MyCircule(){

    }
    public MyCircule(int x, int y, int radius){
        center.setX(x);
        center.setY(y);
        this.radius = radius;
    }
    public MyCircule(MyPoint center, int radius){
        this.radius = radius;
        this.center = center;
    }
    public MyPoint getCenter() {
        return center;
    }

    public void setCenter(MyPoint center) {
        this.center = center;
    }
```

```
    public int getRadius() {
        return radius;
    }
    public void setRadius(int radius) {
        this.radius = radius;
    }

    public void setCenterX(int x){
        center.setX(x);
    }
    public int getCenterX(){
        return center.getX();
    }

    public void setCenterY(int y){
        center.setY(y);
    }
    public int getCenterY(){
        return center.getY();
    }

    public void setCenterXY(int x, int y){
        center.setX(x);
        center.setY(y);
    }

    public int[] getCenterXY(){
        return new int[] {center.getX(), center.getY()};
    }

    public String toString(){
        return String.format("MyCircule[radius = %d, center = %s]",
                this.getRadius(), center);
    }
    public double getArea(){
        return radius * radius * Math.PI;
    }

    public double getCircumference(){
        return 2 * Math.PI * radius;
    }
    public double distance(MyPoint another){
        return center.distance(another.getX(), another.getY());
    }
}
```

```
/*
In the name of Allah, the Gracious, the Merciful
 */
package Main;
```

```
public class MyTriangle {
   MyPoint v1;
   MyPoint v2;
   MyPoint v3;

   public MyTriangle(MyPoint v1, MyPoint v2, MyPoint v3){
      this.v1 = v1;
      this.v2 = v2;
      this.v3 = v3;
   }

   public MyTriangle(int x1, int y1
         , int x2, int y2, int x3, int y3){

      v1.setXY(x1, y1);
      v2.setXY(x2, y2);
      v3.setXY(x3, y3);
   }

   public String toString(){
      return String.format("MyTriangle[v1=(%d, %d), v2=(%d, %d), v3=(%d, %d)]",
            v1.getX(), v1.getY(), v2.getX(), v2.getY(), v3.getX(), v3.getY());
   }

   public double getPerimeter(){
      return v1.distance(v2) + v1.distance(v3) + v2.distance(v3);
   }
}
```