Devoir de TP POO (Baaziz Youssef)

Exercice 2 :

- *Personne.java*

```java
package exercice2;
no usages
public class Personne {
    4 usages
    private String nom, prenom, email;
    4 usages
    private String tel;
    4 usages
    private int age;
    no usages
    public Personne(String nom, String prenom, String email, String tel, int age) {
        super();
        this.nom = nom;
        this.prenom = prenom;
        this.email = email;
        this.tel = tel;
        this.age = age;
    }
    no usages
    public String getNom() { return nom; }
    no usages
    public void setNom(String nom) { this.nom = nom; }
    no usages
    public String getPrenom() { return prenom; }
    no usages
    public void setPrenom(String prenom) { this.prenom = prenom; }
    no usages
    public String getEmail() { return email; }
    no usages
    public void setEmail(String email) { this.email = email; }
    no usages
    public String getTel() { return tel; }
    no usages
    public void setTel(String tel) { this.tel = tel; }
    no usages
    public int getAge() { return age; }
    no usages
    public void setAge(int age) { this.age = age; }
    no usages
    @Override
    public String toString() {
        return "Personne [nom=" + nom + ", prenom=" + prenom + ", email=" + email + ", tel=" + tel + ", age=" + age
                + "]";
    }
}
```

- *Adherent.java*

```java
package exercice2;

no usages
public class Adherent extends Personne {

    2 usages
    private int numAdherent;

    no usages
    public Adherent() {
    }

    no usages
    public Adherent(String nom, String prenom, String email, String tel, int age, int numAdherent) {
        super(nom, prenom, email, tel, age);
        // TODO Auto-generated constructor stub
        this.numAdherent = numAdherent;
    }

    no usages
    @Override
    public String toString() { return "Adherent ["+super.toString()+" numAdherent=" + numAdherent + "]"; }

}
```

- *Auteur.java*

```java
package exercice2;

no usages
public class Auteur extends Personne {

    2 usages
    private int numAuteur;

    no usages
    public Auteur() {
    }

    no usages
    public Auteur(String nom, String prenom, String email, String tel, int age, int numAuteur) {
        super(nom, prenom, email, tel, age);
        // TODO Auto-generated constructor stub
        this.numAuteur = numAuteur;
    }

    no usages
    @Override
    public String toString() { return "Auteur ["+super.toString()+" numAuteur=" + numAuteur + "]"; }

}
```

- *Livre.java*

```java
package exercice2;

no usages
public class Livre {
    2 usages
    private int isbn;
    2 usages
    private String titre;
    2 usages
    private Auteur auteur;

    no usages
    public Livre() {
    }

    no usages
    public Livre(int isbn, String titre, Auteur auteur) {
        super();
        this.isbn = isbn;
        this.titre = titre;
        this.auteur = auteur;
    }

    no usages
    @Override
    public String toString() { return "Livre [isbn=" + isbn + ", titre=" + titre + ", auteur=" + auteur.toString() + "]"; }
}
```

- *Main.java*

```java
package exercice2;

no usages
public class main {

    no usages
    public static void main(String[] args) {
        // TODO Auto-generated method stub

        Adherent ad = new Adherent("youssef","baaziz","youssefbz@gmail.com","087756585",22,002);
        Auteur auteur = new Auteur("anas","lkwifa","lkwifa23@gmail.com","9988674543",52,003);
        Livre livre = new Livre(21,"basatin arbistan",auteur);

        System.out.println("-----------info of adherent ------");
        System.out.println(ad.toString());

        System.out.println("-----------info of livre ------");
        System.out.println(livre.toString());
    }
}
```

Exercice 3 :

- *Vehicule.java*

```java
package exercice3;

no usages
public class Vehicule {

    2 usages
    private String nom;
    2 usages
    private double prix;

    no usages
    public Vehicule() {
    }

    no usages
    public Vehicule(String nom, double prix) {
        super();
        this.nom = nom;
        this.prix = prix;
    }

    no usages
    public void emettreSon() { System.out.println("Le véhicule émet un son inconnu."); }

    no usages
    public String afficherInformations() { return "nom : "+nom+" prix : "+prix; }

}
```

- *Voiture.java*

```java
package exercice3;

no usages
public class Voiture extends Vehicule{

    2 usages
    private String modele,annee;

    no usages
    public Voiture(String nom, double prix, String modele, String annee) {
        super(nom, prix);
        this.modele = modele;
        this.annee = annee;
    }

    no usages
    public void emettreSon() { System.out.println("La voiture vrombit"); }

    no usages
    @Override
    public String toString() { return " modele=" + modele + ", annee=" + annee; }


}
```

- *Moto.java*

```java
package exercice3;

no usages
public class Moto extends Vehicule{

    2 usages
    private String marque,puissance;

    no usages
    public Moto(String nom, double prix, String marque, String puissance) {
        super(nom, prix);
        this.marque = marque;
        this.puissance = puissance;
    }

    no usages
    public void emettreSon() { System.out.println("La moto rugit"); }

    no usages
    @Override
    public String toString() { return " marque=" + marque + ", puissance=" + puissance; }


}
```

- *Avion.java*

```java
package exercice3;

no usages
public class Avion extends Vehicule{

    2 usages
    private String compagnie,vitesseMax;

    no usages
    public Avion(String nom, double prix, String compagnie, String vitesseMax) {
        super(nom, prix);
        this.compagnie = compagnie;
        this.vitesseMax = vitesseMax;
    }

    no usages
    public void emettreSon() { System.out.println("L'avion fait un bruit de moteur puissant"); }

    no usages
    @Override
    public String toString() { return " compagnie=" + compagnie + ", vitesseMax=" + vitesseMax; }


}
```

- *Main.java*

```java
package exercice3;

no usages
public class main {

    no usages
    public static void main(String[] args) {
        // TODO Auto-generated method stub

        Vehicule vh = new Vehicule("car",2000);
        Moto moto = new Moto("yamaha",1700,"2024","2000");
        Voiture voiture = new Voiture("mercedes",20000,"2024","2009");
        Avion avion = new Avion("yamaha",90000,"2024","2005");

        System.out.println("-------info of moto ------");
        System.out.println(moto.afficherInformations()+moto.toString());
        System.out.println("-------info of voiture ------");
        System.out.println(voiture.afficherInformations()+voiture.toString());
        System.out.println("-------info of avion ------");
        System.out.println(avion.afficherInformations()+avion.toString());

        System.out.println("-------son spécifique de moto ------");
        moto.emettreSon();
        System.out.println("-------son spécifique de voiture ------");
        voiture.emettreSon();
        System.out.println("-------son spécifique de avion ------");
        avion.emettreSon();
    }

}
```

Exercice 4 :

- *Employe.java*

```java
package exercice4;

no usages
public abstract class Employe {

    1 usage
    protected String nom, prenom, email, telephone;
    1 usage
    protected double salaire;

    no usages
    public Employe() {
    }

    no usages
    public Employe(String nom, String prenom, String email, String telephone, double salaire) {
        super();
        this.nom = nom;
        this.prenom = prenom;
        this.email = email;
        this.telephone = telephone;
        this.salaire = salaire;
    }

    no usages
    public abstract double calculerSalire();
}
```

- *Ingenieur.java*

```java
package exercice4;

no usages
public class Ingenieur extends Employe{
    3 usages
    private String specialite;

    no usages
    public Ingenieur() {

    }
    no usages
    public Ingenieur(String nom, String prenom, String email, String telephone, double salaire,String specialite) {
        super(nom,prenom,email,telephone,salaire);
        this.specialite = specialite;
    }

    no usages
    @Override
    public double calculerSalire() {
        double augmentation = super.salaire * 0.20;
        return super.salaire + augmentation;
    }

    no usages
    public String getSpecialite() { return specialite; }

    no usages
    @Override
    public String toString() {
        return "Ingenieur [specialite=" + specialite + ", nom=" + nom + ", prenom=" + prenom + ", email=" + email
                + ", telephone=" + telephone + ", salaire=" + salaire + "]";
    }

}
```

- *Manager.java*

```java
package exercice4;

no usages
public class Manager extends Employe{
    3 usages
    private String service;

    no usages
    public Manager() {

    }
    no usages
    public Manager(String nom, String prenom, String email, String telephone, double salaire, String service) {
        super(nom,prenom,email,telephone,salaire);
        this.service = service;
    }

    no usages
    @Override
    public double calculerSalire() {
        double augmentation = super.salaire * 0.20;
        return super.salaire + augmentation;
    }

    no usages
    public String getService() { return service; }

    no usages
    @Override
    public String toString() {
        return "Manager [service=" + service + ", nom=" + nom + ", prenom=" + prenom + ", email=" + email
                + ", telephone=" + telephone + ", salaire=" + salaire + "]";
    }
}
```

- *Main.java*

```java
package exercice4;

no usages
public class main {

    no usages
    public static void main(String[] args) {
        // TODO Auto-generated method stub

        Ingenieur ing = new Ingenieur("youssef","lkwifa","youssef@gmail.com","06512342",9000.0,"Dev Web");
        Manager manager = new Manager("anas","hakimi","anas@gmail.com","07556432",7000.0,"service informatique");

        System.out.println("info de ingenieur");
        System.out.println(ing);
        System.out.println("info de manager");
        System.out.println(manager);
    }

}
```

Exercice 5 :

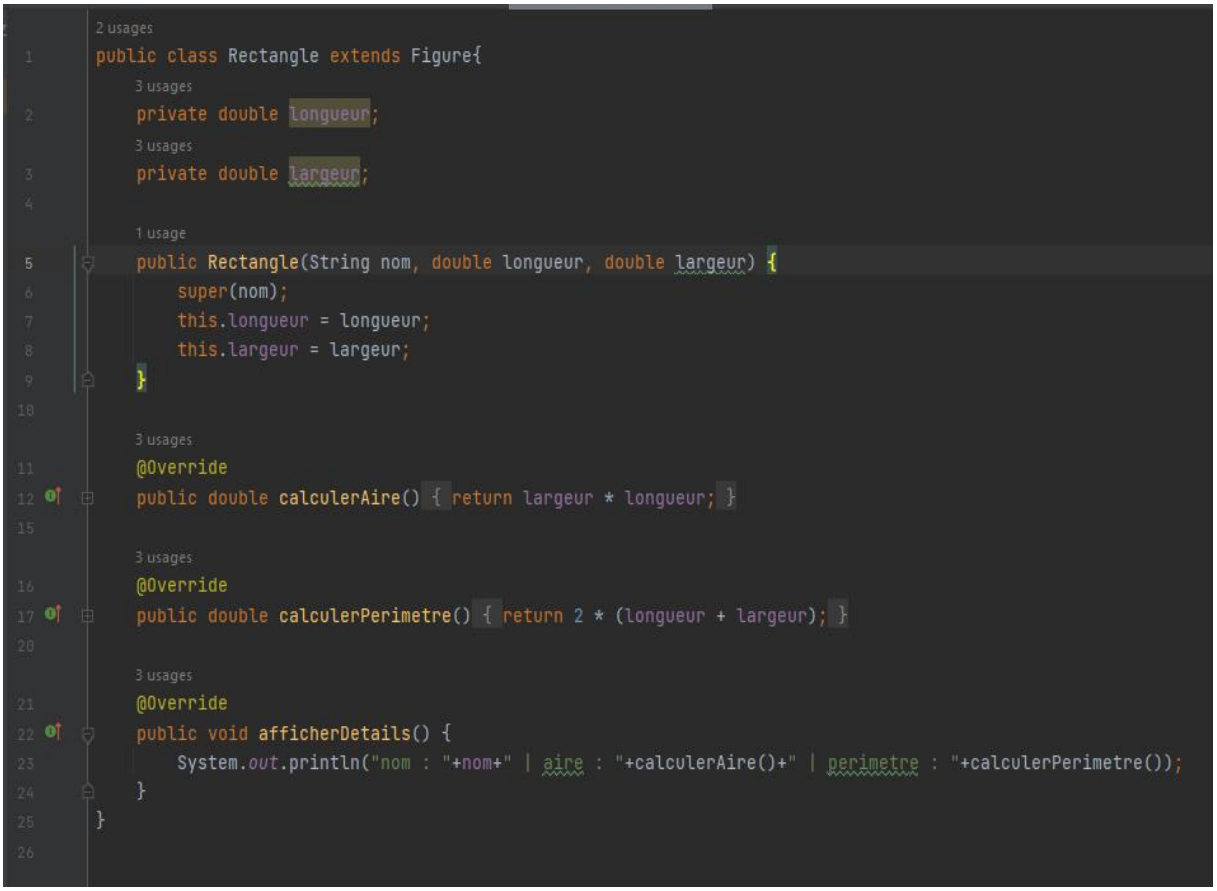
- *Figure.java*

```java
3 usages  3 inheritors
public abstract class  Figure {
    1 usage
    protected String protege;
    5 usages
    protected String nom;

    no usages
    public Figure(String protege, String nom) {
        this.protege = protege;
        this.nom = nom;
    }

    3 usages
    public Figure(String nom) {
        this.nom = nom;
    }

    3 usages  3 implementations
    public abstract double calculerAire();
    3 usages  3 implementations
    public abstract double calculerPerimetre();
    3 usages  3 implementations
    public abstract void afficherDetails();
}
```

- *Cercle.java*

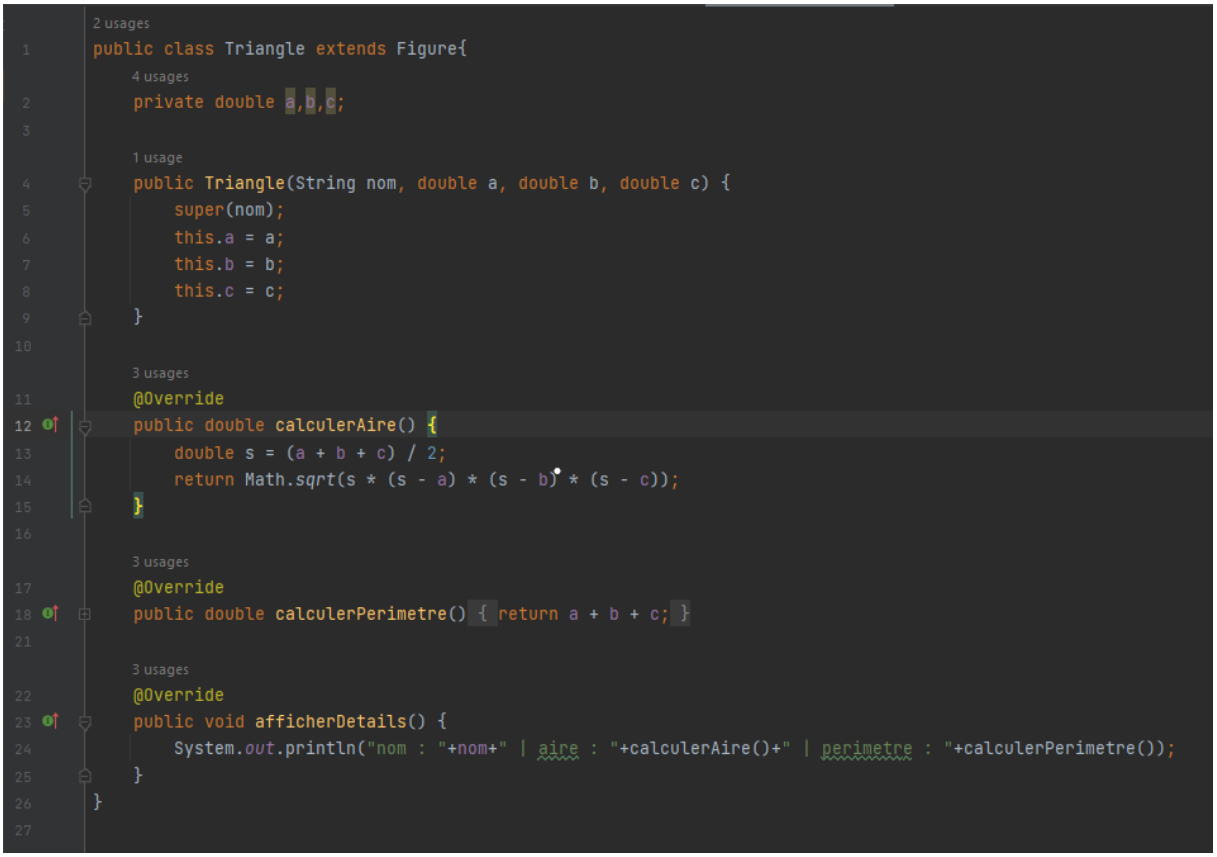
```java
2 usages
public class Cercle extends Figure {
    4 usages
    private double rayon;

    1 usage
    public Cercle(String nom, double rayon) {
        super(nom);
        this.rayon = rayon;
    }

    3 usages
    @Override
    public double calculerAire() { return Math.PI * rayon * rayon; }

    3 usages
    @Override
    public double calculerPerimetre() {
        return 2 * Math.PI * rayon;
    }

    3 usages
    @Override
    public void afficherDetails() {
        System.out.println("nom : "+nom+" | aire : "+calculerAire()+" | perimetre : "+calculerPerimetre());
    }
}
```

- *Rectangle.java*



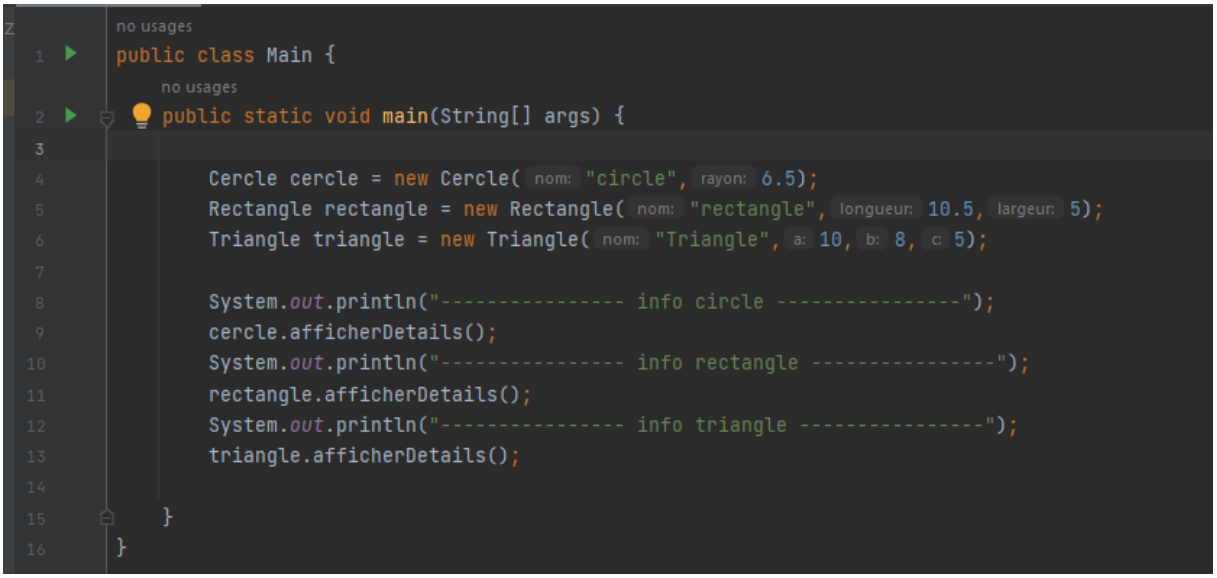
```java
2 usages
public class Rectangle extends Figure{
    3 usages
    private double longueur;
    3 usages
    private double largeur;

    1 usage
    public Rectangle(String nom, double longueur, double largeur) {
        super(nom);
        this.longueur = longueur;
        this.largeur = largeur;
    }

    3 usages
    @Override
    public double calculerAire() { return largeur * longueur; }

    3 usages
    @Override
    public double calculerPerimetre() { return 2 * (longueur + largeur); }

    3 usages
    @Override
    public void afficherDetails() {
        System.out.println("nom : "+nom+" | aire : "+calculerAire()+" | perimetre : "+calculerPerimetre());
    }
}
```

- *Triangle.java*



```java
2 usages
public class Triangle extends Figure{
    4 usages
    private double a,b,c;

    1 usage
    public Triangle(String nom, double a, double b, double c) {
        super(nom);
        this.a = a;
        this.b = b;
        this.c = c;
    }

    3 usages
    @Override
    public double calculerAire() {
        double s = (a + b + c) / 2;
        return Math.sqrt(s * (s - a) * (s - b) * (s - c));
    }

    3 usages
    @Override
    public double calculerPerimetre() { return a + b + c; }

    3 usages
    @Override
    public void afficherDetails() {
        System.out.println("nom : "+nom+" | aire : "+calculerAire()+" | perimetre : "+calculerPerimetre());
    }
}
```

- *Main.java*



```java
no usages
public class Main {
    no usages
    public static void main(String[] args) {

        Cercle cercle = new Cercle( nom: "circle", rayon: 6.5);
        Rectangle rectangle = new Rectangle( nom: "rectangle", longueur: 10.5, largeur: 5);
        Triangle triangle = new Triangle( nom: "Triangle", a: 10, b: 8, c: 5);

        System.out.println("---------------- info circle ----------------");
        cercle.afficherDetails();
        System.out.println("---------------- info rectangle ----------------");
        rectangle.afficherDetails();
        System.out.println("---------------- info triangle ----------------");
        triangle.afficherDetails();

    }
}
```