EXERCISE ARRAY LIST & VECTOR

Name: MUHAMMAD AMIRUL FAHMI BIN NOOR ANIM

Matric Number: B19EC0018

EmployeeTest.java

```
import java.util.ArrayList;

class Employee{

private String name;
private int idNumber;
private String department;
private String position;

Employee(){

name = null;
idNumber = 0;
department = null;
position = null;
}

Employee(String n, int id, String dp, String p){

name = n;
idNumber = id;
department = dp;
position = p;
}

public void setName(String n){

name = n;
}

public void setidNumber(int id){

idNumber = id;
}

public void setDepartment(String dp){

department = dp;
}

public void setPosition(String p){

position = p;
}

public String getName(){

return name;
}
```

```
public int getidNumber(){

return idNumber;
}

public String getDepartment(){

return department;
}

public String getPosition(){

return position;
}

}

public class EmployeeTest{

public static void main(String[] args){

Employee emp1 = new Employee("Dr Nor Sabrina", 47899,
            "Accounting", "Vice President");
Employee emp2 = new Employee("En Ahmad", 39119,
            "IT", "Programmer");
Employee emp3 = new Employee("Prof M Izzudin", 66666,
            "Consultation", "Manager");
Employee emp4 = new Employee("Dr N Izzati", 34521,
            "Elect&Etronic", "CEO");
Employee emp5 = new Employee("Dr A Rahman", 12321,
            "PR", "Manager");

ArrayList<Object> Emp = new ArrayList<Object>();

Emp.add(emp1);
Emp.add(emp2);
Emp.add(emp3);
Emp.add(emp4);
Emp.add(emp5);

System.out.println(Emp.contains(emp2));

for(int i = 0; i<Emp.size(); i++){
      System.out.println("Name: "+((Employee)Emp.get(i)).getName());
      System.out.println("ID number:
"+((Employee)Emp.get(i)).getidNumber());
      System.out.println("Department:
"+((Employee)Emp.get(i)).getDepartment());
      System.out.println("Position:
"+((Employee)Emp.get(i)).getPosition());
      System.out.println(" ");
}
System.out.println("Size of list: " + Emp.size());
}

}
```

TestCircle.java

```
import java.util.ArrayList;

class Circle{

private double radius;

public Circle(double radius){
this.radius = radius;
}

public double getRadius(){
return radius;
}

public void setRadius(double radius){
this.radius = radius;
}

public double getArea(){
return (Math.PI*radius*radius);
}
}

class Rectangle{

private double width,height;

public Rectangle(double width, double height){
this.width = width;
this.height = height;
}

public double getWidth(){
return width;
}

public void setWidth(double width){
this.width = width;
}

public double getHeight(){
return height;
}

public void setHeight(double height){
this.height = height;
}

public double getArea(){
return (height * width);
}
}

public class TestCircle{
```

```
public static void main(String[] args){

ArrayList<Circle> circList = new ArrayList<Circle>();

circList.add(new Circle(2.3));
circList.add(new Circle(3.3));
circList.add(new Circle(4.3));
circList.add(new Circle(5.3));
circList.add(new Circle(6.3));

circList.remove(1);

ArrayList<Rectangle> rectList = new ArrayList<Rectangle>();

rectList.add(new Rectangle(2.0,3.0));
rectList.add(new Rectangle(3.0,3.0));
rectList.add(new Rectangle(4.0,3.0));
rectList.add(new Rectangle(5.0,3.0));
rectList.add(new Rectangle(6.0,3.0));

System.out.println("Circle");

for(int i=0;i<circList.size();i++){
System.out.printf("The area of the circle:
%2.2f",((Circle)circList.get(i)).getArea());
System.out.println(" ");
}

System.out.println("Rectangle");

for(int i=0;i<rectList.size();i++){
System.out.printf("The area of the rectangle:
%2.2f",((Rectangle)rectList.get(i)).getArea());
System.out.println(" ");
}

}
}
```

StudentTest.java

```
import java.util.Vector;

class Student{

private String name;
private int age;
private String majoring;

Student(){}

Student(String n, int a, String m){

name = n;
age = a;
majoring = m;
}

public void setName(String n){
name = n;
}

public void setAge(int a){
age = a;
}

public void setMajoring(String m){
majoring = m;
}

public String getName(){
return name;
}

public int getAge(){
return age;
}

public String getMajoring(){
return majoring;
}
}

public class StudentTest{

public static void main(String[] args){

Student obj1 = new Student("Eva", 19, "Accounting");
Student obj2 = new Student("Mahboubeh", 24, "Cryptography");
Student obj3 = new Student("Melvin", 23, "Vision");
Student obj4 = new Student("Abdullah", 21, "Usuludin");
Student obj5 = new Student("Bella", 22, "Business");

Vector studList = new Vector();
studList.addElement(obj1);
studList.addElement(obj2);
```

```
studList.addElement(obj3);
studList.addElement(obj4);
studList.addElement(obj5);

Vector<String> studCountry = new Vector<String>();
studCountry.addElement("Poland");
studCountry.addElement("Iran");
studCountry.addElement("Tasmania");
studCountry.addElement("Malaysia");
studCountry.addElement("Ireland");

System.out.println(((Student)studList.get(1)).getName());
System.out.println(((Student)studList.get(1)).getAge());
System.out.println(((Student)studList.get(1)).getMajoring());
System.out.println(studCountry.get(1));

System.out.println("Student list before remove method: " +
studList.size());

studList.remove(3);

System.out.println("Student list after remove method: " + studList.size());
}
}
```

Medic.java

```
import java.util.ArrayList;

class Birthday{
        int year,month,day;

        Birthday(int y,int m,int d){
            year=y;
            month=m;
            day=d;
        }

        public String toString(){
           return String.format("'s birthday is %s-%s-%s", year,month,day);
        }
    }//Birthday

class Doctors {
    private String doctorName;
    private Birthday bday;

    Doctors(int y,int m,int d){
       bday = new Birthday(y, m, d);
    }

    public String getDoctorName() {
        return doctorName;
    }

    public void setDoctorName(String docName) {
        doctorName = docName;
    }

    public String toString() {
        return doctorName;
    }

      public String getBday() {
    return  bday.toString();
    }
} //Doctors

class Hospital {
     private String hospitalName;
     private ArrayList<Doctors> doctors;

      public void setDoctor(ArrayList<Doctors> doc) {
               doctors = doc;
    }
    public void setHospitalName(String hospName) {
              hospitalName = hospName;
    }
    public ArrayList<Doctors> getDoctors() {
               return doctors;
    }
    public String getHospName() {
```

```
        return hospitalName;
    }
} //Hospital

public class Medic {

 public static void main(String[] args) {
  Hospital hosp = new Hospital();
  hosp.setHospitalName("HSA");

  Doctors doc1 = new Doctors(1980,12,1);
  doc1.setDoctorName("Dr.Abu Ali");
  Doctors doc2 = new Doctors(1981,1,1);
  doc2.setDoctorName("Dr.Kim Lee");
  Doctors doc3 = new Doctors(1985,12,12);
  doc3.setDoctorName("Dr.Nadela A/P Ram");

  ArrayList<Doctors> doctorList = new ArrayList<Doctors>();
  doctorList.add(doc1);
  doctorList.add(doc2);
  doctorList.add(doc3);

  hosp.setDoctor(doctorList);

  System.out.println("Size of list: " + doctorList.size());
  System.out.println(hosp.getDoctors()+"are Doctors of "+
hosp.getHospName());

 doctorList.remove(1);
 System.out.println("\nDisplay list:" + doctorList);

 Doctors newDoc1= new Doctors(1984,5,8);
 newDoc1.setDoctorName("Dr.Badariah");
 doctorList.add(0,newDoc1);
 Doctors newDoc2= new Doctors(1982,22,5);
 newDoc2.setDoctorName("Dr.Zang Yu");
 doctorList.add(3,newDoc2);

 System.out.println("\nDisplay list: "+ doctorList);

 System.out.println("\nDoctor list and their birthday: ");
 System.out.println("First doctor: "+
((Doctors)doctorList.get(0)).getDoctorName()+
((Doctors)doctorList.get(0)).getBday());
 System.out.println("Second doctor: "+
((Doctors)doctorList.get(1)).getDoctorName() +
((Doctors)doctorList.get(1)).getBday());
 System.out.println("Third doctor: "+
((Doctors)doctorList.get(2)).getDoctorName() +
((Doctors)doctorList.get(2)).getBday());
 System.out.println("Forth doctor: "+
((Doctors)doctorList.get(3)).getDoctorName() +
((Doctors)doctorList.get(3)).getBday());

 }

} //Medic
```