

Array in Java

Exercise 1: Array basic in Java

1. Create, initialize, and process an array of 10 integer number. The operation is to calculate the average of 10 numbers & display the value. You can input the numbers using keyboard or give the default value.
2. Pass arrays to methods. In the method, you can display all elements in an int array and also the last element in the array. The method should have two parameters: array variable and integer variable.
3. Returning an array from a Method. A method may also return an array. Write the program that have a method that will returns an array

Hint : Can refer https://www.tutorialspoint.com/java/java_arrays.htm.

It's up to you answer the three questions above in one file or different Java files.

Answers:

```
class Exercise1{

    public static void average(int[] exe){

        int total = 0;
        for(int i = 0; i< exe.length; i++){

            System.out.println(exe[i]);
            total = total + exe[i];
        }
        System.out.println("The average is: " + total/exe.length);
    }

    public static int[] returnArray(int[] exe){

        int[] newExe = new int[exe.length];

        for(int i = 0, j = newExe.length-1; i<exe.length; i++,j--){

            newExe[j] = exe[i];
        }
        return newExe;
    }

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

```
int[] exel = { 1, 2, 3, 4, 5, 6, 7, 8, 9 ,10};
```

```
System.out.println("Average: ");  
average(exel);
```

```
System.out.println("Return an array from method:");  
returnArray(exel);  
for(int ex: exel){  
    System.out.println(ex);  
}}}
```

Exercise 2: Array of Objects

Creates the array which can hold references to three Employee objects.

```
int id;  
String name;  
int age;  
double salary;
```

Use keyboard to key-in the input based on the attribute above. You can create any method that suitable to **get** the data and **display** the data.

Bonus : apply passing array as parameter in method.

Answers:

```
import java.util.Scanner;
```

```
class Exercise2{
```

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

```
int z = 3;  
int[] id = new int[z];  
String[] name = new String[z];  
int[] age = new int[z];  
double[] salary = new double[z];
```

```
Scanner sc = new Scanner(System.in);  
Scanner sc2 = new Scanner(System.in);  
Scanner sc3 = new Scanner(System.in);  
Scanner sc4 = new Scanner(System.in);
```

```
for(int i =0; i<name.length;i++){
```

```
System.out.println("Enter id"+i+": ");  
int ide = sc.nextInt();
```

```

id[i] = ide;

System.out.println("Enter name"+i + ": ");
String namee = sc2.nextLine();
name[i] = namee;

System.out.println("Enter age"+i + ": ");
int agee = sc3.nextInt();
age[i] = agee;

System.out.println("Enter salary"+i + ": ");
double salarye = sc4.nextDouble();
salary[i] = salarye;

}
for(int i = 0;i<name.length;i++){
System.out.println(" "i);
System.out.println("Employer no " + i);
System.out.println("Id: " + id[i]);
System.out.println("Name: " + name[i]);
System.out.println("Age: " + age[i]);
System.out.println("Salary: " + salary[i]);
}

}
}

```

Exercise 3: enhanced for loop

Develop Java program that apply enhanced for loop

Answers:

```

class Exercise3{

public static void main(String[] args){

int[] exe3 = { 1, 2, 3, 4, 5, 6, 7, 8, 9 ,10};

for (int ex: exe3)
    System.out.println(ex);
}
}

```

Exercise: From book, Page 167 – 168 [Case study Book & Teacher]

Array of Objects

1. Book class

Answers:

```
import java.util.Scanner;

public class BookApplication{

    private String title, author, ISBN;
    private int yearPublished;
    private double price;
    private static double totalPrice = 0.0;

    public BookApplication(String t, String a, String IS, int year,
double p){

        title = t;
        author = a;
        yearPublished = year;
        ISBN = IS;
        price = p;
    }

    public void setTitle(String t){

        title = t;
    }

    public void setAuthor(String a){

        author = a;
    }

    public void setISBN(String IS){

        ISBN = IS;
    }

    public void setYear(int year){

        yearPublished = year;
    }

    public void setPrice(double p){
```

```
price = p;
}

public String getTitle(){

return title;
}

public String getAuthor(){

return author;
}

public String getISBN(){

return ISBN;
}

public int getYear(){

return yearPublished;
}

public double getPrice(){

return price;
}

public void display(){
System.out.println(" ");
System.out.println("Title: " +getTitle());
System.out.println("Author: " +getAuthor());
System.out.println("ISBN: " +getISBN());
System.out.println("Year: " +getYear());
System.out.println("Price: " +getPrice());
}

public static double calculateTotalPrice(BookAplication[]
obj){

for(int i = 0; i<obj.length ; i++){

    totalPrice = totalPrice + obj[i].getPrice();
}
return totalPrice;
}
```

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

BookAplication[] obj = new BookAplication[2];

for(int i=0; i<2;i++){

Scanner sc = new Scanner(System.in);
Scanner sc2 = new Scanner(System.in);
Scanner sc3 = new Scanner(System.in);
Scanner sc4 = new Scanner(System.in);
Scanner sc5 = new Scanner(System.in);

System.out.println("Book number "+ i+1);

System.out.print("Enter title: ");
String t = sc.nextLine();

System.out.print("Enter author: ");
String a = sc2.nextLine();

System.out.print("Enter ISBN: ");
String IS = sc3.nextLine();

System.out.print("Enter year published: ");
int year = sc4.nextInt();

System.out.print("Enter price: ");
double p = sc5.nextDouble();

obj[i]= new BookAplication(t,a,IS,year,p);
}

for (int i=0; i<obj.length; i++){

obj[i].display();
}

System.out.println("Total price is: " +
calculateTotalPrice(obj));
}
}
```

2. Teacher class

Answers:

```
import java.util.Scanner;

class Teacher{

    private String name;
    private double hoursWorked;
    private static final double RATE = 30.0;

    Teacher(){ }

    Teacher(String n, double h){

        name = n;
        hoursWorked = h;
    }

    public void setName(String n){

        name = n;
    }

    public void setHoursWorked(double h){

        hoursWorked = h;
    }

    public String getName(){

        return name;
    }

    public double getHoursWorked(){

        return hoursWorked;
    }

    public static double computePay(Teacher t){

        double salary = t.getHoursWorked() * RATE;
        return salary;
    }
}
```

```
public static void displaySalary(Teacher t){  
  
    System.out.println(" ");  
    System.out.println("Name: " + t.getName());  
    System.out.println("Hours Worked: " + t.getHoursWorked());  
    System.out.println("Salary obtained: RM" + t.computePay(t));  
  
}
```

```
public class TestTeacher{  
  
    public static void main(String[] args){  
  
        Teacher[] obj = new Teacher[2];  
  
        for(int i=0; i<obj.length; i++){  
  
            Scanner sc = new Scanner(System.in);  
            Scanner sc2 = new Scanner(System.in);  
  
            System.out.print("Your name: ");  
            String n = sc.nextLine();  
  
            System.out.print("Your hours worked: ");  
            double h = sc2.nextDouble();  
  
            obj[i] = new Teacher(n,h);  
        }  
  
        for (int i=0; i<obj.length; i++){  
  
            obj[i].displaySalary(obj[i]);  
        }  
  
    }  
}
```