CS211: Algorithms & Data structures

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Lab05

1 Laboratory Objectives:

- To understand some concepts and process related to Arrays. For example, declration, initialisation, and accessing of 1D, 2D, and nD Arrays.

2 Exercises

1. Write Java code for declaring an integer array called a

Listing 1: Declaration of an array

```java
int[] a;        // declare the array
```

Or you can write it like the following:

Listing 2: Declaration of an array

```java
int a[];        // declare the array
```

2. Write Java code for declaring and creating an integer array called a

Listing 3: Declaration and creation of an array

```java
int a[];          // declare the array
a = new int[5];   // create the array
```

It can also be written in one line like the following:

Listing 4: Declaration and creation of an array

```java
int a[] = new int[5];       // declare and create the array
```

3. Write Java code for declaring, creating, and initialising an integer array called a

Listing 5: Declaration creation initialisation of an array

```java
int a[]  = new int[5];       // declare and create the array
a[0]=4;                      // initialise 1st elemnt
a[1]=6;                      // initialise 2nd elemnt
a[2]=7;                      // initialise 3rd elemnt
a[3]=2;                      // initialise 4th elemnt
a[4]=1;                      // initialise 5th elemnt
```

It also can be written like in the below:

Listing 6: Declaration creation initialisation of an array

```java
int[] a = {4,6,7,2,1}; // declare, create, and initialise the array
// int a[] = {4,6,7,2,1}; // this is same
```

4. Write a Java program for declaring, creating, and initialising 2d array?

Listing 7: Declaration creation initialisation of 2d array

```java
int[][] a= {{9,1,3},{7,8,5}};
```

5. What are the values of ticketInfo[2][0] and seatingInfo[2][1]?

Listing 8: Two-Dimensiaonl Arrays intinalisation

```java
int[][] ticketInfo = {{23,20,25}, {27,19,32}};
String[][] seatingInfo = {{"Ahmad", "Maria"}, {"Khalid",
    "Saad"},{"Badr", "Sara"}};
```

6. Write a Java method to do linear search over an array?

Listing 9: Linear Search

```java
public static int LinearSearch(int[] a, int k){
    for (int i=0;i<a.length;i++)
       if(k==a[i])
          return i;
    return -1;
}
```