Object Oriented Programming Language Sessional-II

Prepared by
Rubyeat Islam
Lecturer
CSE Dept, MIST
rubyeat88@gmail.com

Array in Java

Why Array?

- Array is a data store
- If you want to store data of 100 people, how will you do that?
- Will you declare 100 variables for 100 data? No.
- We will use array to store data.
- Using array is time efficient and also memory efficient.

Don’t Forget

- Array index starts at 0, not 1.
- Array are mostly immutable data structure whose length cannot be changed once created, the mutable array is called list.
- The array needs a memory block for allocation, called consecutive memory location, this means even if you have a memory you cannot allocate a big array if memory is scattered.
- Searching by index in the array is O(1) but insert and delete is not easy because you may need to re-arrange the array.
- An array is mostly homogenous data structure this means you cannot store a string in an integer array and vice-versa.
- An array can be single dimension or multiple dimension. A two-dimensional array is known as Matrix and very useful in games to create 2D world using tiles.

Syntax of Arrays

```
public class array_syntax {
    public static void main(String[] args) {
        int[] myarray= {1,2,3};
        /*
        int[] myarray= new int[3];
        int[] myarray= new int[] {1,2,3};
         */
            System.out.println(myarray[0]);
     System.out.println(myarray[1);
     System.out.println(myarray[2]);

    }
}
```

Array print using loop

```
public class array_syntax {
    public static void main(String[] args) {
        int[] myarray= {1,2,3};
        int index = 0;
        while(index< 3){
            System.out.println(myarray[index]);
            index++;
        }

    }
}
```

String

- Sequence of characters or Character Array

String Input/Output:

```
public class string_syntax {
    public static void main(String[] args) {
        String mystring = "Hello World";
        System.out.println(mystring);
    }
}
```

Functions of Strings

- **Length of String:**

```
public class string_syntax {
    public static void main(String[] args) {
        String mystring = "Hello World";
        int mystring_length= mystring.length();
        System.out.println(mystring_length);
    }
}
```

- **LowerCase of String:**

```
public class string_syntax {
    public static void main(String[] args) {
        String mystring = "Hello World";
        String mystring_lowercase= mystring.toLowerCase();
        System.out.println(mystring_lowercase);
    }
}
```

Functions of Strings

- **UpperCase of String:**

```
public class string_syntax {
    public static void main(String[] args) {
        String mystring = "Hello World";
        String mystring_uppercase= mystring.toUpperCase();
        System.out.println(mystring_uppercase);
    }
}
```

- **Concat:**

```
public class string_syntax {
    public static void main(String[] args) {
        String mystring = "Hello" + " World";
      System.out.println(mystring);
    }
}
```

Functions of Strings

- **Replace old char to new char**

```
public class string_syntax {
    public static void main(String[] args) {
        String mystring = "Hello World";
        System.out.println(mystring.replace('l', 'f'));
    }
}
```

- **Index of any character:**

```
public class string_syntax {
    public static void main(String[] args) {
        String mystring = "Hello World";

      System.out.println(mystring.indexOf('o'));
    }
}
```

- **Char of any index:**

```
public class string_syntax {
    public static void main(String[] args) {
        String mystring = "Hello World";
        System.out.println(mystring.charAt(7));
    }
}
```

Practice Problem on Array& String

Problem_1: Declare two arrays of integer of any size and print the INTERSECTION set of the 2 arrays.

Sample Input: {1,2,3,4,6,9} & {11, 1, 22, 33, 9, 100}

Sample Output: {1, 9}

Problem_2: Write a Java Program to find the frequency of given character in a string.

Sample Input: String= “Programming” and Char= ‘r’
Sample Output: r: 2

Code Submission

- **Problem_1:** Based on Array

Please submit your ID_array.java file here

https://drive.google.com/drive/folders/1gqmwr8bCRgSjTX4GohWUS2tIuGXvrIbz?usp=sharing

Problem_2: Based on String

Please submit your ID_string.java file here

https://drive.google.com/drive/folders/15GYu1rspqiB_16rL1WvSVklFgeK1iuUD?usp=sharing

Keep Practicing