**Department of Computer Science and Engineering**

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| **Course Code:CSE220** | **Credits: 1.5** |
| **Course Name: Data Structure** | **Semester: Fall’18** |

**Lab 02  
Array**

1. **Topic Overview:**

Students will be able to create, iterate, update an array practically. They will have hands-on practice over the basic operations on array including array traversal, resize, shifting, rotating the circular form of array etc.

1. **Lesson Fit:**

The lab itself should be followed by the previous lab (which is a review of CSE111) and theory knowledge on the array data structure. Moreover, students need to be familiar with basic programming in Java and IDE.

1. **Learning Outcome:**

After this lecture, the students will be able to:

* 1. Understand the characteristics of array data structure.
  2. Understand the importance of it.
  3. Practice real-life application.

1. **Anticipated Challenges and Possible Solutions**
   1. Task 1: Students may encounter issues while declaring and iterating an array.

**Solutions:**

* + 1. As this data structure is first introduced in CSE111, students should not usually struggle in this course. Even if they did, solving an array related problem from the CSE111 course, will solve the issue.
  1. Task 1: Some students confuse the last index as it is *length-1* in an array (not *length*).

**Solutions**:

* + 1. Practice is the key to this issue.

1. **Acceptance and Evaluation**

Students will be evaluated according to their progress in the lab as they complete each problem. Maybe some of the students will not be able to finish all the tasks; they will submit them later and give an oral justification to get their performance mark.

1. **Activity Detail**
   1. **Hour: 1  
      Discussion:**1. A short quiz on the previous lab topic.  
      2. Evaluating and discussing the quiz question. **Problem Task:**
      1. Quiz question will be prepared by the lab faculty members
   2. **Hour: 2**

**Discussion:**

Give a basic lecture on array. Discuss the 1st and 3rd method and let them work on 2nd and 4th method by their own.

**Problem Task:**

* + 1. Method 1 to 4
  1. **Hour: 3**

**Discussion:**

Check method 1 to 4. Discuss 5th, 8th and 9th methods; they should be able to understand the rest of the methods by their own.

**Problem Task:**

* + 1. Task 5 to 10

1. **Home tasks**
   1. Any unfinished tasks

**Lab 1 Activity List**

**Task 1 (Method 1)**

Prints an array.

**Task 2**

Prints an array in reverse order.

**Task 3**

Copy the source array and returns the newly created one.

**Task 4**

Reverse the source array. This method does not return anything.

**Task 5**

Returns a new array that is the *K cell Left Shifted* version of the source array.

**Task 6**

Returns a new array that is the *K cell Left Rotated* version of the source array.

**Task 7**

Returns a new array that is the *K cell Right Shifted* version of the source array.

**Task 8**

Returns a new array that is the *K cell Right Rotated* version of the source array.

**Task 9**

Inserts a given element in an array at the specified index, if size allows.

**Task 10**

Removes all the instance of a given element from an array, if there is any.