Aror University of Art, Architecture, Design & Heritage Sukkur

Department of AI-Multimedia and Gaming

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Lab 05: Fundamentals of Queue using Array and LinkedList Date: 15 Oct, 2024 Subject:

Data Structure (CSC221), Fall 2024 Instructor: Abdul Ghafoor

Lab objectives: The goal of this lab is to help students understand the **Queue** data structure by implementing it using both **array** and **linked list** in Java. Students are required to implement basic stack operations such as **Enqueue**, **Dequeue**, and **peek** using both data structures.

Task 01: Implement a stack using an array with the following methods:

- `enqueue(int data)`: Adds an element to the rear of the queue.
- `dequeue()`: Removes and returns the front element.
- `peek()`: Returns the front element without removing it.

Part 02: Stack Implementation Using a Linked List

1. **Task**: Implement a **stack** using a **singly linked list** with the following methods:

- `enqueue(int data)`: Adds an element to the rear of the queue.
- `dequeue()`: Removes and returns the front element.
- `peek()`: Returns the front element without removing it.