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| PICTLOGO | PUNE INSTITUTE OF COMPUTER TECHNOLOGY  PUNE - 411043 | | |
| Department of Electronics & Telecommunication | | |
| ASSESMENT YEAR: 2024-2025 | CLASS: SE | |
| SUBJECT: DATA STRUCTURES | | |
| **EXPT No:** | LAB Ref: SE/2024-25/ | | Starting date: |
|  | Roll No:22166 | | Submission date: |
| **Title:** | **Stack and Queue Implementation** | | |
| **Problem Statement** | Implement stack and queue and perform push, pop operations on it.  A. Using Array  B. using SLL | | |
| Refer lab manual for below | | | |
| **Prerequisites:** | Basic Knowledge of C programming, proper understanding of arrays and | | |
| singly linked list, structures, variables, loops, and conditional statements. | | |
| Knowledge of how to define functions and call them | | |
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| **Objectives:** | To learn the representation of Stack and Queue data structure using Array and SLL. | | |
| Verify various methods of handling data elements by following rules of data structure operations. | | |
| Write user defined functions for push, pop, enque, deque for Stack and Queue handling. | | |
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| **Theory:** | | | |
|  | On ruled pages | | |
| **Flow-chart**  **ERRORS** | On ruled pages  **Segmentation error due to wrong value assignment in implementation by SLL** | | |
| **REMEDY** | **Study and practice SLL properly** | | |
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| **CONCLUSION:** | | | |
|  | Using arrays and singly linked list, we have implemented stack and queue operations. | | |
| In stack, elements are added and remove from the top only. The last to be added is | | |
| the first to be removed, i.e. LiFo. In queue, the elements are added from the end, | | |
| but are removed from the front. The first to be added is removed first to be removed | | |
| i.e. FiFo. We have also considered various case, like when stack is empty, pop | | |
| function returns Stack Underflow, where as pushing element into a full stack (in case | | |
| of arrays) user receives message Stack Overflow. | | |
| **REFERENCES: refer lab manual for the same** | | | |
|  | 1. **Seymour Lipschutz, Data Structure with C, Schaum’s Outlines, Tata McGrawHill** | | |
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| **Continuous Assessment for DS AY: 2024-25** | | | |
| **RPP (5)** | **SPO (5)** | **Total (10)** | **Signature:** |
|  |  |  | **Assessed By: Dr. V. B. Vaijapurkar** |
| **Start date** | **Submission date** | | **Date:** |
|  |  | |  |
| **\*Regularity, Punctuality, performance**  **\*Submission, Presentation, orals** | | | |