



**FALL Semester 2022-23**

**ITA5002 - Problem Solving with Data Structures and  
Algorithms Lab**

**LAB ASSESSMENT – I**

**Due Date: 12-10-2022**

**SOLVE ANY THREE PROBLEMS GIVEN BELOW**

1) Develop a program to find the parity is EVEN PARITY or ODD PARITY of the given ERROR DETECTION CODE given as the input string. The given input string contains only the binary digits (bits) either 0 or 1. Assume the input string is of the half word length i.e. 16 bits and the last bit is allocated to assign the parity. The parity bit ZERO i.e 0 represents EVEN PARITY and the parity bit ONE i.e 1 represents ODD PARITY.

2. The Job Recruitment Board of a State Government has announced the Job Vacancy for various job positions. The top right corner of the application contains the Application Number and Government Reservation Category (General / Ex-Serviceman (Military) / Physically Challenged) in two columns and they are scanned and stored into a STACK while receiving the applications. So that stack contains the two fields Application Number and Government Reservation Category in its Data field as given below in Table-1.

<b>Application Number</b>	<b>Govt. Reservation Category (Quota)</b>
2022FRB10055	M
2022FRB10197	G
2022FRB10230	P
.	.
.	.
.	.
etc.	etc.

Here, “G” represents General Category, “M” represents the Ex-Serviceman (Military) Category and “P” represents the Physically Challenged Category.

Now, process the application in STACK using First Come First Serve (FCFS) basic into a General Queue and separate them into the THREE different Priority Queue such as **Priority\_Queue\_G, Priority\_Queue\_M** **Priority\_Queue\_P** based on the **Govt. Reservation Category (Quota)** **and** display the total number of applications received in every individual category.

3. Implement a program to perform the Polynomial Addition using Singly Linked List.

4. Develop a program to merge two Linked List and remove the duplicated in it. The linked can be chosen as Singly Linked List or Doubly Linked List as per your choice.

**\*\*\* ALL THE BEST \*\*\***