

BITS PILANI, DUBAI CAMPUS
DUBAI INTERNATIONAL ACADEMIC CITY, DUBAI
SECOND SEMESTER 2025 - 2026

Data Structures & Algorithms (CS F211)
Lab Exercise 1

Write a C/C++/Java program to perform the following actions on a **STACK implemented using arrays/array of structures**:

- 1) Implement PUSH operation in a STACK for N ($N \geq 5$) STUDENT RECORDS. Each STUDENT RECORD should store **<IDNO, NAME, DOB, CGPA>**.
You have to read each *STUDENT record* from an input file “*studentin.dat*” stored locally in your directory and the **PUSH** it into the **stack**, one at a time. (You can use *vi* editor to create input data file. Make sure that the input data file contains at least **5 records**).
- 2) Implement the **POP** operation for the STACK in LIFO order and **display** all the records on the standard output (screen). Also, write the output results into an external file “*studentout.dat*”.

Test Scenario			
Test Input: (read from external file: <i>studentin.dat</i>)			
ID	NAME	DOB	CGPA
=====			
2021A7PS001	AAAA	1/1/2000	7.50
2021A7PS002	BBBB	2/1/2000	9.20
2021A7PS003	CCCC	3/1/2000	9.60
2021A7PS004	DDDD	4/1/2000	8.75
2021A7PS005	EEEE	5/1/2000	9.25
Test Output:			
(shown on standard output/screen as well as stored in output file: <i>studentout.dat</i>)			
ID	NAME	DOB	CGPA
=====			
2021A7PS005	EEEE	5/1/2000	9.25
2021A7PS004	DDDD	4/1/2000	8.75
2021A7PS003	CCCC	3/1/2000	9.60
2021A7PS002	BBBB	2/1/2000	9.20
2021A7PS001	AAAA	1/1/2000	7.50