Q1 Set:

1. Write a C code to create a parent with three children. Each child should perform a unique arithmetic operation and print the result along with its process id. Only one child process can execute at a time and other child process should be blocked. The process that completes a task will wake-up the next process to execute. Starting from child 1 to 3 implement the above step for ‘n’ iterations. After ’n’ iteration, child 3 should start executing and should wake up child 2 and so on. This should be repeated ‘n’ times.
2. Class representatives A,B,C,D are going to our library to lend some books to meet their requirements. They want to get DS, OS, CN and OOPS from library for their class students. The total amount of books for each subject in library is (16, 5, 2, 8). The maximum requirements of books in each subject for each of them is given as A(4,4,2,1), B(4,3,1,1), C(13,5,2,7) and D(6,1,1,1). The books already taken or issued to the students in the class are given as A(4,0,0,1),B(1,2,1,0),C(1,1,0,2) and D(3,1,1,0). Assume books will be given back by class representative so that librarian can satisfy the requirements. Illustrate which allotment sequence will satisfy all the requirements of the class representative.

Q2 SET:

1. Write a C program to perform the following tasks:

* Parent process creates a child process
* Child process executes a separate program which computes and displays the sum of integers in your register number.
* Parent waits until the child terminates and resumes its operation.
* Finally Parent process terminates after printing the status message from the terminated child

1. Write a C Program to Implement [Page Replacement](https://lms.vit.ac.in/mod/assign/view.php?id=27160) Algorithm and determine their number of page fault. Your Program can be menu-driven program

**Example**

Consider the following page reference string:

4, 2, 1, 4,2,5, 6, 2, 1, 6,5, 2, 3, 7, 5, 4,2, 6, 3, 2, 1, 2, 3,

How many page faults would occur for the following replacement algorithms, assuming three, four frames? Remember that all frames are initially empty, so your first unique pages will cost one fault each.

• LRU replacement

• FIFO replacement