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- 3. Design a CPU scheduling program with C using First Come First Served technique with the following considerations.
- a. All processes are activated at time 0.
- b. Assume that no process waits on I/O devices

Aim:

To design a CPU scheduling program using the First Come First Served (FCFS) technique where all processes are activated at time 0, and no process waits on I/O devices.

Algorithm:

- 1. Start the program.
- 2. Input the number of processes and their burst times.
- 3. Calculate the waiting time for each process:
 - o Waiting time for the first process is 0.
 - For subsequent processes, Waiting Time[i] = Waiting Time[i-1] + Burst Time[i-1].
- 4. Calculate the turnaround time for each process:
 - Turnaround Time[i] = Waiting Time[i] + Burst Time[i].
- 5. Display the process details, including their burst time, waiting time, and turnaround time.
- 6. Compute the average waiting time and turnaround time.
- 7. End the program.

Procedure:

- 1. Include necessary headers: <stdio.h>.
- 2. Define arrays for burst times, waiting times, and turnaround times.
- 3. Compute waiting times and turnaround times iteratively.
- 4. Calculate and display average waiting and turnaround times.

```
CODE:
#include <stdio.h>
int main() {
  int n, i;
  float avg_wait = 0, avg_turnaround = 0;
  printf("Enter the number of processes: ");
  scanf("%d", &n);
  int burst_time[n], waiting_time[n], turnaround_time[n];
  printf("Enter the burst times for each process:\n");
  for (i = 0; i < n; i++) {
    printf("Process %d: ", i + 1);
    scanf("%d", &burst_time[i]);
  }
  waiting_time[0] = 0;
  for (i = 1; i < n; i++) {
   waiting_time[i] = waiting_time[i - 1] + burst_time[i - 1];
  }
  for (i = 0; i < n; i++) {
    turnaround_time[i] = waiting_time[i] + burst_time[i];
    avg_wait += waiting_time[i];
    avg_turnaround += turnaround_time[i];
```

```
avg_wait /= n;
avg_turnaround /= n;

printf("\nProcess\tBurst Time\tWaiting Time\tTurnaround Time\n");
for (i = 0; i < n; i++) {
    printf("%d\t%d\t\t%d\t\t%d\n", i + 1, burst_time[i], waiting_time[i], turnaround_time[i]);
}

printf("\nAverage Waiting Time: %.2f\n", avg_wait);
printf("Average Turnaround Time: %.2f\n", avg_turnaround);
return 0;
}</pre>
```

OUTPUT:

```
H Save
                                         ► Run O Debug
          OnlineGDB
online compiler and debugger for c/c++
                                   2 P 🔅 👊
Welcome, GUNA VARDHAN .
                               Enter the number of processes: 4
                               Enter the burst times for each process:
     Create New Project
                               Process 1: 2
        My Projects
                               Process 2: 5
                               Process 3: 8
      Classroom new
                               Process 4: 6
     Learn Programming
   Programming Questions
                               Process Burst Time
                                                       Waiting Time
                                                                        Turnaround Time
          Upgrade
         Logout -
                                                       15
                                                                        21
                                       6
                             Average Waiting Time: 6.00
                               Average Turnaround Time: 11.25
                               ...Program finished with exit code 0
                               Press ENTER to exit console.
```