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Operating systems Project Part 1

Simulate a CPU scheduler

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The idea of the project is to receive a list of processes n processes (dynamic number of process) with different arrival times and different CPU bursts

the PCB for each process that contains all information about the , Here process :

```
ing namespace std;

ruct Process {
  int pid; //process id
  int AT ; //arrival time
  int BurstT;    //burst time
  int time_left; //for round robin
  int cs = 1;
  int wt; //waiting time
  int Ta_time; // turnaround time
  int f_time;  //finish time
```

This is the data that we read from the text file:

Context Switch, Round Robin Quantum, Number of process

,CPU Burst ,Arrival Time ,Process ID : Each process information as

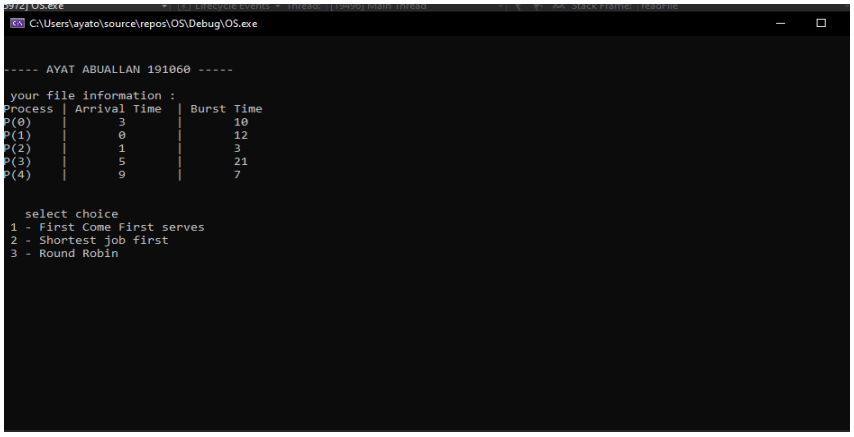
processes.txt

```
5
4096
 512
 10
 1
0 3 10
1 0 12
2 1 3
3 5 21
4 9 7
```

We use this function to Rearrange processes upwards depending on arrival time

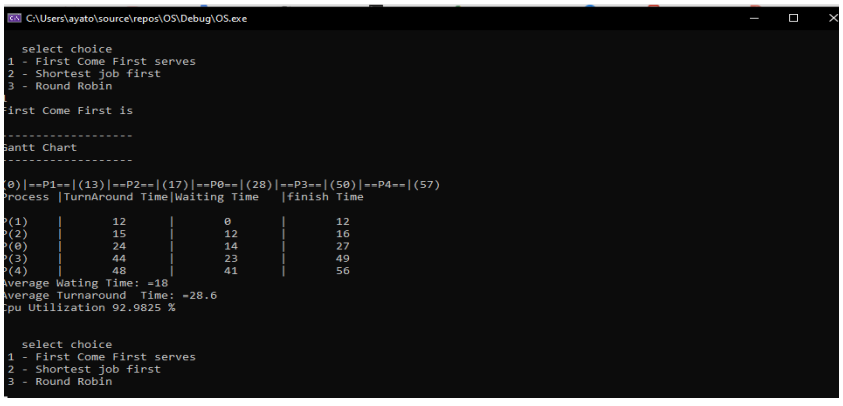
```
void sorty() {
    bool swapped;
    do {
        swapped = false;
        for (int i = 0; i < n1 - 1; i++) {
            if (process[i].AT  > process[i + 1].AT ) {
                swap(process[i], process[i + 1]);
                swapped = true;
            }
        }
    } while (swapped);
}
```

: we will see this screen When we run the project for the first time



if you press 1 , you will select a choice for which algorthim you want , Then

You will get the resuls as below for First come first serves algorthim :



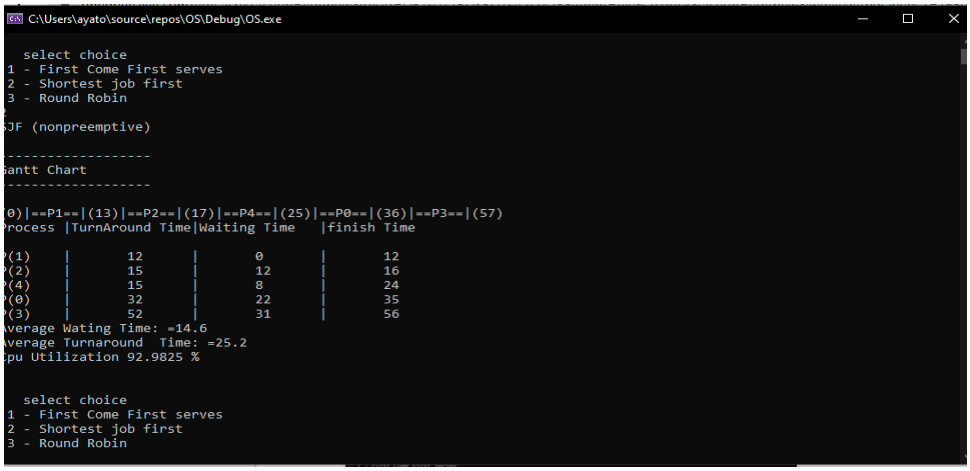
In each algorthim we calculat :

Average waiting time

Average turnAround Time

CPU Utilization

If you press 2 the result for Shortest job first will be :



the result as below , The last choice is for Round Robin algorthim, Finally