# PRACTICAL 4TH

In an operating system three CPU-intensive processes are ready for execution which require 10 ns, 20 ns and 30 ns and arrive at times 0 ns, 2 ns, and 6 ns, respectively. Write a Program to calculate:

• The total number of context switches needed if the operating system implements a Shortest Job First (Preemptive) scheduling algorithm.

• The average waiting time of the processes before getting the CPU.

CODE :

Programiz C Online Compiler

main.c   Share   Run
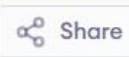
```c
1  #include <stdio.h>
2
3  int main() {
4      int n = 3;
5      int at[3] = {0, 2, 6};
6      int bt[3] = {10, 20, 30};
7      int ct[3] = {10, 30, 60};
8      int tat[3], wt[3];
9      float total_wt = 0;
10
11     for(int i=0; i<n; i++) {
12         tat[i] = ct[i] - at[i];
13         wt[i] = tat[i] - bt[i];
14         total_wt += wt[i];
15     }
16
17     printf("Process\tAT\tBT\tCT\tTAT\tWT\n");
18     for(int i=0; i<n; i++) {
19         printf("P%d\t%d\t%d\t%d\t%d\t%d\n", i+1, at[i], bt[i], ct[i], tat[i], wt[i]);
20     }
21
22     printf("\nTotal Context Switches = 2");
23     printf("\nAverage Waiting Time = %.2f\n", total_wt/n);
24
25     return 0;
26 }
```

OUTPUT :

```
Output                                                    Clea

Process AT  BT  CT  TAT WT
P1  0    10  10  10   0
P2  2    20  30  28   8
P3  6    30  60  54   24

Total Context Switches = 2
Average Waiting Time = 10.67


=== Code Execution Successful ===
```