Write a C program to simulate the following CPU scheduling algorithm to find turnaround time and waiting time.

1. FCFS

#include <stdio.h>

#include <stdlib.h>

int arr[5];

int bt[5];

int wt[5];

int ct[5];

int tat[5];

int pid[5];

int totalwt = 0;

int totaltat = 0;

int time = 0;

int i = 0;

void main() {

printf("Enter the Arrival times for 5 processes:\n");

for (i = 0; i < 5; i++) {

pid[i] = i + 1;

printf("Process %d Arrival Time: ", i + 1);

scanf("%d", &arr[i]);

}

printf("Enter the Burst times for 5 processes:\n");

for (i = 0; i < 5; i++) {

printf("Process %d Burst Time: ", i + 1);

scanf("%d", &bt[i]);

}

for (i = 0; i < 5; i++) {

wt[i] = 0;

tat[i] = 0;

}

for (i = 0; i < 5 - 1; i++) {

for (int j = i + 1; j < 5; j++) {

if (arr[i] > arr[j]) {

int temp\_arr = arr[i];

arr[i] = arr[j];

arr[j] = temp\_arr;

int temp\_bt = bt[i];

bt[i] = bt[j];

bt[j] = temp\_bt;

int temp\_pid = pid[i];

pid[i] = pid[j];

pid[j] = temp\_pid;

}

}

}

for (i = 0; i < 5; i++) {

if (i == 0) {

time = arr[i] + bt[i];

ct[i]=time;

tat[i] = bt[i];

wt[i] = 0;

} else {

if (arr[i] > time) {

time = arr[i] + bt[i];

ct[i]=time;

tat[i] = bt[i];

wt[i] = 0;

} else {

tat[i] = time - arr[i] + bt[i];

wt[i] = time - arr[i];

time = time + bt[i];

ct[i]=time;

}

}

totalwt += wt[i];

totaltat += tat[i];

}

printf("\nProcess ID | Arrival Time | Burst Time | Completion Time | Waiting Time | Turnaround Time\n");

for (i = 0; i < 5; i++) {

printf(" %d | %d | %d | %d | %d | %d\n",

pid[i], arr[i], bt[i],ct[i], wt[i], tat[i]);

}

printf("\nTotal Waiting Time: %d\n", totalwt);

printf("Total Turnaround Time: %d\n", totaltat);

printf("Average Waiting Time: %.2f\n", (float)totalwt / 5);

printf("Average Turnaround Time: %.2f\n", (float)totaltat / 5);

}

Output :

