Program:  SJF Scheduling

Input:

#include<iostream>

#include<conio.h>

using namespace std;

int p[10], at[10], bt[10], n,ct[10], tat[10], wt[10];

void swap(int \*x, int \*y)

{

int temp = \*x;

\*x = \*y;

\*y = temp;

}

void sortat()

{

int i, j;

for (i = 0; i<n; i++)

{

for (j = i + 1; j<n; j++)

{ /\* sort the process having less arrival\*/

if (at[i]>at[j])

{

swap(&p[i], &p[j]);

swap(&at[i], &at[j]);

swap(&bt[i], &bt[j]);

}

/\* if two processes have the same arrival time than sort them having less burst time \*/

else if (at[i] == at[j])

{

if (bt[i]>bt[j])

swap(&p[i], &p[j]);

swap(&at[i], &at[j]);

swap(&bt[i], &bt[j]);

}

}

}

}

int main()

{

int pos, i, j, min = 1000, n;

float awt = 0, atat = 0;

cout<<"\nEnter the Number of Process : ";

cin>>n;

cout<<"Enter the Process No : ";

for (i = 0; i<n; i++)

{

cin >> p[i];

}

cout<<"Enter the Arrival Time : ";

for (i = 0; i<n; i++)

{

cin>>at[i];

}

cout<<"Enter the Burst Time : ";

for (i = 0; i<n; i++)

{

cin>>bt[i];

}

sortat();

//finishing time

ct[0] = at[0] + bt[0];

for (i = 1; i<n; i++)

{

for (j = i; j<n; j++)

{

if (at[j] <= ct[i - 1])

{

if (bt[j]<min)

{

min = bt[j];

pos = j;

}

}

}

/\* when you get less burst time process, swap p, at, bt at position 2,

and when getting 2nd less burst time swap at position 3rd and so on. \*/

swap(&p[i], &p[pos]);

swap(&at[i], &at[pos]);

swap(&bt[i], &bt[pos]);

min = 1000;

ct[i] = ct[i - 1] + bt[i];

}

/\* calculate turnaround time and waiting time \*/

for (i = 0; i<n; i++)

{

tat[i] = ct[i] - at[i];

wt[i] = tat[i] - bt[i];

}

cout<<"\nP.ID\t AT\t BT\t FT\t TAT\t WT";

for (i = 0; i<n; i++)

{

cout<<"\nP"<<p[i]<<"\t"<<at[i]<<"\t"<<bt[i]<<"\t"<<ct[i]<<"\t"<<tat[i]<<"\t"<<wt[i]<<endl;

}

for (i = 0; i<n; i++)

{

atat += tat[i];

awt += wt[i];

}

// average turnaround time and average waiting time

atat = atat / n;

awt = awt / n;

cout << "\n\nAverage Turnaround Time = " << atat << "\nAverage Waiting Time =" << awt;

cout << "\nGnatt Graph\n";

for (int i = 0; i < n; i++)

{

for (int j = bt[i]; j > 0; j--)

cout << "-";

cout << ".";

}

cout << "\n|";

for (int i = 0; i <n; i++)

{

cout << "P" << p[i];

for (int j = (bt[i] - 2); j > 0; j--)

cout << " ";

cout << "|";

}

cout << "\n";

for (int i = 0; i <n; i++)

{

for (int j = bt[i]; j > 0; j--)

cout << "-";

cout << ".";

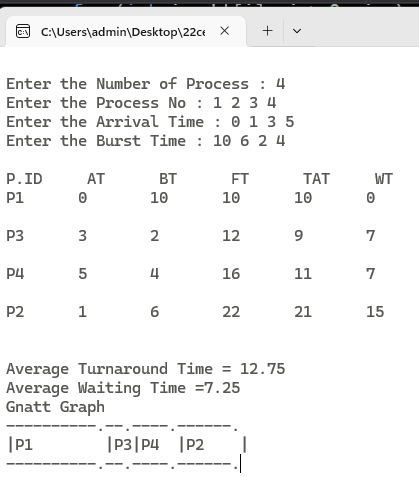
}

\_getch();

return 0;

}

Output:

****