

C:\Users\Administrator\Desktop\Untitled3.cpp - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TDM-GCC 4.9.2 64-bit Release

Project Classes Debug bankers.c1.cpp Untitled2.cpp Untitled3.cpp

```
1 #include<stdio.h>
2 #include<sys/types.h>
3 #include<fcntl.h>
4 #include<stdlib.h>
5 #include<string.h>
6 int main(int args, char *ar[])
7 {
8     char *source=ar[1];
9     char *dest="def.txt";
10    char *buf=(char *)malloc(sizeof(char)*120);
11    int fd1,fd2;
12    fd1=open(source,O_CREAT,0744);
13    fd2=open(dest,O_CREAT,0744);
14    while(read(fd1,buf,120)!=-1)
15    {
16        printf("%s",buf);
17        //printf("Processing\n");
18        write(fd2,buf,120);
19    }
20    printf("Process Done");
21    close(fd1);
22    close(fd2);
23 }
```

C:\Users\Administrator\Desktop\Untitled3.exe

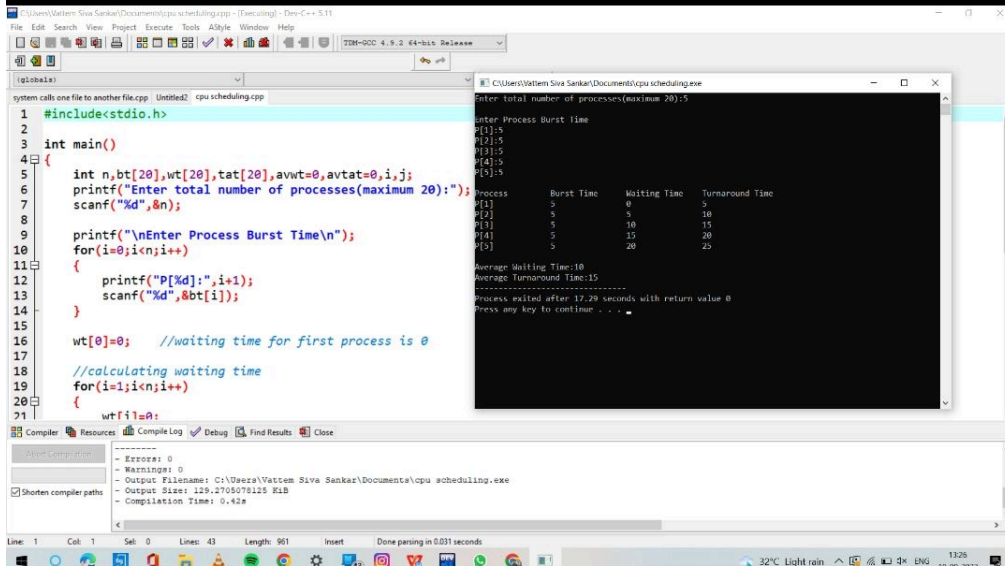
Process Done

Process exited after 0.02962 seconds with return value 0
Press any key to continue . . .

Compiler (2) Resources Compile Log Debug Find Results Close

Line	Col	File	Message
		C:\Users\Administrator\Desktop\Untitled3.cpp	In function 'int main(int, char**):
9	10	C:\Users\Administrator\Desktop\Untitled3.cpp	[warning] deprecated conversion from string constant to 'char*' [-Wwrite-strings]

Line: 17 Col: 26 Sel: 0 Lines: 23 Length: 457 Insert Done parsing in 0.031 seconds



```
1 #include<stdio.h>
2
3 int main()
4 {
5     int n,bt[20],wt[20],tat[20],avwt=0,avtat=0,i,j;
6     printf("Enter total number of processes(maximum 20):");
7     scanf("%d",&n);
8
9     printf("\nEnter Process Burst Time\n");
10    for(i=0;i<n;i++)
11    {
12        printf("P[%d]:",i+1);
13        scanf("%d",&bt[i]);
14    }
15
16    wt[0]=0; //waiting time for first process is 0
17
18    //calculating waiting time
19    for(i=1;i<n;i++)
20    {
21        wt[i]=A;
```

Enter total number of processes(maximum 20):5

Enter Process Burst Time

P[1]:5
P[2]:5
P[3]:5
P[4]:5
P[5]:5

Process	Burst Time	Waiting Time	Turnaround Time
P[1]	5	0	5
P[2]	5	5	10
P[3]	5	10	15
P[4]	5	15	20
P[5]	5	20	25

Average Waiting Time:10
Average Turnaround Time:15

Process exited after 17.29 seconds with return value 0
Press any key to continue . . .

Compiler: Resources: Compile Log: Debug: Find Results: Close

2 Files Compilation

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\Vattem Siva Sankar\Documents\cpu scheduling.exe
- Output Size: 129,270,507,8125 B
- Compilation Time: 0.42s

Line: 1 Col: 1 Sel: 0 Lines: 43 Length: 961 Insert Done parsing in 0.031 seconds

32°C Light rain 13:26 10-09-2022



```
C:\Users\Vaishanvi Sankar\Documents\bankers algorithm.cpp - [Visual Studio Code] - C++ 5.11
File Edit Search View Project Execute Tools Alstyle Window Help
C:\Users\Vaishanvi Sankar\Documents\bankers algorithm.cpp
scheduling process small.cpp : cpu scheduling.cpp : bankers algorithm.cpp
1 #include <stdio.h>
2 int main()
3 {
4     // P0, P1, P2, P3, P4 are the Process names
5
6     int n, m, i, j, k;
7     n = 5; // Number of processes
8     m = 3; // Number of resources
9     int alloc[5][3] = { { 0, 1, 0 }, // P0
10                        { 2, 0, 0 }, // P1
11                        { 3, 0, 2 }, // P2
12                        { 2, 1, 1 }, // P3
13                        { 0, 0, 2 } }; // P4
14
15     int max[5][3] = { { 7, 5, 3 }, // P0
16                      { 3, 2, 2 }, // P1
17                      { 9, 0, 2 }, // P2
18                      { 2, 2, 2 }, // P3
19                      { 4, 3, 3 } }; // P4
20
21     int avail[3] = { 3, 3, 2 }; // Available Resources
22
23     printf("Following is the safe sequence\n");
24     P1 -> P3 -> P4 -> P0 -> P2
25     -----
26     Process exited after 0.0308 seconds with return value 0
27     Press any key to continue . . .
```

Compiler Resources Compile Log Debug Find Results Close

2 Files Compilation

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\Vaishanvi Sankar\Documents\bankers algorithm.exe
- Output Size: 130,620,703,125 B
- Compilation Time: 0.33s

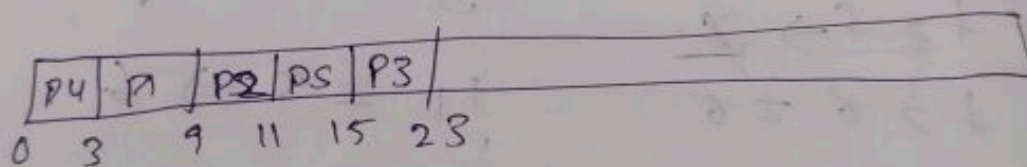
Line: 79 Col: 2 Sel: 0 Lines: 79 Length: 2049 Insert Done parsing in 0 seconds

32°C Rain showers 16:13 10-09-2022

4) Process Queue

	Burst time	Arrival time
P ₁	6	2
P ₂	2	5
P ₃	8	1
P ₄	3	0
P ₅	4	4

$$t=0 \quad B.T = 3$$



$$t=10$$

$$t=11$$

$$t=1 \rightarrow 8$$

$$t=2 \rightarrow 6$$

$$t=3 = 0$$

$$t=4 \rightarrow 4$$

$$t=5 = 2$$

$$t=6 = 0$$

$$t=7 = 0$$

$$t=8 = 0$$

$$t=9 = 0$$

Average time

$$P_1 = 9$$

$$P_2 = 11$$

$$P_3 = 23$$

$$P_4 = 3$$

$$P_5 = 15$$

$$\rightarrow P_1 =$$

$$P_2 =$$

$$P_3 =$$

$$P_4 =$$

$$P_5 =$$

wait

$$T_1 =$$

$$P_1 =$$

$$P_2 =$$

$$P_3 =$$

$$P_4 =$$

Ave

①

ival time.

$$\rightarrow P_1 = 9 - 2 = 7$$

$$P_2 = 11 - 5 = 6$$

$$P_3 = 23 - 1 = 22$$

$$P_4 = 3 - 0 = 3$$

$$P_5 = 15 - 4 = 11$$

waiting time

Turn around time - Burst time

$$P_1 = 7 - 6 \rightarrow 1$$

$$P_2 = 2 - 6 \rightarrow 4$$

$$P_3 = 8 - 22 \rightarrow 14$$

$$P_4 = 3 - 3 \rightarrow 0$$

$$P_5 = 14 - 11 \rightarrow 3$$

$$= 1 + 4 + 14 + 0 + 3$$

$$= 26/5$$

Average = 5.211
time

① Process

Burst
time

Priority

A

25

1

B

12

4

C

6

2

D

18

Frist come - Frist serve.

P ₁	P ₂	P ₃	P ₄	P
0	25	37	43	61

$$\text{Average time} = \frac{0+25+37+43}{4}$$

$$= \frac{105}{4}$$

$$= 26.25$$

Shortest job scheduling

P ₃	P ₂	P ₄	P ₁	
0	6	18	36	61

$$= \frac{0+6+18+36}{4}$$

$$= 15$$

Priority Scheduling

P_2	P_u	P_1	P_3	
0	12	30	55	61

$$= 24.25$$

Round-Robin Scheduling

$$2S = u + u + u + u + u + u +$$

$$12 = u + u + u$$

$$b = 2u + 2$$

$$18 = u + u + u + u + 2$$

1

R ₁	P ₂	P ₃	R ₄	P ₁	P ₂	P ₃	P ₄	P ₁	P ₂	P ₄	P ₁	P ₄	P ₁	P ₂	P ₃
0	4	8	12	16	20	24	26	30	34	38	42	46	50	54	60

P₁

$$= \frac{60 + 38 + 26 + 56}{4}$$

≈ 45.

process	B.T	A.T	priority
A	25	2	3
B	12	12	1
C	6	18	4
D	18	21	2

① FCFS

P_1	P_2	P_3	P_4
0	28	37	43

$$\text{Average Time} = \frac{0 + 28 + 37 + 43}{4}$$

$$= 26.25$$

② Shortest job first

P_3	P_2	P_4	P_1
0	6	18	36

$$= \frac{0 + 6 + 18 + 36}{4}$$

$$= 15$$

③ Priority Scheduling

P_2	P_4	P_1	P_3
0	12	18	28

$$= 13.75$$

Round Robin with Quantum time 4.

$$28 = u + u + u + u + u + u + 1$$

$$12 = u + u + u + u$$

$$6 = u + 2$$

$$18 = u + u + u + 2$$

P ₄	P ₂	P ₃	P ₄	P ₁	P ₂	P ₃	P ₄	P ₁	P ₂	P ₄	P ₁	P ₂	P ₄	P ₁	P ₄	P ₁	P ₄	P ₁
0	4	8	12	16	20	24	26	30	34	38	42	46	50	54	56	60	61	

Exit time

61

50

26

54

Turn around time,
(TAT)

$$61 - 2 = 59$$

$$50 - 12 = 38$$

$$26 - 18 = 8$$

$$18 - 21 = 3$$

waiting time

$$59 - 25 = 34$$

$$38 - 12 = 26$$

$$8 - 6 = 2$$

$$3 - 18 = 15$$

$$2 \frac{34 + 26 + 2 + 15}{4}$$

Average waiting time $77/4 = 19.25$

① ② F.C.F.S

P1	P2	P3	P4	P5
0	6	8	18	21

$$= 0 + 6 + 8 + 18 + 21$$

$$= 51/5$$

② $A.W.T = 10.2$

S.J.S

P4	P3	P1	P5	P2
0	3	14	17	21

$$= \frac{0 + 3 + 14 + 17 + 21}{5}$$

$$= 52/5$$

$A.W.T = 10.4$

Round Robin