

**Operating System Lab
CS342**

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Midsem

1901CS63

Q1

Compilation:

gcc question1.c

Syntax:

./a.out

checkLine.c – the program whose lines are counted and printed in different txt files.

```
1 #include<stdio.h>
2 #include<string.h>
3 int main() {
4     printf("Hello World!");
5     return 0;
6 }
```

Sample Input and Output:

Input:

gcc question1.c

./a.out

Output:

```
chiku@DESKTOP-5JCAMRU:/mnt/d/tanishq/3rd year/6th sem/os_lab/midsem/question1$ gcc question1.c
chiku@DESKTOP-5JCAMRU:/mnt/d/tanishq/3rd year/6th sem/os_lab/midsem/question1$ ./a.out
The file checkLine.c has 6 lines
Child 1: I wrote line number: 1 !
Child 2: I wrote line number: 2 !
Child 3: I wrote line number: 3 !
Child 4: I wrote line number: 4 !
Child 5: I wrote line number: 5 !
Child 6: I wrote line number: 6 !
```

Q 2.

here are two files "parent.c" and "child.c" for this question

Compilation:

gcc -o parent parent.c

gcc -o child child.c

Syntax:

./parent girl nancy boy mark boy joseph

Sample Input and Output:

Input:

./parent girl nancy boy mark boy joseph

Output:

```
chiku@DESKTOP-5JCAMRU:/mnt/d/tanishq/3rd year/6th sem/os_lab/midsem/question2$ ./parent girl nancy boy mark boy joseph
I have 3 children.
Child #2: i am a boy, and my name is mark
Child #3: i am a boy, and my name is joseph
Child #1: i am a girl, and my name is nancy
All child processes terminated. Parent exits
chiku@DESKTOP-5JCAMRU:/mnt/d/tanishq/3rd year/6th sem/os_lab/midsem/question2$
```

Q3.

Input :

5 2

0 10 2

3 7 1

4 6 2

12 5 1

18 8 1

Output :

Average Waiting Time : 10.40 Average Turnaround Time : 17.60

Completion order of Processes : P2 P4 P5 P3 P1

```
73 // Extract first processes in queue
74 int next_ready = nextQueue(ready);
75 Process* p = ready[next_ready].front();
76 ready[next_ready].pop();
77
78 // Calculate finishTime, remainingTime
79 findNextTime(time, time = min(TQ[min(next_ready, 1)]
80 p -> remainingTime -> min(TQ[min(next_ready, 1)], p
81
82 if (p -> remainingTime == 0) p -> finishTime = time;
83 else ready[next_ready].push(p);
84
85 return;
86
87 // Print average WT and average TAT */
88 void printAverage(vector<Process> &process) {
89     int n = process.size();
90     double avg_wt = 0.0;
91     double avg_tat = 0.0;
92
93     for (int i = 0; i < process.size(); i++) {
94         avg_wt += (process[i].finishTime - process[i].arrivalTime);
95         avg_tat += (process[i].finishTime - process[i].arrivalTime);
96     }
97
98     avg_wt /= n;
99     avg_tat /= n;
100     cout << fixed << setprecision(2);
101     cout << "Avg_WT = " << avg_wt << " Avg_TAT = " << avg_tat << endl;
102
103 // Sort vector according to finish times
104 sort(process.begin(), process.end(), finishTime_Compare);
105
106 }
```

Q4.

gcc -o q4 q4.c -lpthread

./q4

```
Windows PowerShell
chiku@DESKTOP-SJCAMRU:/m
chiku@DESKTOP-SJCAMRU:/mnt/d/tanishq/3rd year/6th sem/os_lab/midsem/question4$ ./q4
Enter the amount ot withdraw: 45
withdraw 45 : by :2: balance 955
Deposited....
Enter the amount ot withdraw: 56
withdraw 56 : by :2: balance 944
Deposited....
Enter the amount ot withdraw: 36
withdraw 36 : by :2: balance 964
Deposited....
5Enter the amount ot withdraw:
withdraw 5 : by :2: balance 995
Deposited....
5Enter the amount ot withdraw:
withdraw 5 : by :2: balance 995
Deposited....
Enter the amount ot withdraw: 45
withdraw 45 : by :2: balance 955
Deposited....
Enter the amount ot withdraw: 45
withdraw 45 : by :2: balance 955
Deposited....
Enter the amount ot withdraw: 45
withdraw 45 : by :2: balance 955
Deposited....
Enter the amount ot withdraw: 65
withdraw 65 : by :2: balance 935
Deposited....
Enter the amount ot withdraw: 21
withdraw 21 : by :2: balance 979
Deposited....
Enter the amount ot withdraw: 12
withdraw 12 : by :2: balance 988
Deposited....
Enter the amount ot withdraw: 32
withdraw 32 : by :2: balance 968
4Deposited....
5Enter the amount ot withdraw: 465
Call depositer to deposit.
Enter the amount ot withdraw: 654654
Call depositer to deposit.
Enter the amount ot withdraw: 12
withdraw 12 : by :2: balance 968
Deposited....
Enter the amount ot withdraw: 21
withdraw 21 : by :2: balance 979
Deposited....
Enter the amount ot withdraw: 32323
Call depositer to deposit.
withdraw 0 : by : HACKeR : balance 0
```

Case2

```
Windows PowerShell
chiku@DESKTOP-SJCAMRU:/m
wed.
Total Amount = 0
chiku@DESKTOP-SJCAMRU:/mnt/d/tanishq/3rd year/6th sem/os_lab/midsem/question4$ gcc -o q4 q4.c -lpthread
chiku@DESKTOP-SJCAMRU:/mnt/d/tanishq/3rd year/6th sem/os_lab/midsem/question4$ ./q4
Enter the amount ot withdraw: 45
withdraw 45 : by :2: balance 955
Deposited....
Enter the amount ot withdraw: 65
withdraw 65 : by :2: balance 935
1Deposited....
2Enter the amount ot withdraw: 3
withdraw 123 : by :2: balance 877
Deposited....
Enter the amount ot withdraw: 22
withdraw 22 : by :2: balance 978
Deposited....
Enter the amount ot withdraw: 22
withdraw 22 : by :2: balance 978
Deposited....
Enter the amount ot withdraw: 145
withdraw 145 : by :2: balance 855
Deposited....
Enter the amount ot withdraw: 16546
Call depositer to deposit.
Enter the amount ot withdraw: 145
withdraw 145 : by :2: balance 855
Deposited....
Enter the amount ot withdraw: 155
withdraw 155 : by :2: balance 845
Deposited....
Enter the amount ot withdraw: 111
withdraw 111 : by :2: balance 889
Deposited....
Enter the amount ot withdraw: 111
withdraw 111 : by :2: balance 889
Deposited....
Enter the amount ot withdraw: 11
withdraw 11 : by :2: balance 989
Deposited....
Enter the amount ot withdraw: 11
withdraw 11 : by :2: balance 989
Deposited....
Enter the amount ot withdraw: 11
withdraw 11 : by :2: balance 989
Deposited....
Enter the amount ot withdraw: 11
withdraw 11 : by :2: balance 989
Deposited....
Enter the amount ot withdraw: 3232
Call depositer to deposit.
33withdraw 0 : by : HACKeR : balance 0
Enter the amount ot withdraw: 3
```

As you can see, the program terminates, once hacker hacks treasure before the borrower.