

struct and function

Part1:Task1: Suppose you and your friends go to have breakfast in a restaurant....

Here I am using the first line...

touch a2task1.c

gedit a2task1.c

```
mashiyat@mashiyat-VirtualBox:~$ touch a2task1.c
mashiyat@mashiyat-VirtualBox:~$ gedit a2task1.c
```

gcc -o a2task1 a2task1.c

./a2task1

```
mashiyat@mashiyat-VirtualBox:~$ gedit a2task1.c
mashiyat@mashiyat-VirtualBox:~$ gcc -o a2task1 a2task1.c
mashiyat@mashiyat-VirtualBox:~$ ./a2task1
Quantity Of Paratha: 25
Unit Price Of Paratha: 10
Quantity Of Vegetables: 5
Unit Price Of Vegetables: 20
Quantity Of Mineral Water: 20
Unit Price Of Mineral Water: 20
Number of People: 6
Individual people will pay: 125.00 tk
```

Part1: Task2: Write a C program to print perfect numbers between given intervals using a function....

gedit a2task2.c

gcc -o a2task2 a2task2.c

./a2task2

```
mashiyat@mashiyat-VirtualBox:~$ gedit a2task2.c
mashiyat@mashiyat-VirtualBox:~$ gcc -o a2task2 a2task2.c
mashiyat@mashiyat-VirtualBox:~$ ./a2task2
Enter the starting range: 1
Enter the ending range: 10000
1 , 10000
6
28
496
8128
```

system call

Part 2: Task1: Write a c program that will open a file given from the command line argument and then it will ask the user to input strings that will be written to that file.....

gedit a2p1task1.c

./a2p1task1 a2p1task1.txt

cat a2p1task1.txt

```
mashiyat@mashiyat-VirtualBox:~$ ./a2p1task1 a2p1task1.txt
File opened done!! Enter strings to write in file
Type '-1' to stop.
Enter string: eshita
Enter string: mashiyat
Enter string: panda
Enter string: naruto
Enter string: -1
Have written data to the file successfully
mashiyat@mashiyat-VirtualBox:~$ cat a2p1task1.txt
eshita
mashiyat
panda
naruto
```

Part2: Task2: Write a program that will create a child and another grandchild process. Every process will print a line...

gedit a2p1task2.c

gcc -o a2p1task2 a2p1task2.c

```
mashiyat@mashiyat-VirtualBox:~$ gedit a2p1task2.c
mashiyat@mashiyat-VirtualBox:~$ gcc -o a2p1task2 a2p1task2.c
mashiyat@mashiyat-VirtualBox:~$ ./a2p1task2
I am grandchild
I am child
I am parent
mashiyat@mashiyat-VirtualBox:~$
```

Part2: Task3: Now, write the full program, that will check the children's PID and if it is odd then the process will create another child process.

gedit a2p2task3.c

gcc -o a2p2task3 a2p2task3.c

./a2p2task3

```
mashiyat@mashiyat-VirtualBox:~$ gcc -o a2p2task3 a2p2task3.c
mashiyat@mashiyat-VirtualBox:~$ ./a2p2task3
Parent: 16008, Child: 16009
Parent: 16009, Child: 16013
Parent: 16008, Child: 16011
Parent: 16009, Child: 16014
Parent: 16012, Child: 16015
Parent: 16008, Child: 16010
Parent: 16010, Child: 16019
Parent: 16013, Child: 16020
Parent: 1463, Child: 16016
Parent: 16015, Child: 16022
Parent: 1463, Child: 16024
Parent: 1463, Child: 16025
Total process number: 17
```

```
mashiyat@mashiyat-VirtualBox:~$ ./a2p2task3
Parent: 16892, Child: 16893
Parent: 1463, Child: 16897
Parent: 16896, Child: 16899
Parent: 16892, Child: 16895
Parent: 16892, Child: 16894
Parent: 16897, Child: 16903
Parent: 16902, Child: 16907
Parent: 16896, Child: 16900
Parent: 1463, Child: 16898
Parent: 16899, Child: 16904
Parent: 16894, Child: 16908
Parent: 16901, Child: 16906
Total process number: 12
```

Part2 Task4:

“Sort.c”, “oddeven.c”, “getchild.c”

gedit sort.c

gcc -o sort sort.c

./sort 2 200 13 14 16 81 36 74

gedit oddeven.c

gcc -o oddeven oddeven.c

./oddeven 5 6 67 89 55 32 48 0 1

gedit getchild.c

gcc -o getchild getchild.c

./getchild 56 65 4 2 1 0 81 33 55

```
mashiyat@mashiyat-VirtualBox:~$ gedit sort.c
mashiyat@mashiyat-VirtualBox:~$ gcc -o sort sort.c
mashiyat@mashiyat-VirtualBox:~$ ./sort 2 200 13 14 16 81 36 74
Sorted array in descending order: 200 81 74 36 16 14 13 2
mashiyat@mashiyat-VirtualBox:~$
```

```
mashiyat@mashiyat-VirtualBox:~$ gedit oddeven.c
mashiyat@mashiyat-VirtualBox:~$ gcc -o oddeven oddeven.c
mashiyat@mashiyat-VirtualBox:~$ ./oddeven 5 6 67 89 55 32 48 0 1
5 is Odd
6 is Even
67 is Odd
89 is Odd
55 is Odd
32 is Even
48 is Even
0 is Even
1 is Odd
mashiyat@mashiyat-VirtualBox:~$
```

```
mashiyat@mashiyat-VirtualBox:~$ gedit getchild.c
mashiyat@mashiyat-VirtualBox:~$ gcc -o getchild getchild.c
mashiyat@mashiyat-VirtualBox:~$ ./getchild 56 65 4 2 1 0 81 33 55
Child Process: sort in descending order: 81 65 56 55 33 4 2 1 0
Parent Process: checking odd or even status:
56 is Even
65 is Odd
4 is Even
2 is Even
1 is Odd
0 is Even
81 is Odd
33 is Odd
55 is Odd
```

Part2 Task5: Write a program in c that the parent process will create one child process and 3 grandchild processes and print their IDs...

gedit a2systask5.c

gcc -o a2systask5 a2systask5.c

./a2systask5

```
mashiyat@mashiyat-VirtualBox:~$ gedit a2systask5.c
mashiyat@mashiyat-VirtualBox:~$ gcc -o a2systask5 a2systask5.c
mashiyat@mashiyat-VirtualBox:~$ ./a2systask5
Parent process ID: 16973
Child process ID: 16974
Grandchild process ID: 16975
Grandchild process ID: 16977
Grandchild process ID: 16976
```

Threading:

Threading Task 1 : Write a c program that creates 5 threads and prints which thread is running and after the thread is closed, a new thread starts its execution. Each thread should run sequentially one by one.

gedit a2p1task5.c

gcc -o a2p1task5 a2p1task5.c

./a2p1task5

[Here I did not use threading in the file name but this task I did for threading. Please ignore the name pf the file here as it was not done intentionally]

```
mashiyat@mashiyat-VirtualBox:~$ gedit a2p1task5.c
mashiyat@mashiyat-VirtualBox:~$ gcc -o a2p1task5 a2p1task5.c
mashiyat@mashiyat-VirtualBox:~$ ./a2p1task5
thread-2 running
thread-2 closed
thread-3 running
thread-3 closed
thread-4 running
thread-4 closed
thread-1 running
thread-1 closed
thread-5 running
thread-5 closed
```

Threading Task2: Write a program in c using 5 threads where each thread will print 5 integers

gedit a2threading2.c

gcc -o a2threading2 a2threading2.c

./a2threading2

Here, the sequences are being changed soon as the os is assigning and using it randomly. So, everytime I print I get different sequence.

```
mashiyat@mashiyat-VirtualBox: ~
mashiyat@mashiyat-VirtualBox:~$ gedit a2threading2.c
mashiyat@mashiyat-VirtualBox:~$ gcc -o a2threading2 a2threading.c
cc1: fatal error: a2threading.c: No such file or directory
compilation terminated.
mashiyat@mashiyat-VirtualBox:~$ gcc -o a2threading2 a2threading2.c
mashiyat@mashiyat-VirtualBox:~$ ./a2threading2
Thread 1 prints 6
Thread 1 prints 7
Thread 1 prints 8
Thread 1 prints 9
Thread 1 prints 10
Thread 4 prints 21
Thread 4 prints 22
Thread 4 prints 23
Thread 4 prints 24
Thread 4 prints 25
Thread 0 prints 1
Thread 0 prints 2
Thread 0 prints 3
Thread 0 prints 4
Thread 0 prints 5
Thread 3 prints 16
Thread 3 prints 17
Thread 3 prints 18
Thread 3 prints 19
Thread 3 prints 20
Thread 2 prints 11
Thread 2 prints 12
Thread 2 prints 13
Thread 2 prints 14
Thread 2 prints 15
mashiyat@mashiyat-VirtualBox:~$
```

Threading Task3: Write a program in c that has a function that takes the name of the user and adds all the ASCII value of the characters and returns it..

gedit a2threading3.c

gcc -o a2threading3 a2threading3.c

./a2threading3

```
mashiyat@mashiyat-VirtualBox:~$ gedit a2threading3.c
mashiyat@mashiyat-VirtualBox:~$ gcc -o a2threading3 a2threading3.c
mashiyat@mashiyat-VirtualBox:~$ ./a2threading3
Enter name 1: mashiyat
Enter name 2: mahjabin
Enter name 3: eshita
Sum of ASCII values for 'mashiyat' is: 864
Sum of ASCII values for 'mahjabin' is: 826
Sum of ASCII values for 'eshita' is: 638
Hasta la vista
mashiyat@mashiyat-VirtualBox:~$ ./a2threading3
Enter name 1: tom
Enter name 2: tom
Enter name 3: tom
Sum of ASCII values for 'tom' is: 336
Sum of ASCII values for 'tom' is: 336
Sum of ASCII values for 'tom' is: 336
Youreka
```

```
mashiyat@mashiyat-VirtualBox:~$ gedit a2threading3
mashiyat@mashiyat-VirtualBox:~$ gcc -o a2threading3 a2threading3.c
mashiyat@mashiyat-VirtualBox:~$ ./a2threading3
Enter name 1: Naruto
Enter name 2: Naruto
Enter name 3: Sasuke
Sum of ASCII values for 'Naruto' is: 633
Sum of ASCII values for 'Naruto' is: 633
Sum of ASCII values for 'Sasuke' is: 620
Miracle
```