

Struct & Function(Part 1)

Task 1:

```
ubuntu@ubuntu-VirtualBox: ~/BRACU_CSE/CSE321_Lab/Assignment2/Part1
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2$ cd Part1
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part1$ touch task1.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part1$ gedit task1.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part1$ gcc -o task1 task1.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part1$ ./task1
Quantity Of Paratha: 25
Unit Price: 10
Quantity Of Vegetables: 5
Unit Price: 20
Quantity Of Mineral Water: 20
Unit Price: 20
Number of People: 6
Individual people will pay: 125.00 tk
```

Task 2:

```
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part1$ gedit task2.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part1$ gcc -o task2 task2.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part1$ ./task2
1
10000
6
28
496
8128
```

System Call (Part2):

Task 1:

```
ubuntu@ubuntu-VirtualBox: ~/BRACU_CSE/CSE321_Lab/Assignment2/Part2
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2$ cd Part2
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ gedit task1.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ gcc -o task1 task1.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ ./task1 task1.txt
Please enter a string: Hello!
Please enter a string: Welcome to CSE321!
Please enter a string: -1
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ cat task1.txt
Hello!
Welcome to CSE321!
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ ./task1 task1.txt
Please enter a string: This is Section 13
Please enter a string: -1
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ cat task1.txt
Hello!
Welcome to CSE321!
This is Section 13
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$
```

Task2:

```
Sep 8 02:36
ubuntu@ubuntu-VirtualBox: ~/BRACU_CSE/CSE321_Lab/Assignment2/Part2

ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ touch task2.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ gedit task2.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ gcc -o task2 task2.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ ./task2
I am grandchild
I am child
I am parent
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$
```

Task 3:

```
ubuntu@ubuntu-VirtualBox: ~/BRACU_CSE/CSE321_Lab/Assignment2/Part2

ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ gedit task3.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ gcc -o task3 task3.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ ./task3
Total number of processes : 15
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$
```

Task 4:

```
Sep 8 03:03
ubuntu@ubuntu-VirtualBox: ~/BRACU_CSE/CSE321_Lab/Assignment2/Part2

ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ gedit sort.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ gcc -o sort sort.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ ./sort 1 5 8 12 829 23 2 4
The descending order sorted array:
829 23 12 8 5 4 2 1
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ gedit oddeven.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ gcc -o oddeven oddeven.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ ./oddeven 10 3 2 98239 18 632 37 31
The element 10 at index 0 is even
The element 3 at index 1 is odd
The element 2 at index 2 is even
The element 98239 at index 3 is odd
The element 18 at index 4 is even
The element 632 at index 5 is even
The element 37 at index 6 is odd
The element 31 at index 7 is odd
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ gedit task4.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ gcc -o task4 task4.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ ./task4 2 3287 1 7123 236 32 3 2
Child process running (Sorting array in descending order)
The descending order sorted array:
7123 3287 236 32 3 2 2 1
Parent process running (Checking whether the array elements are odd or even)
The element 2 at index 0 is even
The element 3287 at index 1 is odd
The element 1 at index 2 is odd
The element 7123 at index 3 is odd
The element 236 at index 4 is even
The element 32 at index 5 is even
The element 3 at index 6 is odd
The element 2 at index 7 is even
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$
```

Task 5:

```
Sep 8 03:05
ubuntu@ubuntu-VirtualBox: ~/BRACU_CSE/CSE321_Lab/Assignment2/Part2
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ touch task5.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ gedit task5.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ gcc -o task5 task5.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part2$ ./task5
1. Parent process ID : 8086
2. Child process ID: 8087
3. Grand Child process ID: 8088
4. Grand Child process ID: 8089
5. Grand Child process ID: 8090
```

Threading (Part 3)

Task 1:

```
Sep 8 03:07
ubuntu@ubuntu-VirtualBox: ~/BRACU_CSE/CSE321_Lab/Assignment2/Part3
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2$ cd Part3
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$ touch task1.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$ gedit task1.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$ gcc -o task1 task1.c -lpthread
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$ ./task1
thread-1 running
thread-1 closed
thread-2 running
thread-2 closed
thread-3 running
thread-3 closed
thread-4 running
thread-4 closed
thread-5 running
thread-5 closed
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$
```

Task 2:

```
Sep 8 03:09
ubuntu@ubuntu-VirtualBox: ~/BRACU_CSE/CSE321_Lab/Assignment2/Part3
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$ touch task2.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$ gedit task2.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$ gcc -o task2 task2.c -lpthread
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$ ./task2
Thread 0 prints 1
Thread 0 prints 2
Thread 0 prints 3
Thread 0 prints 4
Thread 0 prints 5
Thread 1 prints 6
Thread 1 prints 7
Thread 1 prints 8
Thread 1 prints 9
Thread 1 prints 10
Thread 2 prints 11
Thread 2 prints 12
Thread 2 prints 13
Thread 2 prints 14
Thread 2 prints 15
Thread 3 prints 16
Thread 3 prints 17
Thread 3 prints 18
Thread 3 prints 19
Thread 3 prints 20
Thread 4 prints 21
Thread 4 prints 22
Thread 4 prints 23
Thread 4 prints 24
Thread 4 prints 25
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$
```

Task 3:

```
Sep 8 03:13
ubuntu@ubuntu-VirtualBox: ~/BRACU_CSE/CSE321_Lab/Assignment2/Part3
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$ gedit task3.c
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$ gcc -o task3 task3.c -lpthread
task3.c: In function 'userNameAsciiSum':
task3.c:17:18: warning: cast to pointer from integer of different size [-Wint-to-pointer-cast]
   17 |     pthread_exit((int *)asciiSum);
      |                  ^
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$ ./task3
Enter the name of user 1: ABC
This is Thread 1 and the summation is 198
Enter the name of user 2: DEF
This is Thread 2 and the summation is 207
Enter the name of user 3: GHI
This is Thread 3 and the summation is 216
Hasta la vista
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$ ./task3
Enter the name of user 1: ABC
This is Thread 1 and the summation is 198
Enter the name of user 2: DEF
This is Thread 2 and the summation is 207
Enter the name of user 3: ABC
This is Thread 3 and the summation is 198
Miracle
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$ ./task3
Enter the name of user 1: ABC
This is Thread 1 and the summation is 198
Enter the name of user 2: ABC
This is Thread 2 and the summation is 198
Enter the name of user 3: ABC
This is Thread 3 and the summation is 198
Youreka
ubuntu@ubuntu-VirtualBox:~/BRACU_CSE/CSE321_Lab/Assignment2/Part3$
```