

## Creating Multithreaded Applications (Part B)

### Task#1

Declares an array of size 1000 and populates it with random numbers between 1 and 100. Then it finds factorial of these numbers and checks how many of these prime numbers are. Also find the time taken by the system to perform these tasks.

```
1 #include <iostream>
2 #include <stdio.h>
3 #include <ctime>
4 #include <stdlib.h>
5 #include <unistd.h>
6
7 using namespace std;
8
9 int checkPrime(int num){
10
11     if(num <= 1){
12         return 0;
13     }
14     for(int j = 2; j <= num / 2; j++){
15
16         if(num % j == 0){
17             return 0;
18         }
19         return 1;
20     }
21
22     return num;
23 }
24
25
26 int main(){
27
28     int arr[6];
29     srand((unsigned) time(NULL));
30
31     // Random Values
32     for(int i = 0; i < 6; i++){
33
34         arr[i] = 1 + rand() % 10;
35     }
36
37     // Print All
38     for(int i = 0; i < 6; i++){
39
40         cout << arr[i] << endl;
41     }
42
43     // Finding Factorial
44
45     for(int i = 0; i < 6; i++){
46
47         // Finding Factorial
48         if(arr[i] < 0 ){
49             cout << "-ve number can't find factorial" << endl;
50             break;
51         }
52         else{
53             long fact = 1.0;
54             int n = arr[i];
55             for(int j = 1; j <= n; ++j){
56                 fact *= j;
57             }
58             cout << "fact of " << n << " is " << fact << endl;
59         }
```

```

60
61     }
62
63     // Prime Numbers
64     int isPrime = 0;
65     int count = 0;
66
67     for(int i = 0; i < 6; i++){
68         isPrime = checkPrime(arr[i]);
69
70         if(isPrime == 1){
71             count++;
72         }
73     }
74
75     cout << "Prime numbers are " << count << endl;
76
77     return 0;
78 }
79
80

```

## Output

```

sam@sam-VirtualBox:~/Desktop$ gedit threads.cpp
sam@sam-VirtualBox:~/Desktop$ ./th
6
3
5
7
6
2
fact of 6 is 720
fact of 3 is 6
fact of 5 is 120
fact of 7 is 5040
fact of 6 is 720
fact of 2 is 2
Prime numbers are 2
sam@sam-VirtualBox:~/Desktop$

```

```

real    0m0.002s
user    0m0.002s
sys     0m0.000s
sam@sam-VirtualBox:~/Desktop$ █

```