East West University
Department of Computer Science and Engineering

Course: CSE 246(Algorithms)
Section - 02

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Lab Report:01

1. Fibonacci Series

```
#include<bits/stdc++.h>
using namespace std;

    int fibonacci(int n) {

    if(n<=1){
        return n;
    }
    int l=fibonacci(n-1);
    int s=fibonacci(n-2);
    return l+s;
    }
    int main(){
    int n;
    cin>>n;
    for(int i=0;i<n;i++){
    cout<<fibonacci(i)<< " ";
    }
}
```

Output:

```
5
0 1 1 2 3
Process returned 0 (0x0)   execution time : 2.002 s
Press any key to continue.
```

2. Check Prime Number

```
#include <bits/stdc++.h>
using namespace std;
int main(){
    int n;
    cin>>n;
     if (n <= 1) {
        cout << "Not Prime" << endl;
        return 0;
    }

    bool isPrime = true;
    for (int i = 2; i <= sqrt(n); i++) {
        if (n % i == 0) {
            isPrime = false;
            break;
        }
    }
     if (isPrime)
        cout << "Prime" << endl;
    else
        cout << "Not Prime" << endl;

    return 0;
}
```

```
7
Prime

Process returned 0 (0x0)   execution time : 2.715 s
Press any key to continue.
```

```
10
Not Prime

Process returned 0 (0x0)   execution time : 2.015 s
Press any key to continue.
```

3. Calculate the Area of a Trapezium

```
#include <iostream>
using namespace std;
int main(){
   float a,b,h;
   cin>>a>>b>>h;
   float ar=((a+b)*h)/2;
   cout<<ar<< '\n';
}
```

Output

```
5 7 4
24

Process returned 0 (0x0)   execution time : 2.370 s
Press any key to continue.
```

4. Count Divisors of a Number

```
#include <bits/stdc++.h>
using namespace std;
int main(){
   int n;
   cin>>n;
   int c=0;
   for(int i=1;i<=sqrt(n);i++){
```

```
    if(n%i==0){
        if(i==n/i){
            c++;
        }else{
        c+=2;
        }
    }

    }
    cout<<c<<endl;
}
```

Output

```
12
6

Process returned 0 (0x0)   execution time : 1.938 s
Press any key to continue.
```

5. Sum of Prime Factors

```
#include <iostream>
using namespace std;
int main() {
    int n;
    cin >> n;
    int sum = 0;
    if (n % 2 == 0) {
        sum += 2;
        while (n % 2 == 0)
            n /= 2;
    }
    for (int i = 3; i * i <= n; i += 2) {
```

```
        if (n % i == 0) {
            sum += i;
            while (n % i == 0)
                n /= i;
        }
    }
    if (n > 2)
        sum += n;

    cout << sum << endl;
    return 0;
}
```

Output