

Fundamentals of Programming

Lab Manual 6

Home tasks 1,2,3

ME-15

Name: Faizan Ahmad

Qalam ID: 476602

Section: A

Task 1:

Write a program using break or continue statement that only adds prime numbers from 1 to 50 and display the sum on screen.

Code:

```
#include<iostream>

using namespace std;

int main() {

    int sum = 0;           // sum will always be an integer so int was used


    for ( int i=2; i<=50; i++) {           // first loop increments i by 1 after each loop
        int j;                             // j will be used to check if i is a prime number or not
        for ( j=2; j<=25; j++ ) { // this loop checks all values of j, if j can divide i then the loop breaks and i is incremented

            if ( i%j == 0 ) {
                break;
            }
        }

        if ( j > i/2 )
            sum = sum + i;
    }

    cout<<"The sum of all prime numbers between 1 and 50 is: "<<sum;
    return 0;
}
```

Execute:

 C:\Users\Personal\Desktop\Lab manual 6\Lab manual 6, home tasks\Lab manual 6, home task 1.exe

```
The sum of all prime numbers between 1 and 50 is: 328
-----
Process exited after 0.1255 seconds with return value 0
Press any key to continue . . .
```

Task 2:

Write a program in C++ to create the following pattern.

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

Code:

```
#include<iostream>

using namespace std;

int main() {


    int n;    // n is the number of rows

    cout<<"Enter the number of rows you would like"<<endl;    //prompt asking for user input of n
    cin>>n;

    for ( int i=1; i<n; i++ ) {    //this loop repeats "n" times
        for ( int j=1; j<=i; j++ ) {    //this second loop prints the content of each row
            cout<<j<<" ";    //since j starts from 1 and always increments "i" number of times, its used to print the pattern
        }
        cout<<endl;    //this line of code moves on to the next row after a row is completed
    }

    return 0;
}
```

Execute:

 C:\Users\Personal\Desktop\Lab manual 6\Lab manual 6, home tasks\Lab manual 6, home task 2.exe

```
Enter the number of rows you would like
9
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6
1 2 3 4 5 6 7
1 2 3 4 5 6 7 8

-----
Process exited after 7.299 seconds with return value 0
Press any key to continue . . .
```

Task 3:

Write a C++ program to print:

```
1
2 2
4 4 4 4
6 6 6 6 6 6
```

Code:

```
#include<iostream>

using namespace std;

int main() {

    int n, k = 2; // n is the number of rows

    cout<<"Enter the number of rows you would like"<<endl;    //prompt asking for user input of n

    cin>>n;

    cout<<"1"<<endl;

    for ( int i=1; i<=n-1; i++ ) {

        for ( int j = 1; j <= (i)*2; j = j+1) {

            cout<<k;

        }

        k=k+2;

        cout<<endl;

    }

    return 0;

}
```

Execute:

```
C:\Users\Personal\Desktop\Lab manual 6\Lab manual 6, home tasks\Lab manual 6, home task 3.exe
Enter the number of rows you would like
4
1
22
4444
666666
-----
Process exited after 3.556 seconds with return value 0
Press any key to continue . . .
```