

C++ Lab#6

Objective

- Nested Loop

Example: The following code is for testing an input (int) x whether it is prime number or not:

```
int x,i;
bool FirstSupposed = true;
cout<<"enter x=";
cin>>x;
for(i=2;i<=x/2;i++){
    if(x%i==0){
        FirstSupposed=false;
        break;
    }
}
if(FirstSupposed==true)cout<<"it is prime number"<<endl;
else cout<<"it is NOT prime number"<<endl;
```

The variable "FirstSupposed" is just as an indication for the primality test, where this variable still true (unchanged) whenever x is prime number, on the contrary this variable is going to change to be false whenever x is not prime number.

i.e. x is divisible by i

To write a code that calculate the sum of all prime numbers less than 100.

Note that the testable number x in the above code is changed with j (the counter of outer loop) in the following code.

```
int i, j, sum=0;
for(j=1; j<100; j++){
    bool FirstSupposed = true;
    cout<<"enter x=";
    cin>>x; // using j (counter of outer loop) instead of x
    for(i=2;i<=x/2;i++){
        if(j%i==0){ // using j instead of x
            FirstSupposed=false;
            break;
        }
    }
    if(FirstSupposed==true)sum+=j; //cout<<"it is prime number"<<endl;
}

cout<<"sum of prime numbers less than 100="<<sum<<endl;
```

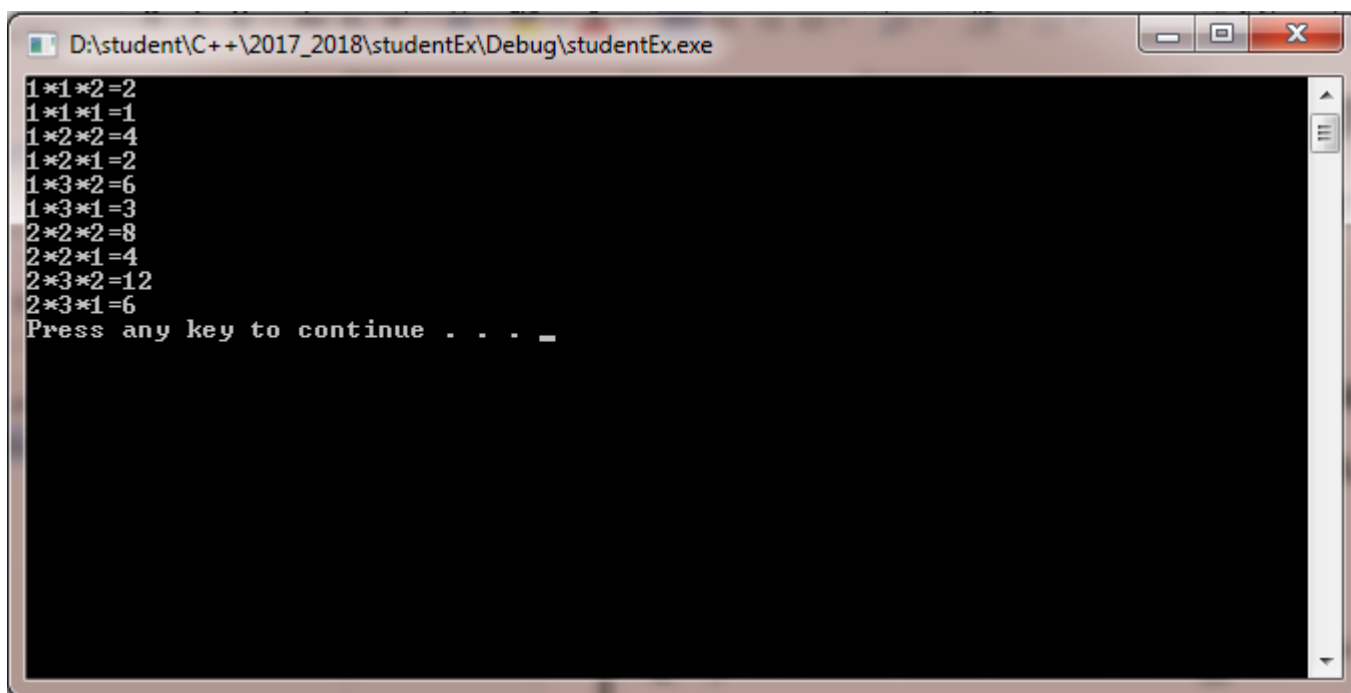
It is the
above code

Q1) Write a C++ program to count the number of primes between two given numbers x and y. For Example, the number of primes between 4 and 18 is 5
Your code must keep the run using Do-While-loop.

Q2) Write A C++ program to print the multiplication table. Your code must keep the run using Do-While-loop.

Q3) Trace the following C++ code and conclude the output:

```
int i, j, k;  
for(i=1; i<3; i++)  
    for(j=i; j<4; j++)  
        for(k=2; k>=1; k--)  
            cout<<i<<"*"<<j<<"*"<<k<<"="<<i*j*k<<endl;
```



The screenshot shows a Windows command prompt window titled "D:\student\C++\2017_2018\studentEx\Debug\studentEx.exe". The output of the program is as follows:

```
1*1*2=2  
1*1*1=1  
1*2*2=4  
1*2*1=2  
1*3*2=6  
1*3*1=3  
2*2*2=8  
2*2*1=4  
2*3*2=12  
2*3*1=6  
Press any key to continue . . . _
```