CSE102L Computer Programming Lab

LAB # 4

2020

Submitted to:

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Registration No :

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Semester: **2nd**

Class Section: **C**

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

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Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Objectives:

1. To understand the programming knowledge using Decision Statement “switch”.
2. To understand the programming using for Loop.

Question No.1

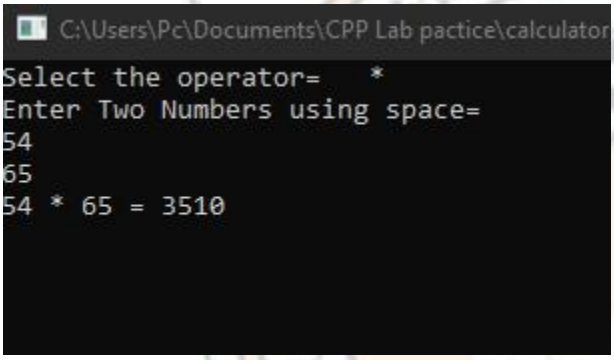
Write a program to create Simple Calculator using switch case.

Program:

```
#include<iostream>
#include<conio.h>
using namespace std;
main()
{
	int a,b;
	char c;
	cout<<"Select the operator=   ";
	cin>>c;
	cout<<"Enter Two Numbers using space="<<endl;
	cin>>a>>b;
	switch (c)
	{
		case '+':
			cout<<a<<" + "<<b<<" = "<<a+b;
		break;
		case '-':
			cout<<a<<" - "<<b<<" = "<<a-b;
		break;
		case '*':
			cout<<a<<" * "<<b<<" = "<<a*b;
		break;
```

```
            case '/':
                cout<<a<<" / "<<b<<" = "<<a/b;
            break;
            default:
                cout<<"Wrong Symbol";
    }
    getch();
}
```

Output:



Question no.2:

Write a program that takes a number as input, checks it if it is between 1 and 10 (using switch) and if it is in valid range your program should output a line containing that number of adjacent asterisks. On invalid input number, the program should end. For example, if your program input is 7, it should print *******.

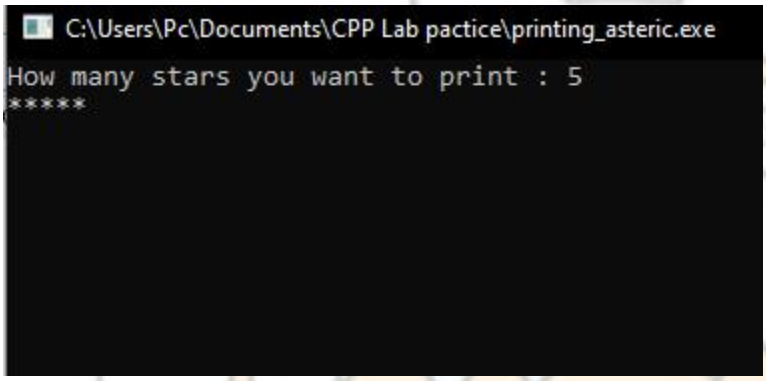
Program:

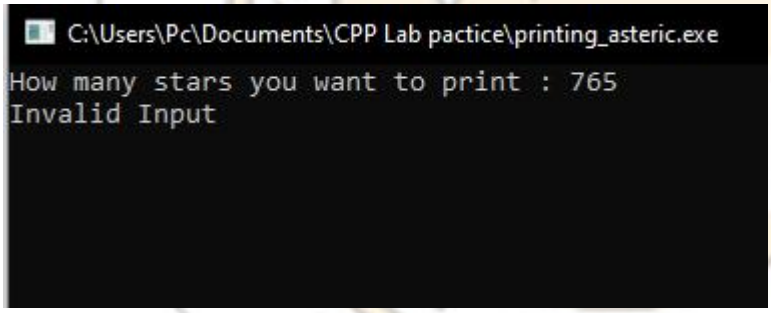
```
#include<iostream>
#include<conio.h>
using namespace std;
            main()
            {
    }
    getch();
}
```

```
int star;
cout<<"How many stars you want to print : ";
cin>>star;
switch (star)
{
        case 1:
                cout<<"*";
        break;
        case 2:
                cout<<"**";
        break;
        case 3:
                cout<<"***";
        break;
        case 4:
                cout<<"****";
        break;
        case 5:
                cout<<"*****";
        break;
        case 6:
                cout<<"******";
        break;
        case 7:
                cout<<"*******";
        break;
        default:
```

```
                cout<<"Invalid Input";


        }
        getch();
}
```

Output:





Question no.3:

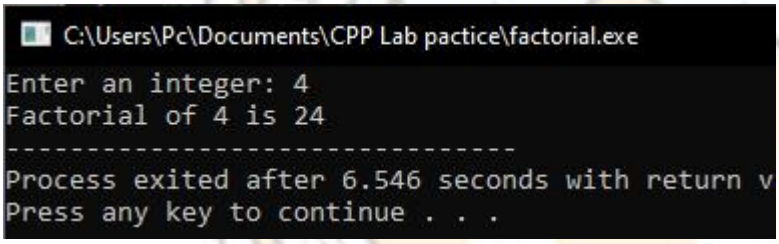
Write a program to find Factorial of a number.

Program:

```
#include <iostream>
#include <conio.h>
using namespace std;
main()
{
```

```
   int j,k;
   long fact = 1;
   cout<<"Enter an integer: ";
   cin>>j;
   for (k = 1; k <= j; ++k)
         {
      fact *= k;
   }
   cout<<"Factorial of "<<j<<" is "<<fact;
   getch();
}
```

Output:-



Question no.4:

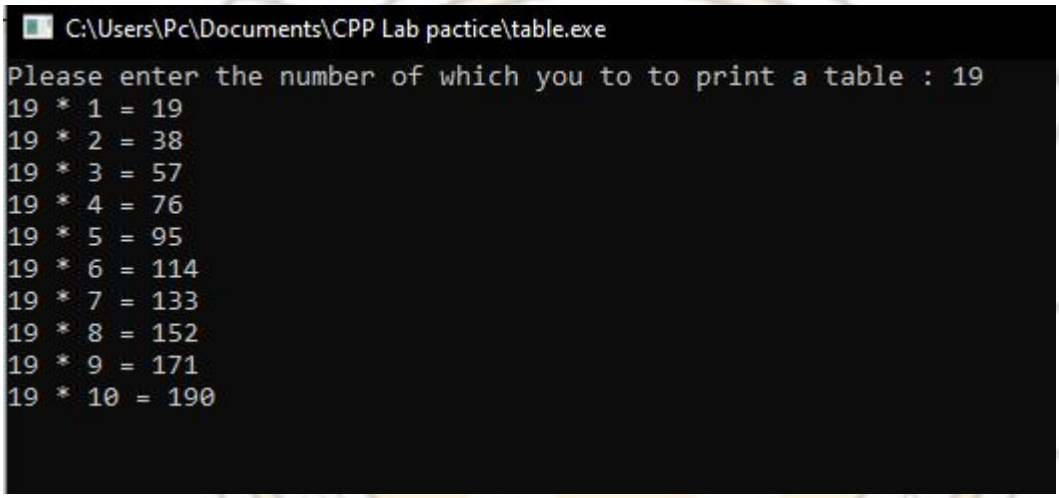
Write a program to print multiplication table of any number.

Program:

```
#include <iostream>
#include <conio.h>
using namespace std;
main()
{
      int num1,num2;
      cout<<"Please enter the number of which you to to print a table : ";
      cin>>num1;
```

```
        for(num2=1;num2<=10;num2++)
        {
                cout<<num1<<" * "<<num2<<" = "<<num1*num2<<endl;
        }
        getch();

}
```

Output:



Question no.5:-

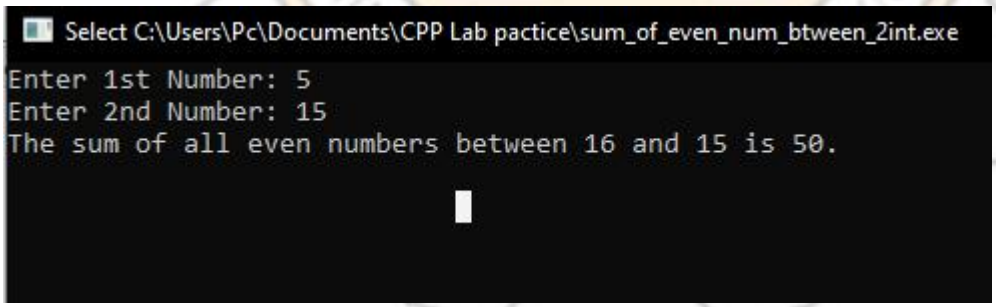
Write a program to input two integer numbers and display the sum of even numbers between these two input numbers.

Program:

```
#include <iostream>
#include <conio.h>
using namespace std;
main()
{
```

```
	int num1, num2, sum = 0;
	cout << "Enter 1st Number: ";
	cin >> num1;
	cout << "Enter 2nd Number: ";
	cin >> num2;

	while (num1 <= num2)
		{
			if(num1%2 == 0)
				sum += num1;
			num1++;
		}
	cout << "The sum of all even numbers between " << num1 << " and " << num2 << " is " << sum << "." << endl;
	getch();
}
```

Output:



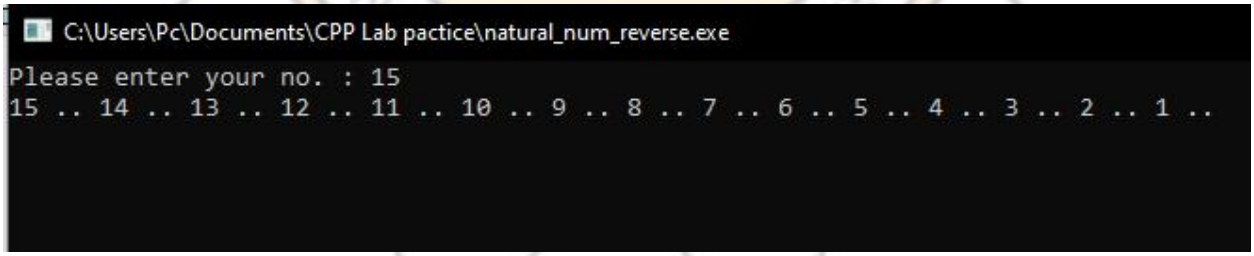
Question no.6:

Write a program to print all natural numbers in reverse (from n to 1).

Program:

```
#include<iostream>
#include<conio.h>
using namespace std;
main()
{
	int n;
	cout<<"Please enter your no. : ";
	cin>>n;
	while (n>=1)
	{
		cout<<n<<" .. ";
		n--;
	}
	getch();
}
```

Output:



Question no.7:

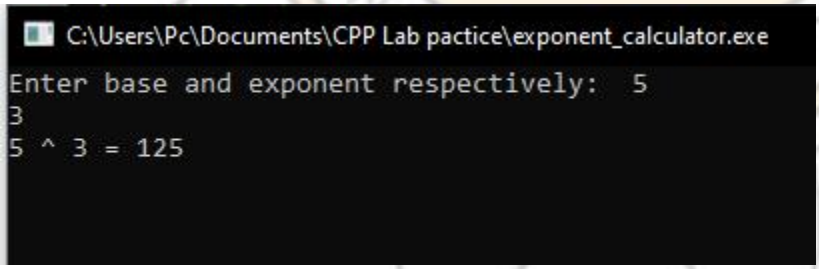
Write a program that takes the base and exponent as input and display the result of power.

Program:

```
#include <iostream>
#include <conio.h>
```

```
using namespace std;
main()
{
   int exp;
   float base, result = 1;
   cout <<"Enter base and exponent respectively:  ";
   cin >>base>>exp;
   cout <<base<<" ^ "<<exp<< " = ";
   while (exp != 0)
         {
      result *= base;
      --exp;
   }
   cout<<result;
   getch();
}
```

Output:



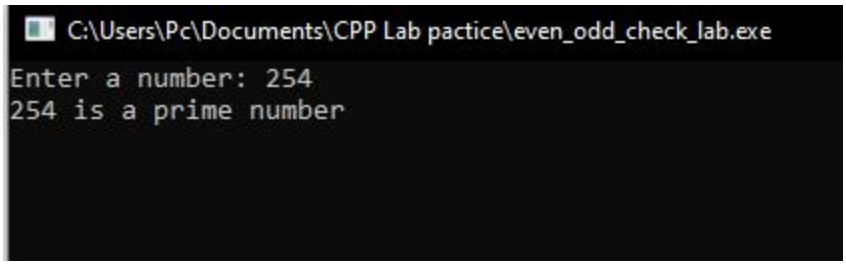
Question no.8:-

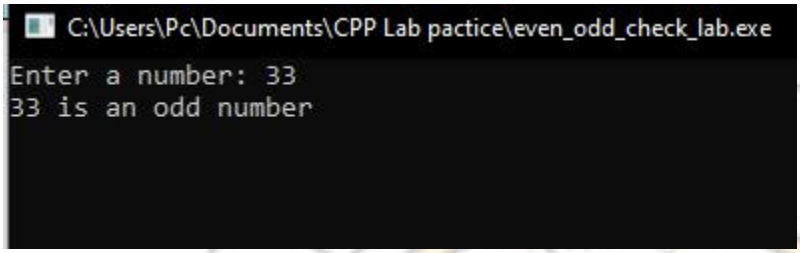
Write a program to check if a number input by user is PRIME or not.

Program:

```
#include <iostream>
#include<conio.h>
using namespace std;
int main()
{
  int i;

  cout << "Enter a number: ";
  cin >> i;

    if (i % 2 == 0)
          {
        cout << i << " is a prime number";
    }
                  else{

         cout << i << " is an odd number";
          }
   getch();
}
```

Output:





Question no.9:-

Write a program to display Fibonacci series up to 200.

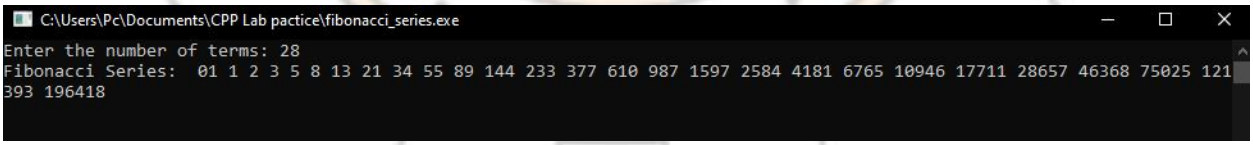
Fibonacci series: 0, 1, 1, 2, 3, 5, 8, 13, ….

Program:

```
#include <iostream>
#include <conio.h>
using namespace std;
main()
{
   int a, t1 = 0, t2 = 1, nextTerm = 0;
   cout << "Enter the number of terms: ";
   cin >> a;
   cout << "Fibonacci Series: ";
   for (int i = 1; i <= a; ++i)
   {
      if(i == 1)
```

```
    {
       cout << " " << t1;
       continue;
    }
    if(i == 2)
    {
       cout << t2 << " ";
       continue;
    }
    nextTerm = t1 + t2;
    t1 = t2;
    t2 = nextTerm;
    cout << nextTerm << " ";
  }
  getch();
}
```

Output:-



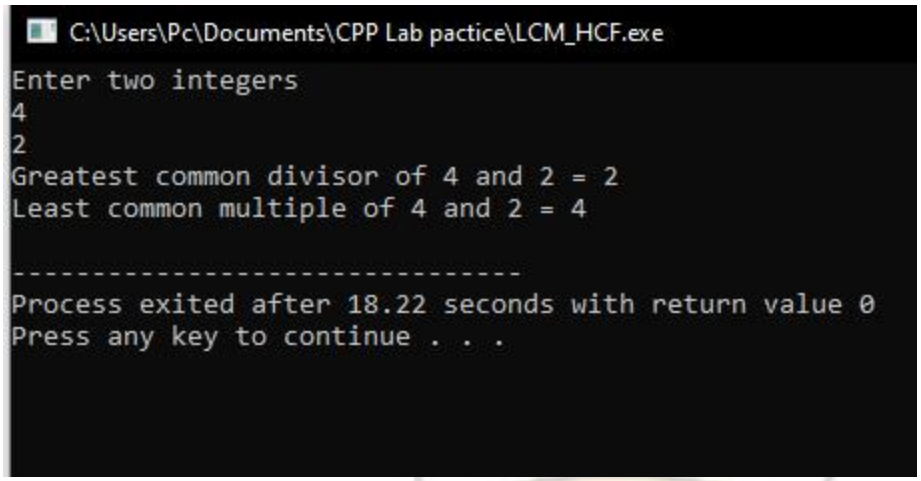
Question no.10:-

Write a program to find GCD (greatest common divisor or HCF) and LCM (least common multiple) of two numbers.

Program:

```
#include <iostream>
#include <conio.h>
using namespace std;
main()
 {
  int a, b, num1, num2, n, gcd, lcm;
  cout<<"Enter two integers"<<endl;
  cin>>num1>>num2;
  a = num1;
  b = num2;
  while (b != 0)
          {
          n = b;
          b = a % b;
          a = n;
          }
  gcd = a;
  lcm = (num1*num2)/gcd;
  cout<<"Greatest common divisor of "<<num1<<" and "<<num2<<" = "<<gcd<<endl;
  cout<<"Least common multiple of "<<num1<<" and "<<num2<<" = "<<lcm<<endl;
  getch();
}
```

Output:



Question no.11:-

Write a program that performs a survey tally on beverages. The program should prompt for the next person until a sentinel value of –1 is entered to terminate the program. Each person participating in the survey should choose their favorite beverage from the following list:

1. Coffee 2. Tea 3. Coke 4. Orange Juice.

Program:

Sorry sir Not sure about this one.