

CSE102L Computer Programming Lab

LAB # 4



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Registration No :

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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:

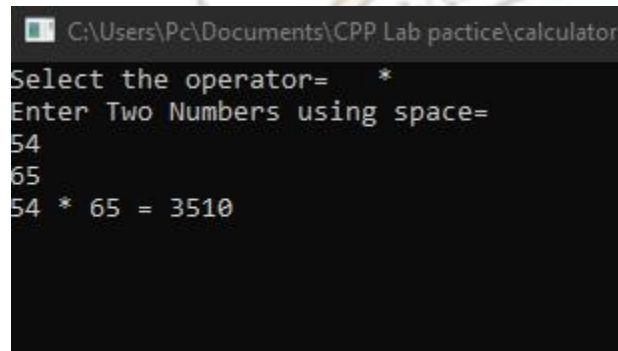
        cout<<"Wrong Symbol";

    }

    getch();
}

```

Output:



```

C:\Users\Pc\Documents\C++ Lab practice\calculator
Select the operator= *
Enter Two Numbers using space=
54
65
54 * 65 = 3510

```

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();
```

```
3 }
```

```
int star;

cout<<"How many stars you want to print : ";

cin>>star;

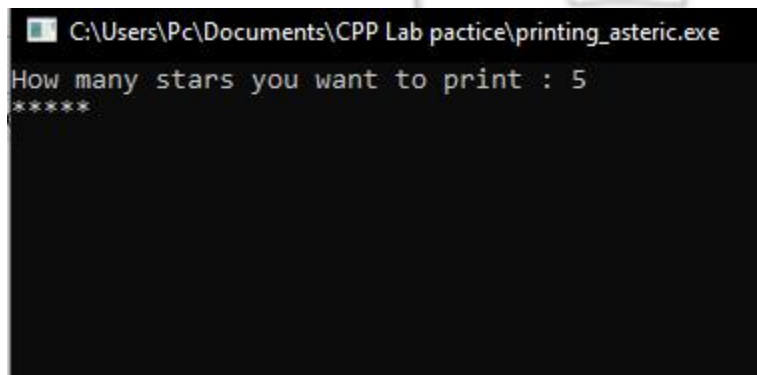
switch (star)
{
    case 1:
        cout<<"*";
        break;
    case 2:
        cout<<"**";
        break;
    case 3:
        cout<<"***";
        break;
    case 4:
        cout<<"****";
        break;
    case 5:
        cout<<"*****";
        break;
    case 6:
        cout<<"*****";
        break;
    case 7:
        cout<<"*****";
        break;
    default:
```

```
        cout<<"Invalid Input";

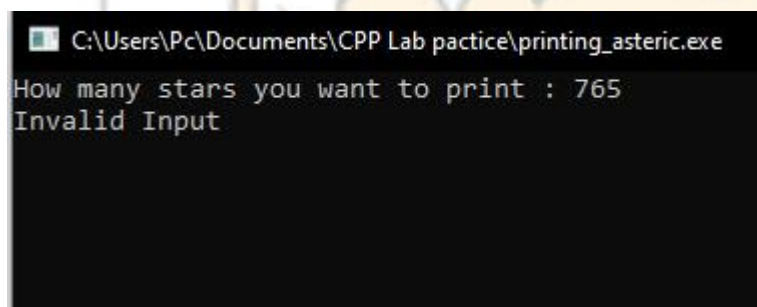
    }

    getch();
}
```

Output:



```
C:\Users\Pc\Documents\CPP Lab pactice\printing_asteric.exe
How many stars you want to print : 5
*****
```



```
C:\Users\Pc\Documents\CPP Lab pactice\printing_asteric.exe
How many stars you want to print : 765
Invalid Input
```

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;

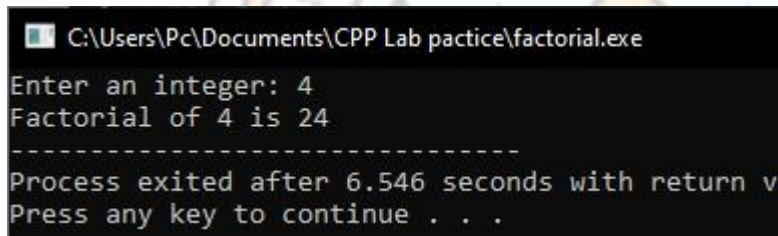
}

cout<<"Factorial of "<<j<<" is "<<fact;

getch();

}
```

Output:-



```
C:\Users\Pc\Documents\CPP Lab pactice\factorial.exe
Enter an integer: 4
Factorial of 4 is 24
-----
Process exited after 6.546 seconds with return v
Press any key to continue . . .
```

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 : ";

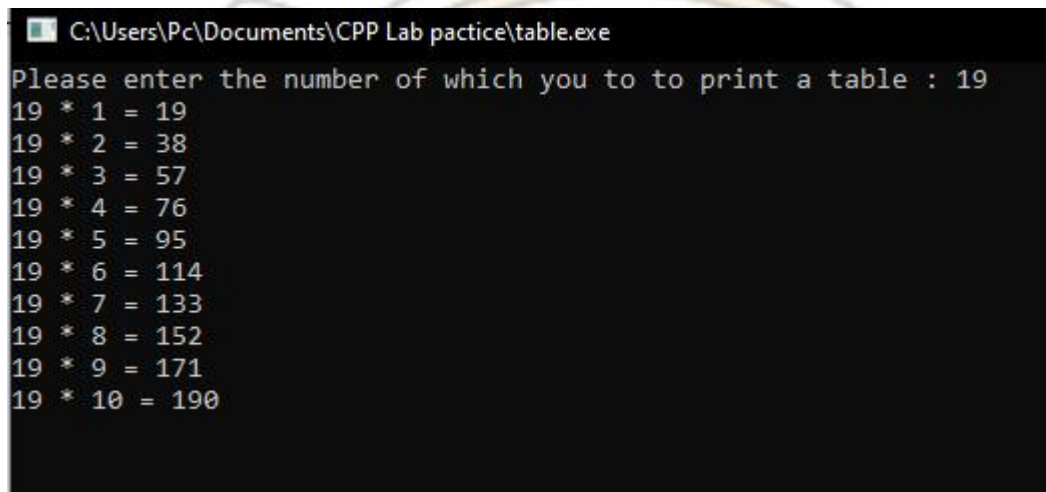
    cin>>num1;
```

```

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

```

Output:



```

C:\Users\Pc\Documents\CPP Lab pactice\table.exe
Please enter the number of which you to to print a table : 19
19 * 1 = 19
19 * 2 = 38
19 * 3 = 57
19 * 4 = 76
19 * 5 = 95
19 * 6 = 114
19 * 7 = 133
19 * 8 = 152
19 * 9 = 171
19 * 10 = 190

```

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: ";

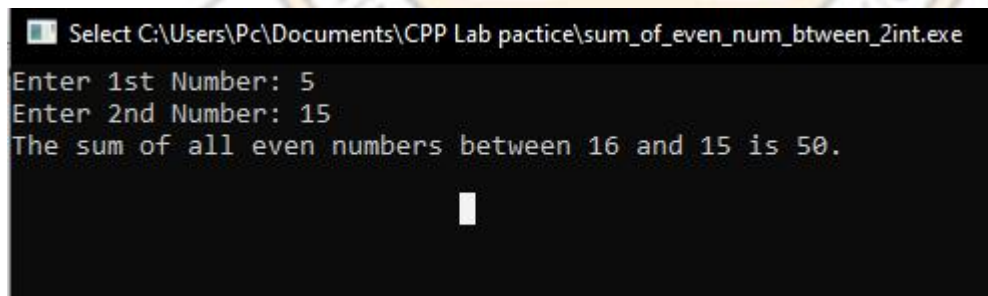
cin >> num2;

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:



```
Select C:\Users\Pc\Documents\CPP Lab pactice\sum_of_even_num_btween_2int.exe
Enter 1st Number: 5
Enter 2nd Number: 15
The sum of all even numbers between 16 and 15 is 50.
```

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<<" ..";
```

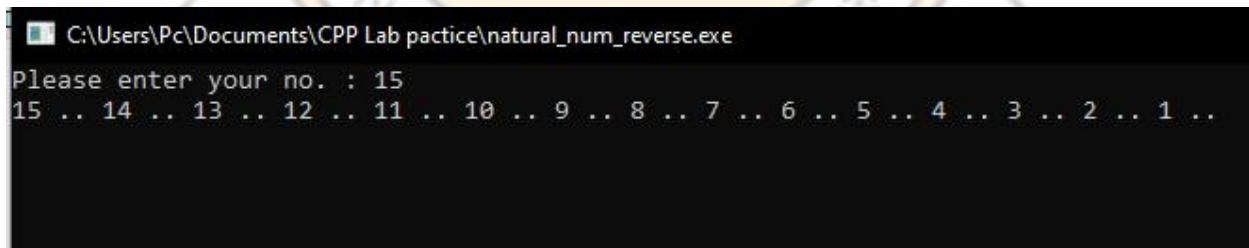
```
        n--;
```

```
    }
```

```
    getch();
```

```
}
```

Output:



```
C:\Users\Pc\Documents\C++ Lab practice\natural_num_reverse.exe
Please enter your no. : 15
15 .. 14 .. 13 .. 12 .. 11 .. 10 .. 9 .. 8 .. 7 .. 6 .. 5 .. 4 .. 3 .. 2 .. 1 ..
```

Question no.7:

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

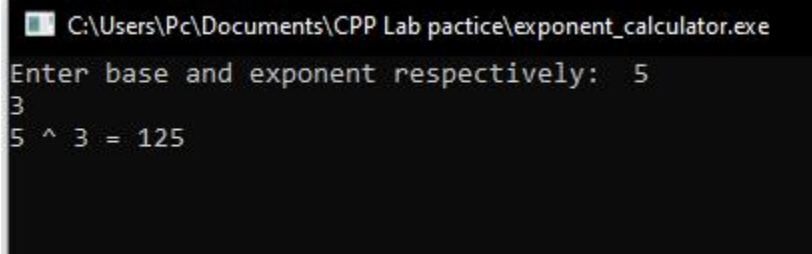
Program:

```
#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:



```
C:\Users\Pc\Documents\CPP Lab pactice\exponent_calculator.exe
Enter base and exponent respectively: 5
3
5 ^ 3 = 125
```

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:

```
C:\Users\Pc\Documents\CPP Lab pactice\even_odd_check_lab.exe
Enter a number: 254
254 is a prime number
```

```
C:\Users\Pc\Documents\CPP Lab pactice\even_odd_check_lab.exe
Enter a number: 33
33 is an odd number
```

Question no.9:-

Write a program to display Fibonacci series up to 200.

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

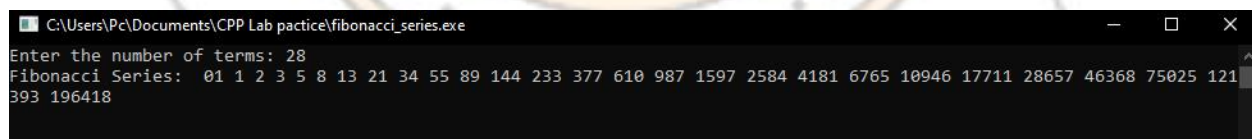
Program:

```
#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:-



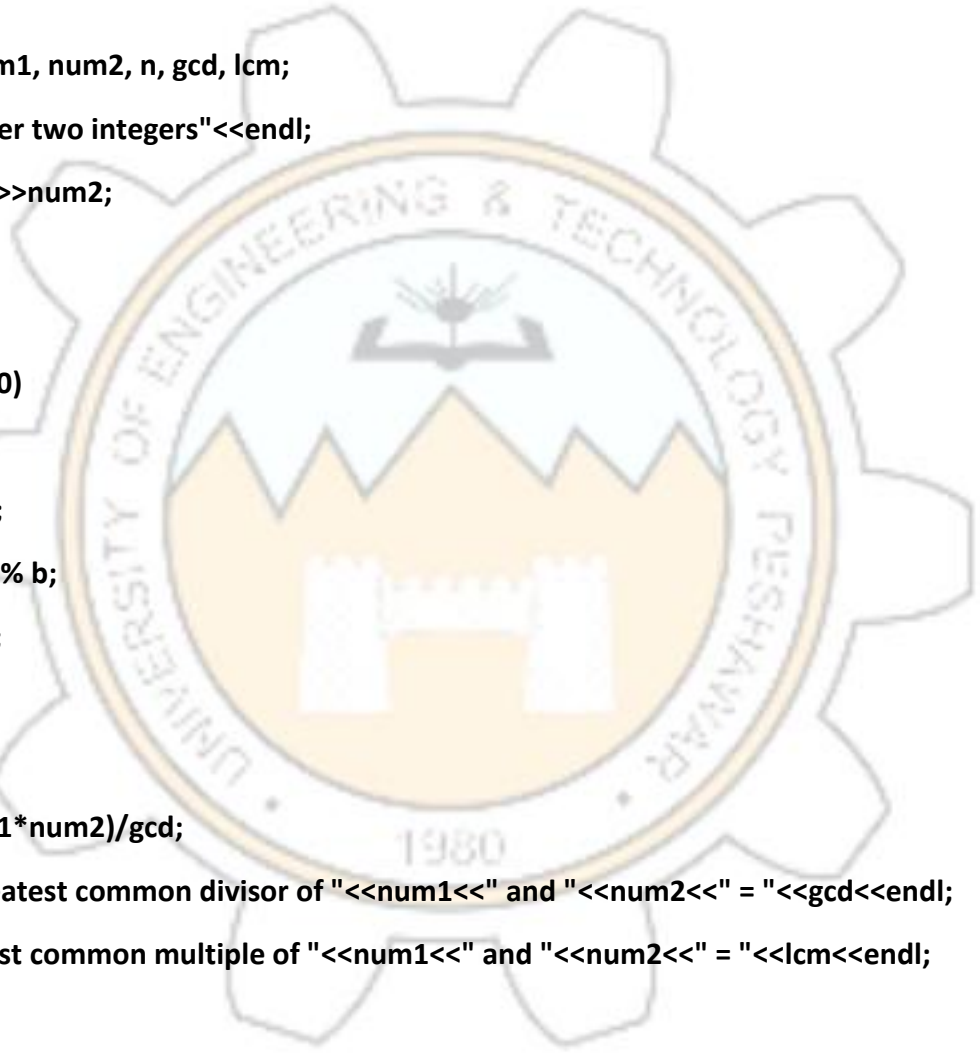
A screenshot of a Windows command prompt window titled "C:\Users\Pc\Documents\CPP Lab practice\fibonacci_series.exe". The prompt shows the user has entered "28" for the number of terms. The output displays the Fibonacci series: "Fibonacci Series: 0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 4181 6765 10946 17711 28657 46368 75025 121393 196418".

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();
}
```

The logo of the University of Engineering & Technology Peshawar is a circular emblem. It features a gear-like outer border. Inside the circle, there is a stylized mountain range with a sun or star rising above it. The text "UNIVERSITY OF ENGINEERING & TECHNOLOGY PESHAWAR" is written around the inner circle, and the year "1980" is at the bottom.

Output:

```
C:\Users\Pc\Documents\CPP Lab pactice\LCM_HCF.exe
Enter two integers
4
2
Greatest common divisor of 4 and 2 = 2
Least common multiple of 4 and 2 = 4

-----
Process exited after 18.22 seconds with return value 0
Press any key to continue . . .
```

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.