

UEE1302(1066) F12: Introduction to Computers and Programming

Flow of Control (III) - Repetition



What you will learn from Lab 5

In this laboratory, you will practice repetition (for and while) again.

TASK 5-1 : LOOPS

✓ Break and continue

```
//File: lab5-1.cpp
#include <iostream>
using namespace std;

int main()
{
    int idx=0;

    while(idx<10){
        idx++;
        if(idx==5)
            continue;
        cout<<idx<<" ";
    }
    cout<<endl;
    return 0;
}
```

```
//File: lab5-2.cpp
#include <iostream>
using namespace std;

int main()
{
    int idx=0;

    while(idx<10){
        idx++;
        if(idx==5)
            break;
        cout<<idx<<" ";
    }
    cout<<endl;
    return 0;
}
```

✓ Cout a rectangle

```
//File: lab5-3.cpp
#include <iostream>
using namespace std;

int main()
{
    int a;
    cout<<"please enter the size of rectangle"<<endl;
    cin>>a;
    for(int i=1;i<=a;i++){
        if(i==1||i==a){
            for(int j=1;j<=a;j++)cout<<"*";
        }
        else{
            for(int j=1;j<=a;j++)
                if(j==1||j==a)cout<<"*";
            else cout<<" ";
        }
        cout<<endl;
    }

    system("pause");
    return 0;
}
```

TASK 5-2 : MATH CALCULATION

✓ Compile lab5-4.cpp and execute program lab5-4.

```
//File: lab5-4.cpp
#include <iostream>
using namespace std;

int main()
{
    double x;
    cout << "Enter a value: ";
    cin >> x;

    cout << "sqrt(" << x << ") = " << sqrt(x) << endl;
    cout << "floor(" << x << ") = " << floor(x) << endl;
    cout << "ceil(" << x << ") = " << ceil(x) << endl;

    return 0;
}
```

➤ Note: If any error occurs, please correct them. Hint: #include <cmath>

- ✓ Compile lab5-5.cpp and execute program lab5-5 twice to observe the random sequence.

```
//File: lab5-5.cpp
#include <iostream>
#include <cstdlib> // for function rand()
#include <ctime>
using namespace std;

int main()
{
    srand(0);

    cout << "generate random number (1 to 10):" << endl;
    for (int idx = 0; idx<10; idx++)
    {
        int x = rand()%10 + 1;
        cout << x << " ";
    }
    cout << endl;

    return 0;
}
```

- Replace `srand(0)` to `srand(time(NULL))`.

TASK 5-3 : EXERCISES

- ✓ Design a system where two players (player1 is user and player2 is computer) can play the finger-guessing game ('s' for scissors, 'r' for rock, 'p' for paper). The required format is shown as follows.

```
> ./ex5-1   
Enter s, r, p for player 1: r   
Enter s, r, p for player 2: p   
Player 2 win!  
>
```

```
> ./ex5-1   
Enter s, r, p for player 1: s   
Enter s, r, p for player 2: s   
Two players tie!  
>
```

- ✓ Design a system which can calculate the greatest common divisor (g.c.d.) and least common multiple (l.c.m.) of 2 integers. Please meet the requirements as follows.

```
> ./ex5-2   
Input value 1:  
25   
Input value 2:  
105   
g.c.d.: 5  
l.c.m.: 525  
>
```