



Programming In C++

Lecture 6 Loop statements

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Loop statement



- A loop that repeats a specific number of times is known as a count-controlled loop.
- A count-controlled loop must possess three elements:
 1. It must initialize a counter variable to a starting value.
 2. It must test the counter variable by comparing it to a maximum value. When the counter variable reaches its maximum value, the loop terminates.
 3. It must update the counter variable during each iteration. This is usually done by incrementing the variable.

```
for (initialization; test; update)  
    statement;
```

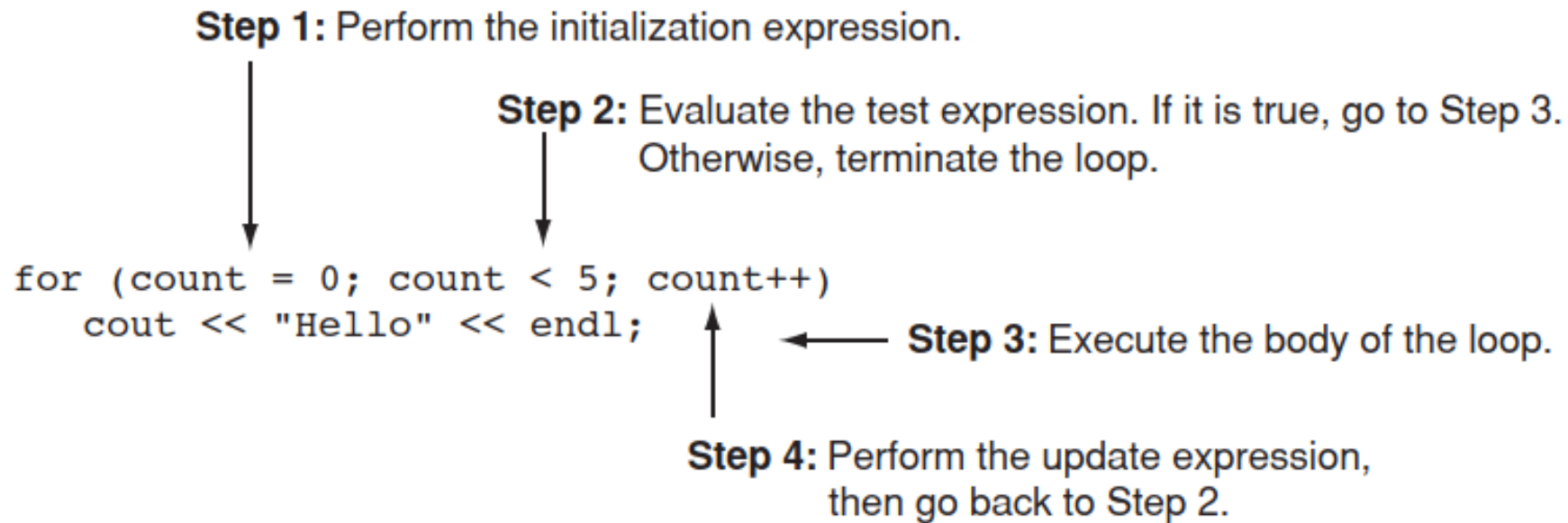
For statement

- The format of the for loop when it is used to repeat a block is

```
for (initialization; test; update)
{
    statement;
    statement;
    // Place as many statements here
    // as necessary.
}
```

```
for (count = 0; count < 5; count++)
    cout << "Hello" << endl;
```

For statement



For statement

program displays the numbers 1 through 10 and their squares.

```
1  #include <iostream>
2  using namespace std;
3  int main()
4  {
5      int MIN = 1, // Starting value
6          MAX = 10; // Ending value
7      int num;
8      cout << "Number \t \tNumber Squared\n";
9      cout << "-----\n";
10     for (num = MIN; num <= MAX; num++)
11         cout << num << "\t\t" << (num * num) << endl;
12     return 0;
13 }
14
```

For statement

program to find the summation of the numbers 1 through 10

```
1  #include <iostream>
2  using namespace std;
3  int main()
4  {
5
6      int i,s=0;
7
8      for (i=1;i<=10;i++)
9      {
10         s=s+i;
11     }
12     cout << " The summation is "<<s;
13     return 0;
14 }
15
```

For statement

program to read 5 numbers and finds their summation

```
1  #include <iostream>
2  using namespace std;
3  int main()
4  {
5
6      int num, i,s=0;
7
8      for (i=1;i<=5;i++)
9      {
10         cin>>num;
11         s=s+num;
12     }
13     cout << " The summation is "<<s;
14     return 0;
15 }
16
```

For statement

program to read 10 numbers and finds the summation of the even numbers

```
1  #include <iostream>
2  using namespace std;
3  int main()
4  {
5
6      int num, i,s=0;
7
8      for (i=1;i<=10;i++)
9      {
10         cin>>num;
11         if(num%2==0)
12             s=s+num;
13     }
14     cout << " The summation is "<<s;
15     return 0;
16 }
```


For statement

program to read 10 numbers and finds the average of the positive numbers

```
1  #include <iostream>
2  using namespace std;
3  int main()
4  {
5      int num,i,s=0,counter=0;
6      for (i=1;i<=10;i++)
7      {
8          cin>>num;
9          if(num>0)
10         {
11             counter++;
12             s=s+num;
13         }
14     }
15     float av=s/counter;
16     cout << " The summation is "<<av;
17     return 0;
18 }
```

For statement

HW: program to read 10 numbers and finds the minimum and maximum numbers.

HW: program to read a number then finds the its factorial value.

HW: program to read two numbers (base and exponent) then finds their power value.



The End

