



FOR LOOPS

Test At The Top

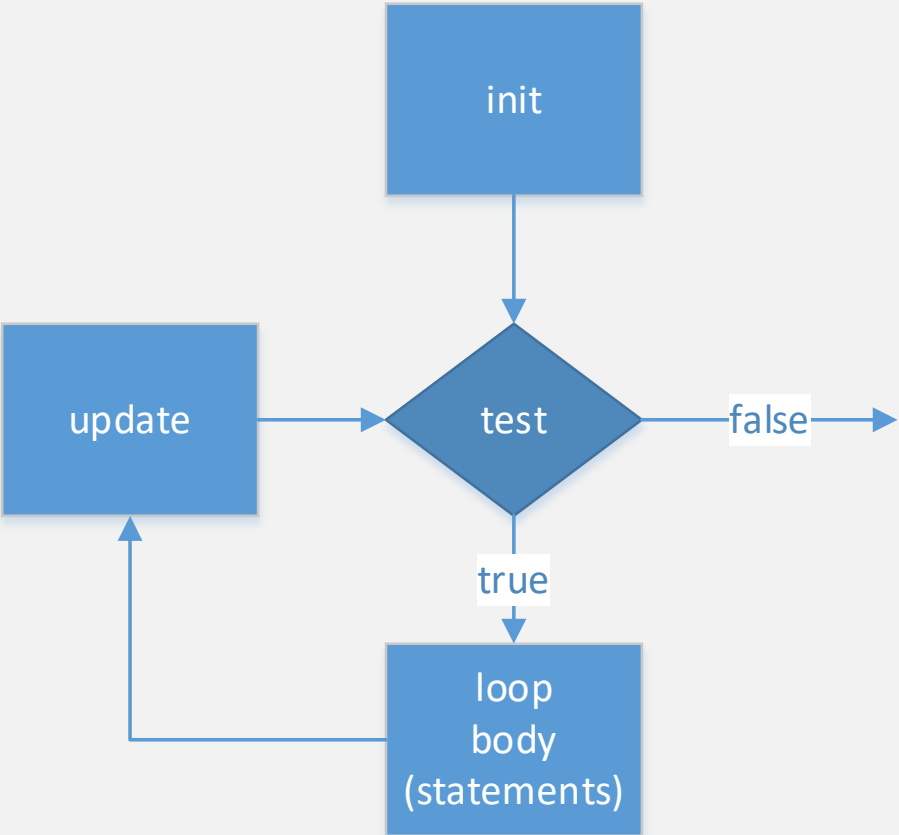
Determinant Iteration



FOR SYNTAX AND BEHAVIOR

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

```
for (init; test; update)  
{  
  statement1;  
  . . .  
  statementn;  
}
```



FOR-LOOP EXAMPLES

1.

```
for (int i = 0; i < 10; i++)           // 0-9
    cout << i << " ";
```
2.

```
for (int i = 0; i > 10; i++)           // no output
    cout << i << " ";
```
3.

```
for (int i = 0; i < 10; i += 2)        // 0,2,4,6,8
    cout << i << " ";
```
4.

```
for (int i = 10; i > 0; i--)           // 10-1
    cout << i << " ";
```
5.

```
for (i = 79; i >= 0 && s[i] == ' '; i--) // all work in for
    ;
```



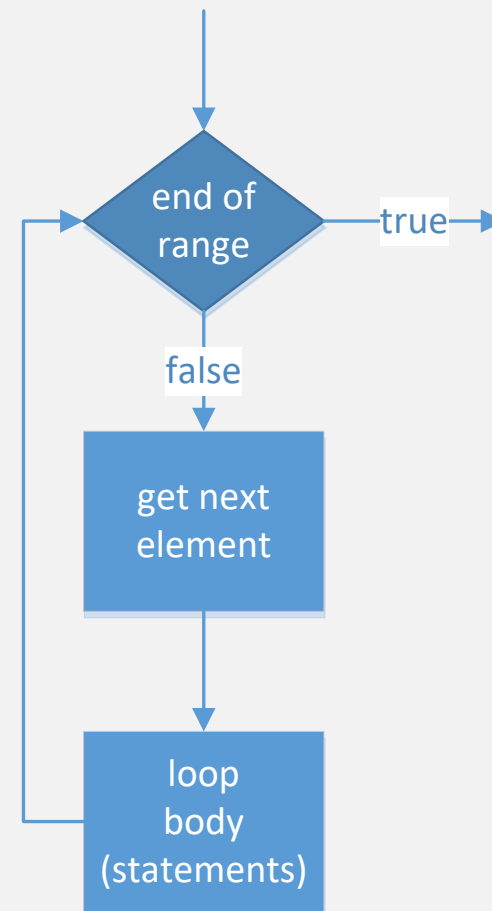
FOR-RANGE LOOPS

AKA For-Each Loops

FOR-RANGE SYNTAX AND BEHAVIOR

```
for (definition : range)
    statement;
```

```
for (definition : range)
{
    statement1;
    . . .
    statementn;
}
```





FOR-RANGE EXAMPLES

1.

```
string s = "Hello, World!";  
for (char c : s)  
    cout << '[' << c << ']';
```
2.

```
for (char c : "Hello, World!")  
    if (isalpha(c))  
        cout << c << " ";
```
3.

```
int a[] = { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 };  
for (int i : a)  
    cout << '[' << i << ']';
```