

The for Statement

ForStatement

For (InitStatement **Expression1**; **Expression2**)
Statement

Example

```
for (lastNum = 1; lastNum <= 7; lastNum++)
{
    for (numToPrint = 1; numToPrint <= lastNum; numToPrint++)
        cout << numToPrint;
    cout << endl;
}
```

Note: The InitStatement can be the null statement and the two Expressions are optional.

Loop Example

```
#include <iostream>
using namespace std;

int main()
{
    int sum;
    int count;

    sum = 0;
    count = 1;
    while (count <= 1000)
    {
        sum = sum + count;
        count++;
    }
    cout << " The final sum is " << sum << endl;
}
```

Equivalent for Statement

```
#include <iostream>
using namespace std;

int main()
{
    int sum;
    int count;

    sum = 0;
    for (count = 1; count <= 1000; count++)
        sum = sum + count;
    cout << " The final sum is " << sum << endl;
}
```

Nested for Example

```
#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;
    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
            cout << j << "****";
        cout << i << endl;
    }
    return 0;
}
```

Nested for Example

```
#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
            cout << j << "****";
        cout << i << endl;
    }
    return 0;
}
```

Nested for Example

```
#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
            cout << j << "****";
        cout << i << endl;
    }
    return 0;
}
```

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 4

j = 1

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 4

j = 1

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 4

j = 2

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 4

j = 2

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 4

j = 3

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 4

j = 3

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 4

j = 4

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 4

j = 4

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 3

j = 4

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 3

j = 0

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 3

j = 0

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 3

j = 1

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Nested for Example

```
#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}
```

i = 3
j = 1

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Nested for Example

```
#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}
```

i = 3
j = 2

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Nested for Example

```
#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}
```

i = 3
j = 2

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Nested for Example

```
#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}
```

i = 3
j = 3

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Nested for Example

```
#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}
```

i = 3
j = 3

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Nested for Example

```
#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}
```

i = 2
j = 3

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 2

j = 0

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 2

j = 0

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 2

j = 1

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 2

j = 1

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 2

j = 2

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 2

j = 2

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 1

j = 2

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 1

j = 0

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 1

j = 0

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 1

j = 1

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 1

j = 1

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Nested for Example

```

#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)
    {
        for (j = 0; j < i; j++)
        {
            cout << j << "****";
            cout << i << endl;
        }
        return 0;
    }
}

```

i = 0

j = 1

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Nested for Example

```
#include <iostream>
using namespace std;

int main()
{
    int i;
    int j;

    for (i = 4; i >= 1; i--)           i = 0
    {
        for (j = 0; j < i; j++)       j = 1
            cout << j << "****";
        cout << i << endl;
    }
    return 0;
}
```