Lesson 4 Cpp Loops

In computer programming, loops are used to repeat a block of code.

For example, let's say we want to show a message 100 times. Then instead of writing the print statement 100 times, we can use a loop.

For Loop : Program to display a text 5 times

```cpp
#include <iostream>

using namespace std;
int i;
int main() {
    for ( i = 1; i <= 5; ++i) {
        cout <<  "Hello World! " << endl;
    }
    return 0;
}
```

But we also can declare the variable i inside the for, but it won't be visible outside the for:

```cpp
#include <iostream>
```

```cpp
using namespace std;


int main() {
    for (int i = 1; i <= 5; ++i) {
        cout << "Hello World! " << endl;
    }
i++; //wrong because i is undefined outside the for loop
    return 0;
}
```

Another example:

```cpp
int i;
    for (i = 0; i <3; ++i)
      for ( i = 0; i <3; ++i)
        cout << "Hello World! " << endl;
```

Hello World will be printed **3 times**, because it's the same i defined for both loops.

```cpp
    for (int i = 0; i <3; ++i)
      for ( int i = 0; i <3; ++i)
        cout << "Hello World! " << endl;
```

Hello World will be printed **9 times**, because it's not the same i defined for both loops. it's like using two variable **i** and **j** in **C** language before because we can't define i inside the for in C