

# Iteration in Programming

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do while Loops

Lecturer: Caio Fonseca



Waterford Institute of Technology  
INSTITIÚID TEICNEOLAÍOCHTA PHORT LÁIRGE

Department of Computing and Mathematics  
<http://www.wit.ie/>

# Topics List

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There are three types of loop in programming:

- While loops (covered in previous lectures):
- For loops (covered in previous lectures):

- Do While loops

- Comparative use of do while and for loops

# do while Loop Pseudo-code

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General form of a do while loop

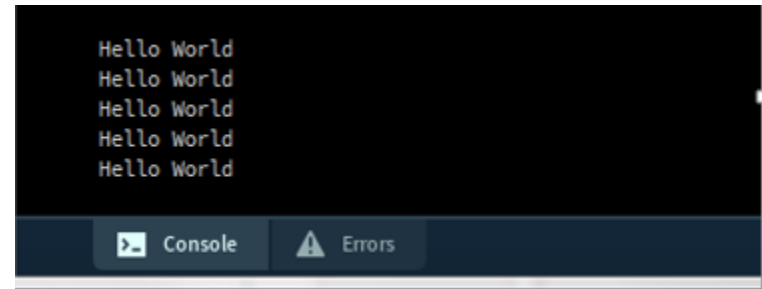
```
do
{
    statements to be repeated

}while (boolean condition)
```

# Simple do while Statements

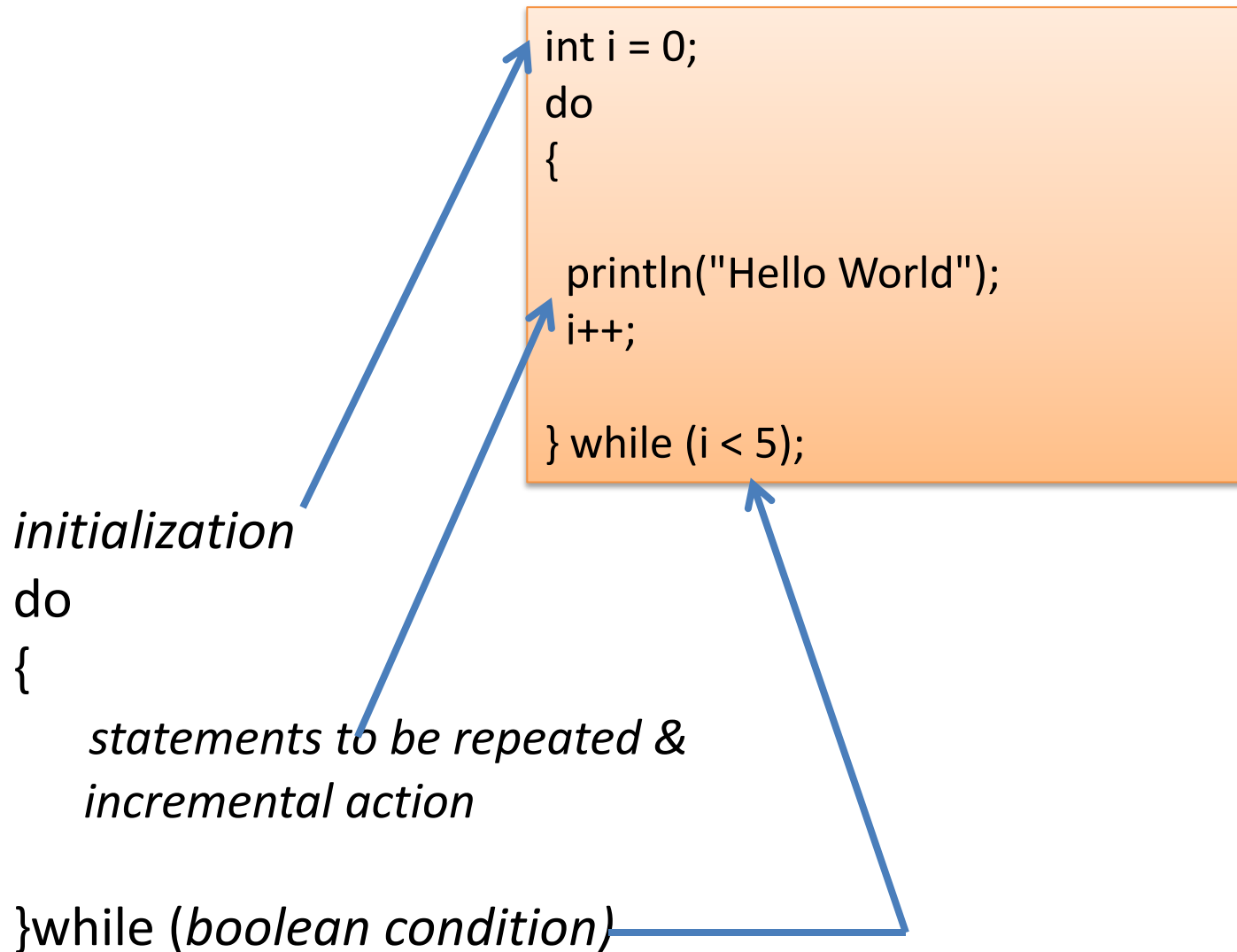
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```
int i = 0;  
do  
{  
  
    println("Hello World");  
    i++;  
  
} while (i < 5);
```



# do while Loop Syntax

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# do while Loop Syntax

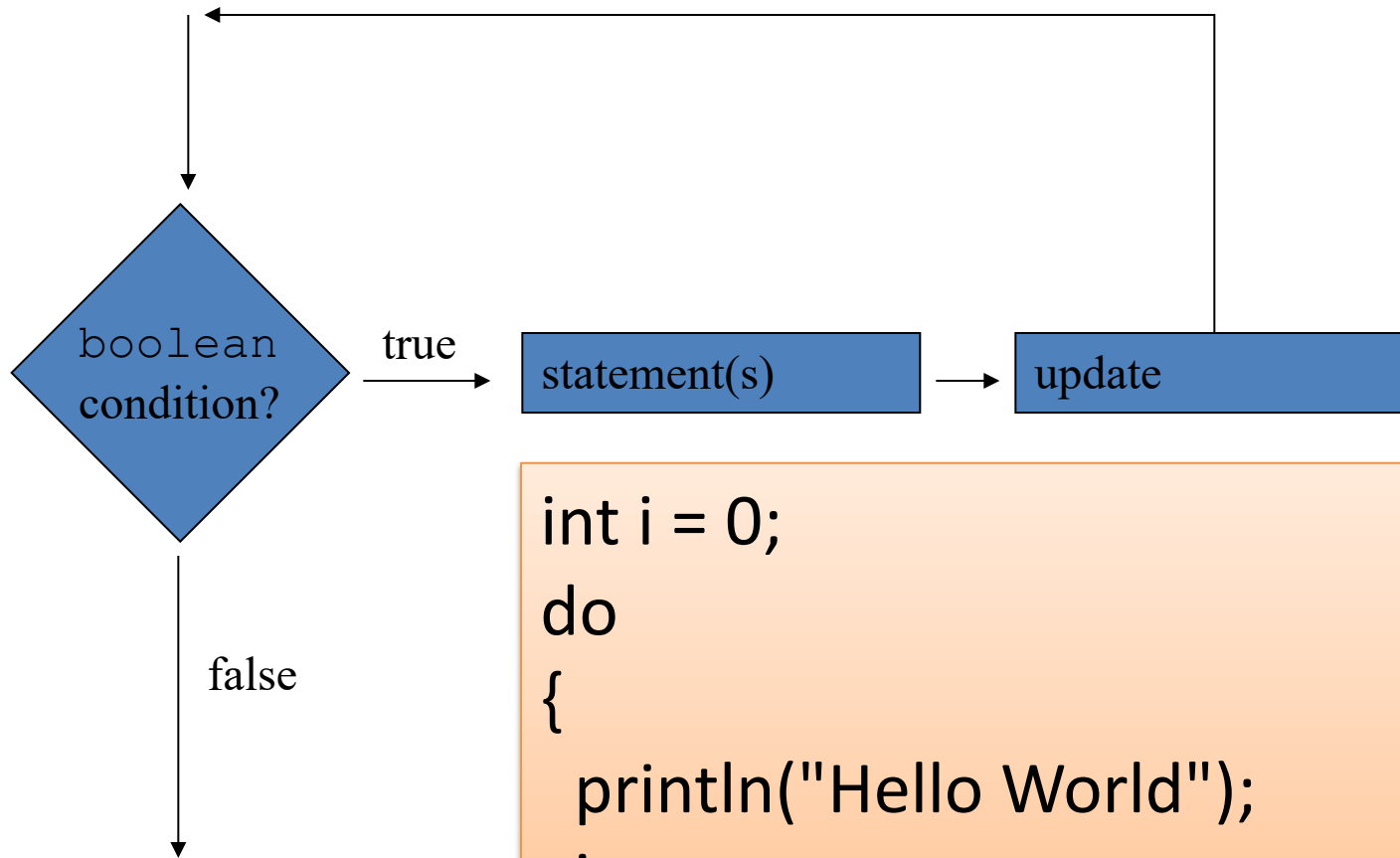
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```
int i = 0;
do
{
    println("Hello World");
    i++;
} while (i < 5);
```

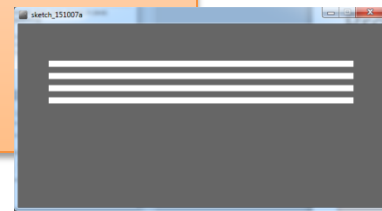
Initialization	int i = 0	Initialise a loop control variable (LCV) e.g. i. It can include a variable declaration.
Boolean condition	i < 5	Is a valid Boolean condition that typically tests the loop control variable (LCV).
Incremental action	i++	A change to the loop control variable (LCV). Contains an assignment statement.

# for Loop Flowchart

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```
int i = 0;  
do  
{  
    println("Hello World");  
    i++;  
} while (i < 5);
```



# Exercises

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1. Change the code so that “Hello World” is printed out 10 times.
2. Change the code so that the numbers from 1 to 10 (inclusive) are printed out, one line at a time.
3. Change the code so that the numbers from 10 to 1 are printed out.



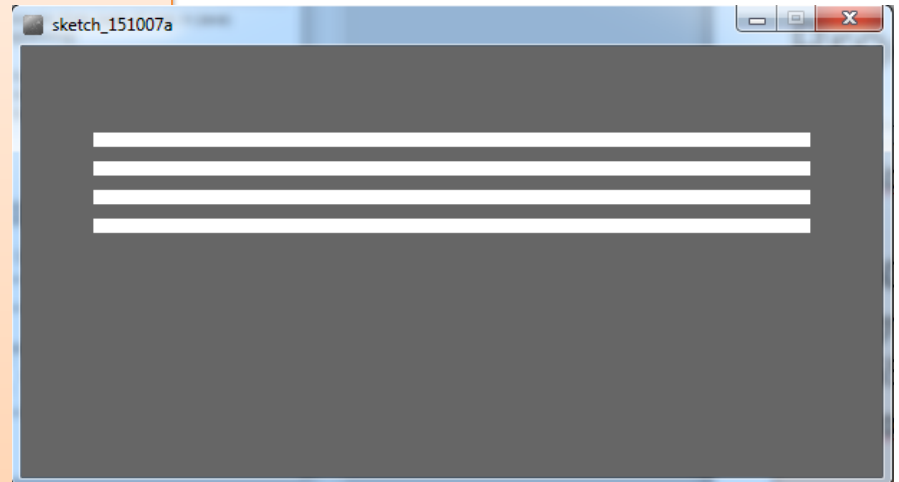
# do while Loop Example 1

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```
int yCoordinate = 60;
int i = 0;

size(600, 300);
background(102);
fill(255);
noStroke();

do
{
    rect(50, yCoordinate, 500, 10);
    yCoordinate = yCoordinate + 20;
    i++;
}while(i < 4);
```

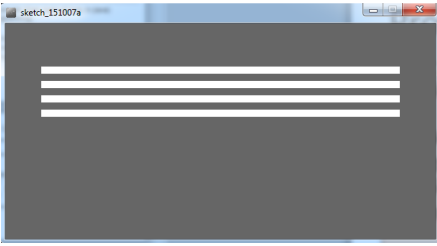


# Topics List

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There are three types of loop in programming:

- While loops (covered in previous lectures):
- For loops (covered in previous lectures):
- Do While loops
  - Comparative use of do while and for loops



# for versus do while Loop

## for Loop Example 1 (for loop)

```
for(int i = 0; i < 4; i++)  
{  
    rect(50, yCoordinate, 500, 10);  
    yCoordinate += 20;  
}
```

## do while Loop Example 1 (do while loop)

```
int i = 0;  
do  
{  
    rect(50, yCoordinate, 500, 10);  
    yCoordinate = yCoordinate + 20;  
    i++;  
}while(i < 4);
```

Variable **i** is the Loop Control Variable (LCV). It must be initialised, tested and changed.

**int i = 0** is the initialisation.

**i < 4** is the boolean Condition i.e. the test

**i++** is the post-body action i.e. the change.

# Questions?

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Produced  
by:

Dr. Siobhán Drohan  
Mairead Meagher  
Sinéad Walsh



Waterford Institute of Technology  
INSTITIÚID TEICNEOLAÍOCHTA PHORT LÁIRGE

Department of Computing and Mathematics  
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