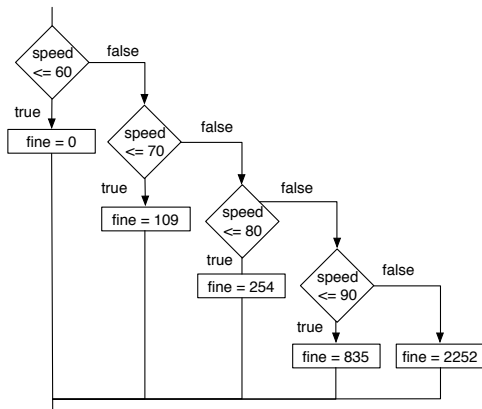


INFO1103: Introduction to Programming

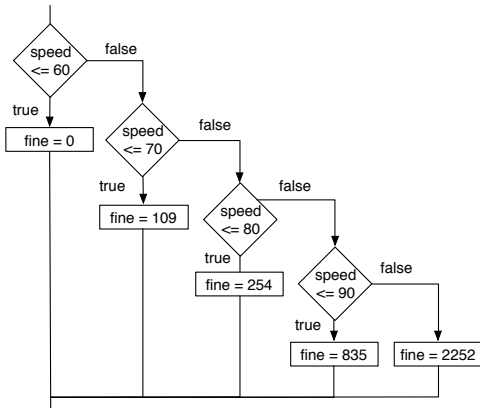
School of Information Technologies, University of Sydney



Previously in INFO1103...if...else if



How many possible paths of code?



Lecture 6: While loops

Using a while loop; break

Syntax: `while (condition) statement`

“While the *condition* is *true*, repeat what’s in the *statement*.”

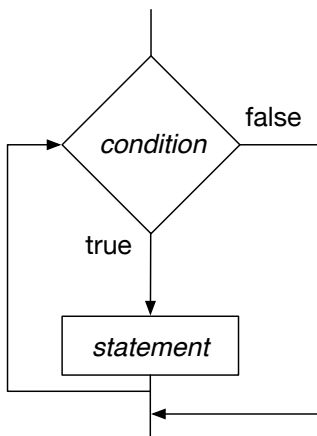
Steps of while:

```
1  while (condition) do
2      ·  statement
```

- ① *condition* is checked: if it is *true* then go on to Step 2
- ② *statement* is executed, then go on to Step 1

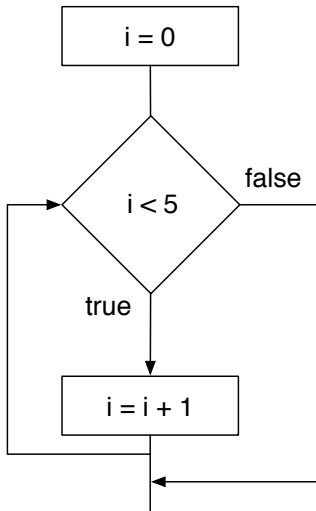
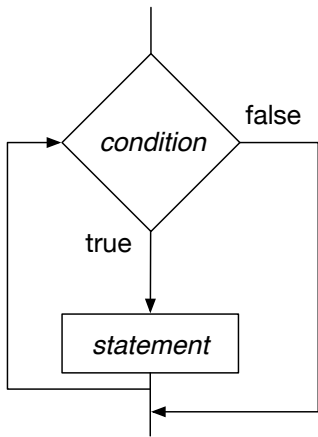
The while loop continues until *condition* is checked at Step 1 is *false*.

while loop diagram



- 1 begin with the *condition*
- 2 check the *condition*
- 3 if it's true, execute the *statement*; otherwise, exit the loop
- 4 go back to the *condition*

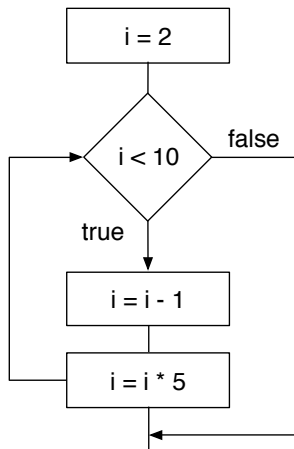
while loop example



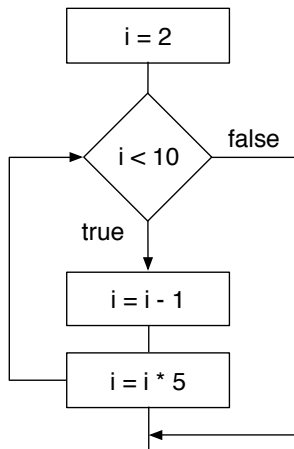
i

while loop diagram to code

code?



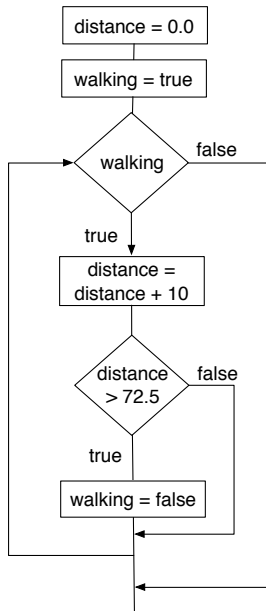
while loop desk checking



What is the final value of i ?

How many iterations will there be in total?

while loop desk check



distance	walking
0	T

while example

```
1 public class SandBucket {
2     public static void main(String [] args) {
3
4         double bucketCapacity = 5.0;
5         double bucketFilled = 0.0;
6         double sandHandful = 0.20;
7
8         while (bucketFilled < bucketCapacity)
9         {
10             bucketFilled = bucketFilled + sandHandful;
11             System.out.println("bucketFilled = " + bucketFilled);
12         }
13     }
14 }
```

How many iterations?

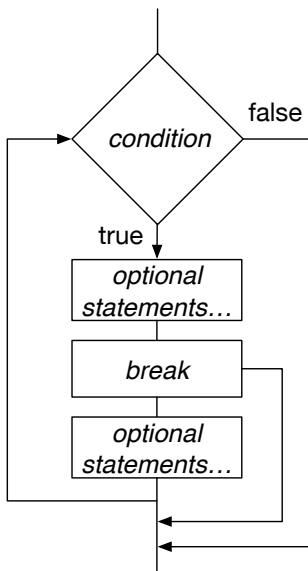
while (true)

while (true) would imply an infinite loop

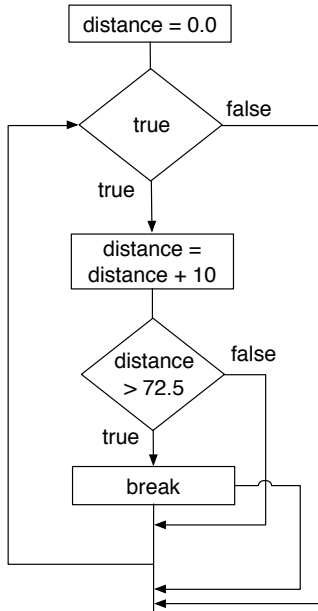
```
1 public class NaturalNumbers {  
2     public static void main(String [] args) {  
3         int number = 1;  
4         while (true) {  
5             System.out.println(number);  
6             number = number + 1;  
7         }  
8     }  
9 }
```

break; is a statement used to leave the body of a loop

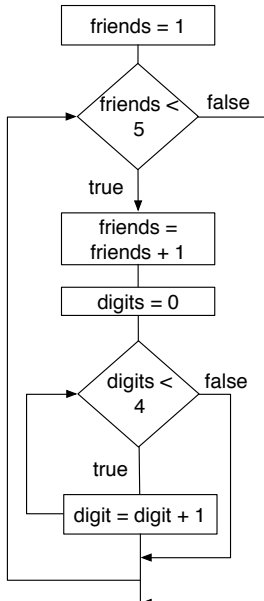
- break is a special reserved word
- When used in loops, it means “break from the current iteration of this loop”
- It isn't allowed in an if statement.



break example

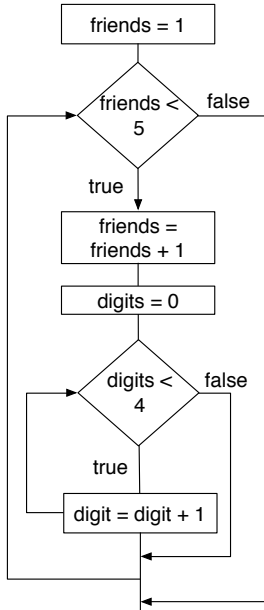


Nested loop example



friends	digits
1	0

Nested loop example



Write a program to describe a fisherman's catch. Each time a fish is caught it is first weighed, then thrown in a bucket. Your program will keep track of how many fish are caught and the total weight of the bucket. If the bucket exceeds a certain heavy weight the fisherman will stop fishing. The program will display the number of fish caught and the total weight.

