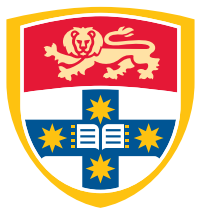
INFO1103: Introduction to Programming

School of Information Technologies, University of Sydney



Week 3: More loops, building software, Arrays

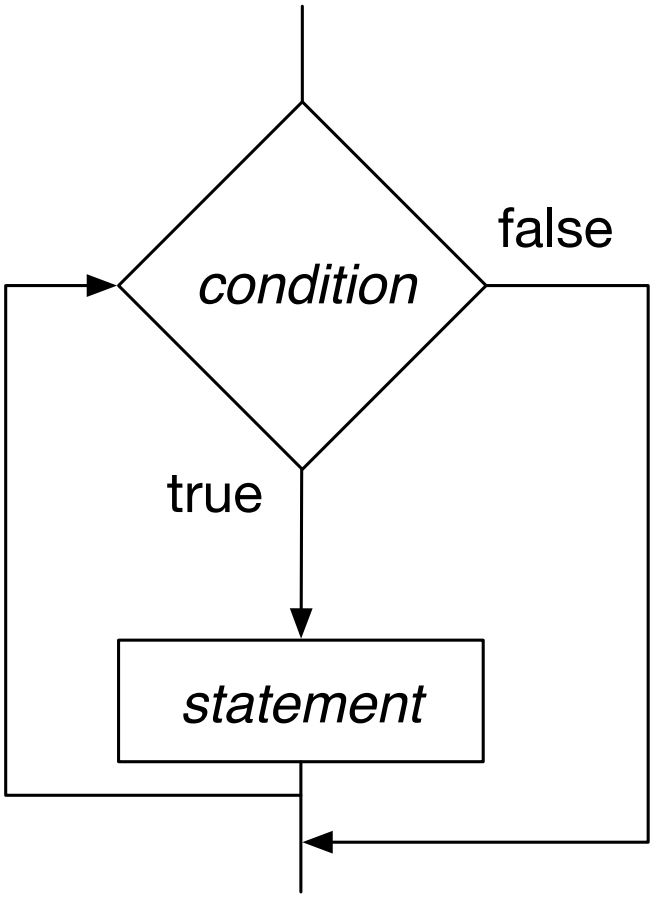
We will cover: Using `continue`, looping with `while`, `break` and `continue`, building software from scratch and introduction to arrays

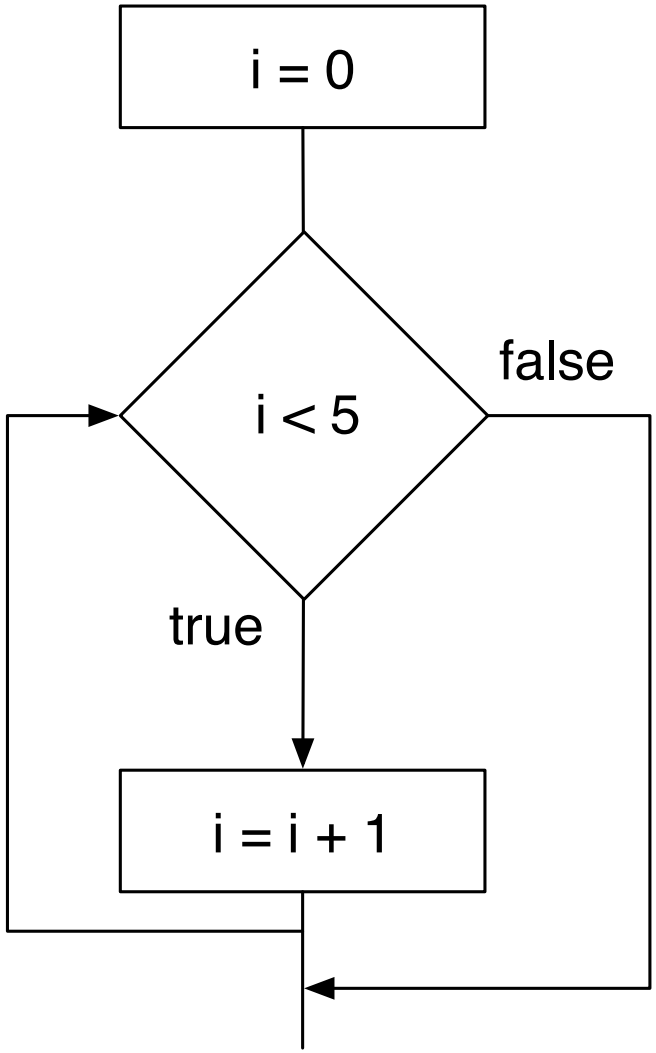
You should read: §§4.2, 7.1 of Savitch

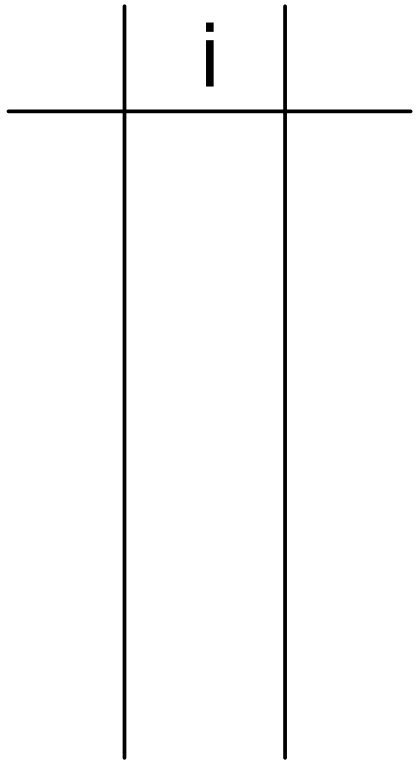
Lecture 6:

More loops, Software design process

Recall the `while` loop

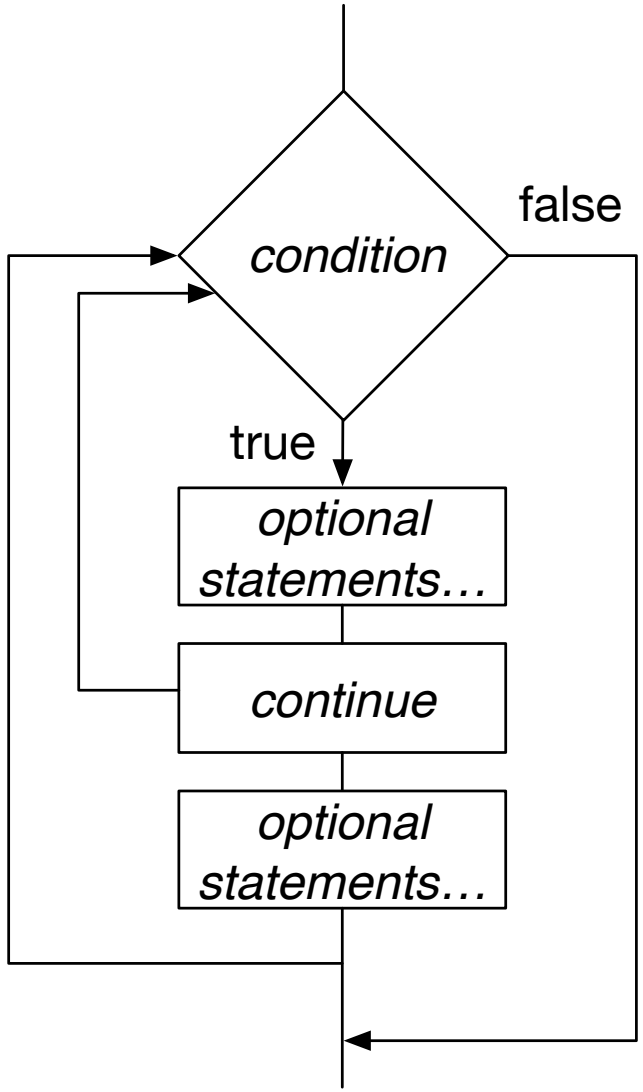




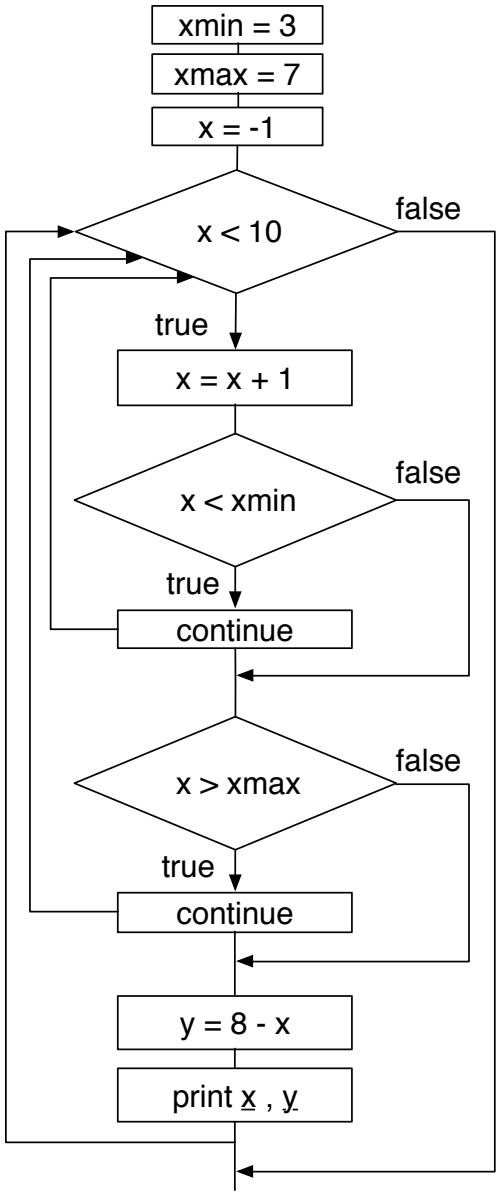


`continue`

- `continue` is a special reserved word
- When used in loops, it means “skip the rest of this iteration and go on to the next one”
- It is only allowed inside the body of a loop.

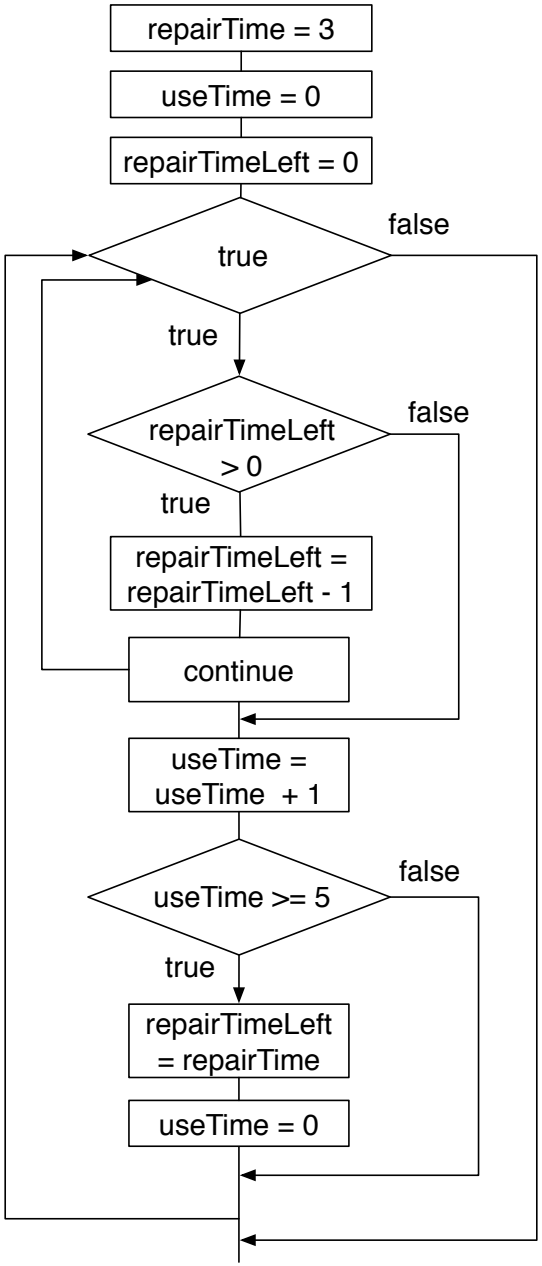


Example with `continue`



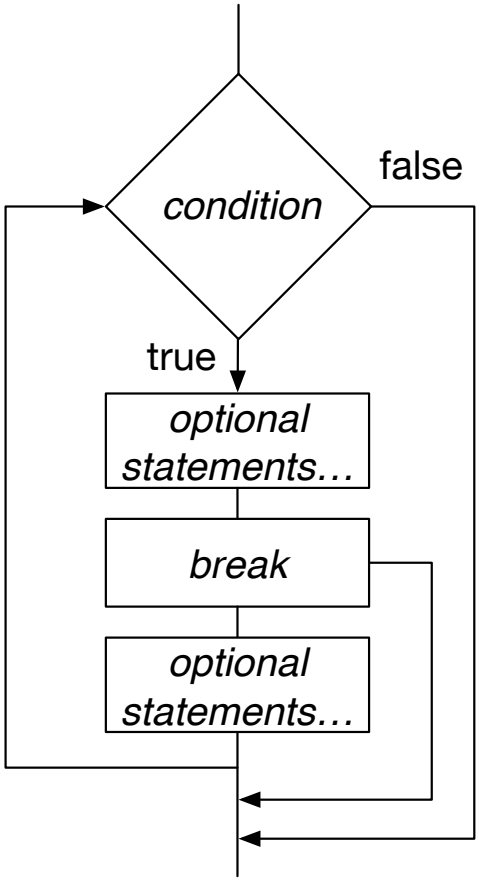
x	y	

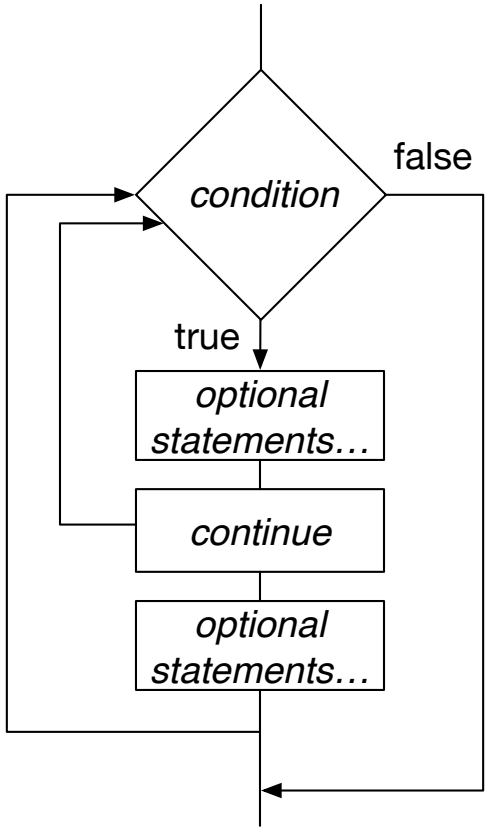
Example with `continue`



useTime	repairTime	repairTimeLeft

`while` loop with `break` and `continue`





Control flow within loops

- if the `break` statement is executed then exit the loop
- if the `continue` statement is executed then operation of the loop goes back to the beginning of the loop

Code trace: `break` and `continue` — example

```
1  public class Continuing {
2      public static void main(String[] args) {
3          int x = 4;
4          int y = 20;
5          while (x < y) {
6              x++;
7              if (x % 2 == 0) {
8                  continue;
9              }
10             System.out.println("x = " + x);
11             if (x == 13) {
12                 break;
13             }
14         }
15         System.out.println("All done!");
16     }
17 }
```

```
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```

```
~> javac Continuing.java
~> java Continuing
x = 5
x = 7
x = 9
x = 11
x = 13
All done!
```

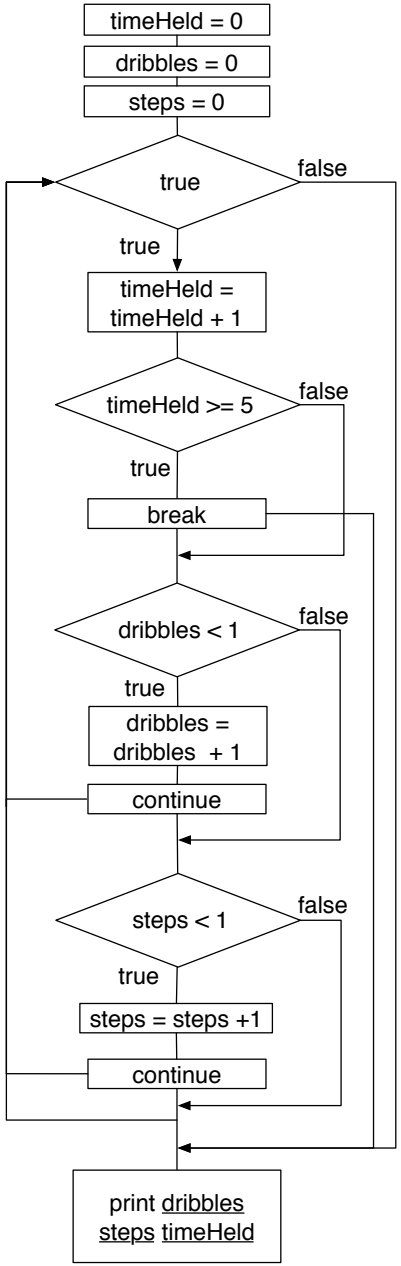
What would it print out if the increment of `x` were moved just after the current line 7?

Programming exercise Basketball rules

When a player receives the ball they perform one of the following. Dribble or step. One of these actions will cost the team player one second of time. If the ball has not been dribbled, the player will dribble at most one time. The player can step once. If player holds ball for 5 seconds or more they will stop. Your program will display the time passed and the amount of dribbling and stepping that was done.

Programming exercise Basketball rules (cont.)

Basketball rules



timeHeld	dribbles	steps

Programming exercise more Basketball rules

When a player receives the ball they choose among one of the following. Dribble, step, pass or shoot. One of these actions will cost the team player one second of time. Player can dribble at most one, otherwise they stop. Player can step at most once, otherwise they stop. If player holds ball for 5 seconds or more they will stop. If player passes or shoots, they will stop. Your program will take player choice as input and perform the action until they stop. The program will display the last action taken and time passed.

Programming exercise more Basketball rules (cont.)