
What is a program?

COMP 102

Victoria University of Wellington

What is a program?

A program is a specification for the behaviour of a computer, e.g.

- What the computer should do when (actions or responses)
 - The program is started
 - The user clicks a button
 - The user presses 'enter'
 - A message arrives over the network
 - A camera is turned on
- The action/response may be simple or very complex.
 - However, it consists of simple instructions, and it is the programmers job to combine these to produce the correct action/response

Instructions

- A program consists of
 - descriptions of responses to each event/request/functionality that the program needs a behaviour for
 - written as instructions
 - in a language the computer can understand:
 - Lots of different programming languages; we will use Java
- Examples of instructions
 - Store this number in a variable ($x=10$ or $y=41$)
 - Add numbers ($z = x + y - 4$)
 - Store a string of text in a variable (text = "This is a string of text.")
 - Merge several strings of text (newtext = text + " " + "And it is now longer!")
 - Do something depending on some condition
 - Tell the computer to repeat something many times

Learning to Program in Java

What's involved?

- Understand what the computer can do and what the language can specify
- Problem solving
 - Structure data
 - Important data structures and algorithms
 - Design instructions / algorithms
 - Common patterns in program design
- Programming language (Java):
 - syntax and semantics
 - style and common patterns
 - libraries of code written by other people
- Testing and Debugging (fixing).