Preshow Infotainment

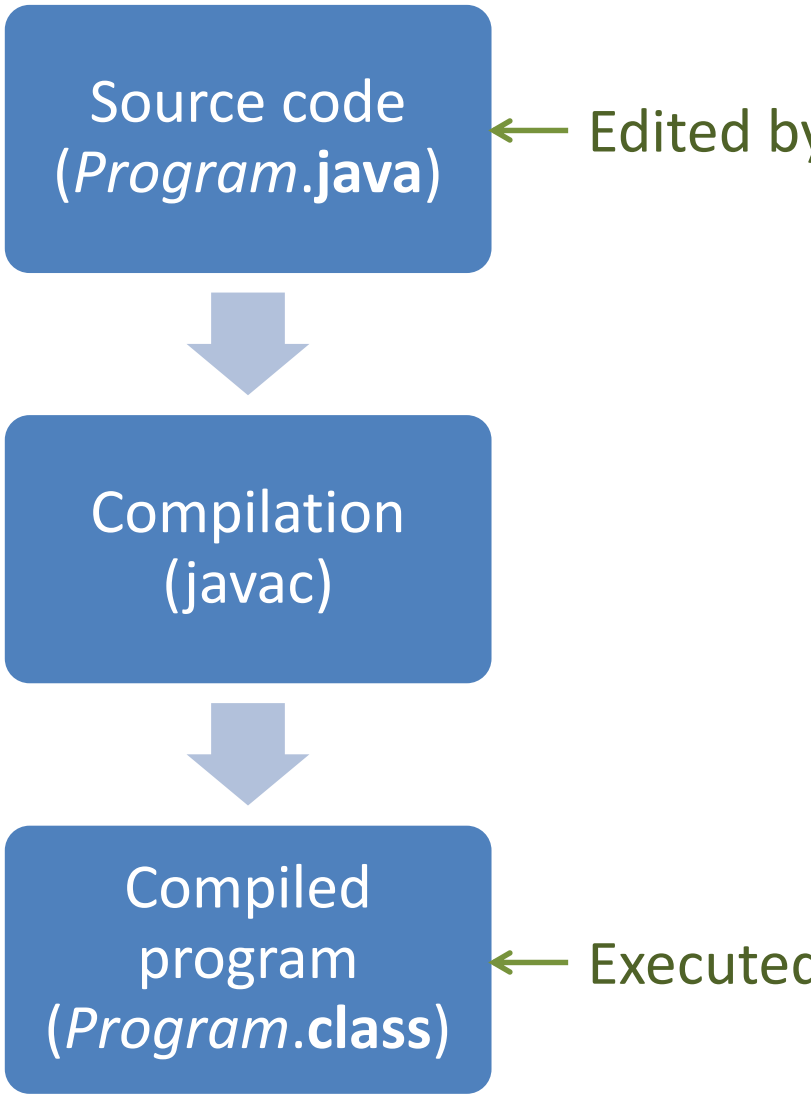
Anatomy of a task

Why DrJava… forces you to recompile

Reminder: back up your work

UNIVERSITY *of* TASMANIA

Why DrJava forces you to recompile



Editing the source code does *not* automatically change program behaviour (which can cause confusion and frustration)

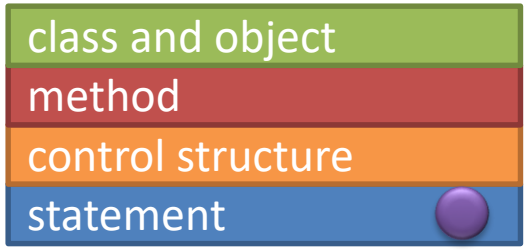
DrJava avoids this by forcing you to recompile modified source code before running the program

DrJava annoyance: its temporary files

DrJava creates a working copy of each file you edit, so for a program *Example* you will have

Example.**java** (the source code you edit and, often, submit)	Example.**class** (the compiled program; do not submit this)	Example.**java~** (DrJava's temporary editing file; do not submit this)
Typically will have some meaningful icon	Typically will have a default, bland, meaningless icon	If you hate mess then safe to delete

Working with Primitive Data and Code Written by Others



Solving Problems with Computers:
- Algorithms
- Using 'Primitive' Data

02 Computers & Programming Languages
03 Problem Solving with Computers
04 Working with Primitive Data

Solving Problems with Computers:
- Importing and Using Objects
- Some Commonly Used Objects

05 Using Objects

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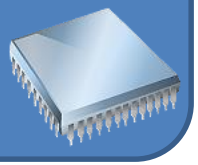
Summary of the summary

Programs instruct computers to perform actions

- *manipulate data*
- *display graphics*
- …



well-suited to implementation as

Algorithms are sequences of steps for solving problems

Programs *model* aspects of the real world

- *person's height*
- *document's text*
- …

Java **class types** model more complex data and are the pattern for **objects**

Hold primitives, objects and *methods* for modifying them

There are lots of these written by other people

You will eventually write your own

Java primitive types can model **whole** and **real numbers**, individual **characters**, and **Boolean** values

You can (and will!) make programs using both of these kinds of things

Tasks starting this week (and last :-)

1.1PP Getting Prepared

- Install the JDK and DrJava software
- Take screenshots to show it worked

1.2PP Hello World

- Create a small program that displays several lines of text

2.1PP Turtle Graphics

- Play with a virtual drawing device, write and implement an algorithm to draw your initials on the screen

Demonstrations & Activities

Algorithmic thinking

Using an object (Turtle Graphics)

- And a brief introduction to reading API documentation

Modelling the world with primitive data

- plus Strings, which are fundamental to programming but not ‘primitive’

Using a Scanner

- …to read user input

Math

Demonstrations of your choice

- from *Some Commonly Used Objects*
- (or end of lecture; also your choice)

Activity: Swap Two Values

START

A	**3**
B	**5**

GOAL

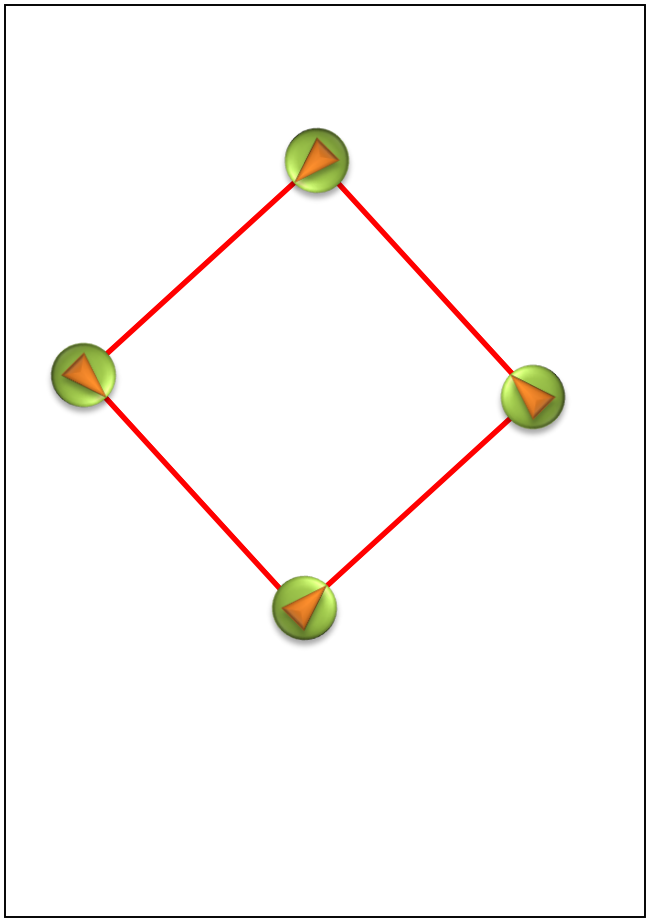
A	**5**
B	**3**

You can *only*

- copy values between boxes
- create new labelled boxes

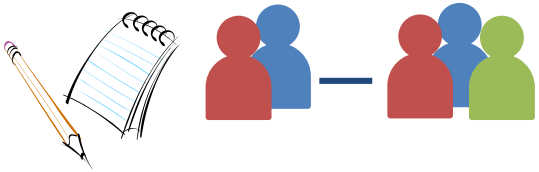
Example — drawing with a Turtle

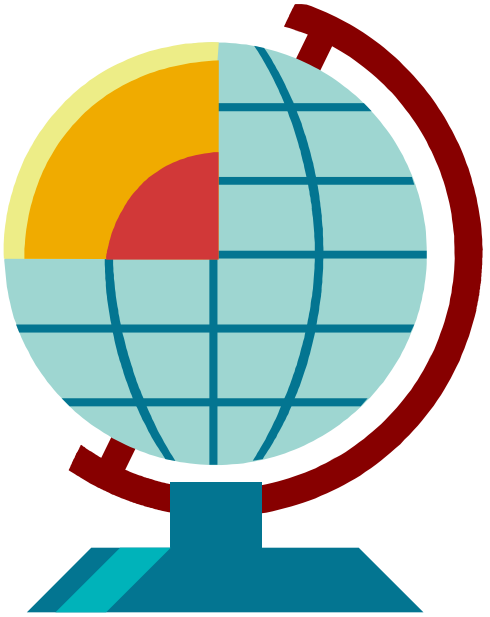
- Turtle Commands
  - move(dist)
  - turn(angle)
  - penUp()
  - penDown()
  - center()
  - setColor(Color)
- Domain knowledge
  - Starting state
  - Size of world



Background information: https://en.wikipedia.org/wiki/Turtle_graphics

Program as model of the real world





Task: What attributes could you use to model a Person?