

## Week 1, Lecture 2

### Objects and Messages



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## Announcements

- have a floppy disk with you when in the lab
- when running Kawa make sure the **Packages** classpath is set to **C:\genesis\packages\**
- in the lab the hints will be found on G drive (go to **subjects on 'Scrub'(G:)** and open the **genesis\Hints** folder

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## Week 1

### **Java Genesis:**

–Ch1: Getting started

–Ch2: Exploring Java

**Lab Assessment 1** (deadline: week 5)

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### **Java is an object-oriented programming language.**

- What does this mean?
- What is an object?
- How do we make use of objects in programming?

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## Objects have

- **state**
  - data that captures the object's current situation
- **methods (operations)**
  - processes performed in response to messages received by the object

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## Some typical real-world objects

- chairs
- lifts
- vending machines
- cars
- people
- everything ....?

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## Some typical virtual objects

- chairs
- lifts
- vending machines
- cars
- people
- buttons, geometric objects, ...
- abstract data structures

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## Objects: some observations

### composition

an object may be composed of other objects

### association

an object may be associated with other objects

### classification

an object may be similar to other objects

e.g. have similar state and methods, and so respond to messages in similar ways

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## Message Passing

When an object receives a message, it responds by performing an appropriate method.

As a consequence,

- the object's state may change;
- the object may send information back to the sender of the message.

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## Message passing: some observations

### polymorphism

can send the same message to different objects

### delegation

an object may send messages to many other objects

### creation

an object may create a new object

### rejection

an object may not understand a message

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## A language for passing messages

**objectName . messageName ( arguments )**

where

### objectName

identifies the object that receives the message

### messageName

identifies the message being sent

### arguments

is specific information sent with the message

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## CircleFigure class

some messages:

- create( )
- moveRight(x)
- moveTo(x, y)
- getXCentre( )
- setColour(c)
- drawHollow()

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