

Object Oriented Programming

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Course Website:

<http://www.informatics.sussex.ac.uk/courses/oop>

Course timetable

- Introduction to OOP using Java
- Lecture: Monday 9.00-9.50 SB 121
- Lab Sessions (all in Chi1 – 204/205):
 - Monday 14.00-15.50
 - Tuesday 10.00-11.50
 - Wednesday 9.00-10.50
 - Thursday 10.00-11.50

Learning Outcomes

On successful completion of this course students should:

- understand, and be able to successfully carry out, the edit-compile-run cycle of software development in an appropriate software development environment;
- understand and be able to use fundamental programming concepts such as variables, conditional statements, looping constructs, and methods (procedures);
- understand basic object oriented concepts such as object, class, abstraction, hierarchy modularity and encapsulation;
- be able to write a simple Java application involving about half a dozen or so simple classes;
- understand, and be able to use simple built in data-types such as arrays, Strings, and some of the Collection classes.

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What does it mean?

- Sound knowledge of programming principles
- Able to critically assess the quality of a (small) software system
- Able to implement a small software system in Java

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My objectives

- To convince you that programming
 - is not that hard
 - doesn't necessarily mean working alone
 - is fun (and highly addictive!)
- For those with previous programming experience
 - to keep you interested and busy with challenging exercises
- To enable you to follow with subsequent courses
 - Software Design and Evaluation
 - E-business and E-Commerce Systems

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Course admin

- Assessment and marks are per individual
- Lectures are for important course material and resources, essential for labs
- Real work is in lab sessions
- Bring textbook to lectures and lab sessions

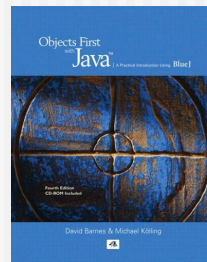
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Textbook

David J. Barnes & Michael Kölling

Objects First with Java A Practical Introduction using BlueJ

Fourth edition,
Pearson Education, 2009
ISBN-10: 0137005628
(<http://www.bluej.org>)



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Other useful books

- Java how to program. Deitel & Deitel. Prentice Hall.
- Java in two semesters. Quentin Charatan and Aaron Kans, Mc. Graw Hill.
- The Java programming language third edition. Ken Arnold, James Gosling and David Holmes. Addison-Wesley.

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Course topics overview

- Objects and classes
- Understanding class definitions
- Object interaction
- Grouping objects
- More sophisticated behaviour – APIs and libraries
- Well-behaved objects - testing, maintaining, debugging
- Designing classes
- Inheritance
- Building graphical user interfaces (GUIs)

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Assessment

- CWR 50%: Four assignments (10%+5%+10%+25%)
 - SWA: Glossary program, 10% of the course mark
4:00pm Thursday week 7 (17th November 2011)
 - PER: Peer code review, 5% of the course mark
Lab session of week 8
 - PRE: Text mode demo of Reference program, 10% of the course mark;
Lab session of week 10
 - PGP: Reference program. 25% of the course mark
4:00pm Thursday week 2 Spring Term (19th January 2012)
- UEX 50%: Unseen Exam in the Summer term 2012

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What is Object Oriented programming?

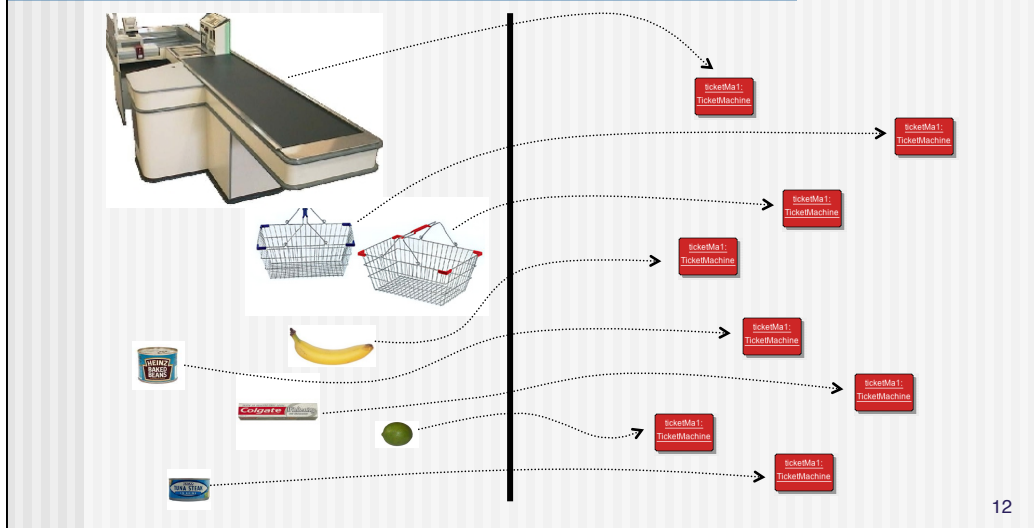
The screenshot shows the ASDA Groceries website. The main product is Nestle Shreddies cereal, priced at £1.00 (20.0p per 100g). The page includes a navigation menu with categories like Fresh Fruit & Veg, Dairy, Eggs & Cheese, Bakery, Food Cupboard, Drinks, Frozen, Health & Beauty, Baby & Toddler, Laundry, Pets & Household, Home & Leisure, and Special Offers. The product page features a 'Book your delivery slot' section, a 'Your trolley' section showing a total of £0.00, and a 'Nutritional Values' table.

Nutritional Values	
Typical values	Per 100g
Energy	1491kJ
	351 kcal
Protein	9.9g

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Real world

Computer program



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Class - Object analogy

- Definition (Class): an elongated usually slightly curved tropical fruit with edible pulpy flesh enclosed in a soft rind that is yellow when ripe
- Concrete instance (Object):



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No need for car parks



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Key Points

- object
- class
- method
- parameter
- data type
- state
- source code

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Next week

- Understanding class definitions
- Look inside classes
- Chapter 2 of the textbook
- Lab sessions start

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