CS994 – Object Oriented Programming

Module Lead: Damien Anderson

Email: Damien.Anderson@strath.ac.uk

It’s Java Time!

So what are we going to learn?

Module Objectives

Weeks 6 – 11

- Object Oriented Design
- Programming in Java – New Language!
- Java Libraries
- Develop and Test Applications
- Build and Refine team working skills

Assessment Plan

Individual Lab Test: 50%

- Week 11
- Type: Programming Tasks
- Date: Tuesday 3rd December, 10am
- Duration: 1 Hour 30 Minutes
- Location: LT1201 & LT1221
- Open Book but under exam conditions – No communication!
- Preparation: Mock Lab Test
- Support: Week 10 (W.c. 25th November)

Individual Coursework: 50%

- Set: Week 8, Monday 11th November
- Type: Programming Project
- Due Week 11, Friday 6th December
- Support: Q&A Sessions during on-campus sessions and a dedicated forum

General Information

- **Resit is by a 2-hour lab examination**
- **No Exemption Scheme is available!**

Plagiarism & Collusion

All code is submitted to an extremely effective plagiarism detector, which includes code gathered from the web and other submissions.

Penalties will be applied to anyone implicated in plagiarism and/or collusion.

So What is this module?

It is Java Time!

❖ What works both in Python and Java?

- Classes/Objects
- Iteration
- Decisions
- Lists/Arrays

❖ What new things will we learn?

- Java Libraries
- Interfaces
- More on Inheritance
- More on Unit Testing

BlueJ

❖ What is it?

- An educational Java Integrated Development Environment (IDE)
- NOT used in Industry for project development

❖ Why BlueJ?

- Great visualisations of objects
- Excellent testing environment
- It’s got a lovely bird as its icon

Module Structure

❖ Reading/Homework

- Core Text: BlueJ Book
- Java Documentation
- Christmas break revision: Head First Java Book

❖ Video Lectures

- Provide extra insight to compliment the book

❖ On-campus Tutorials

- Mondays 11:05am – 12pm: Introduction to week’s topic and a Q&A

Module Structure – Continued

❖ On-campus Lab Sessions

- ALWAYS on previous week's topics – Make sure to keep up with the content on MyPlace
- Tuesdays 10am-12pm: (Mostly) Pair programming – practical released at the start of each session
- Wednesdays 1pm-3pm: Drop-in session to complete current week's practical and ask questions about homework and/or lab practicals

Week 1 - Overview

❖ Introduction to BlueJ

- Including Installation

❖ Objects and Classes

❖ Basic Terminology

❖ Lab Tasks: Object-oriented/class design

- Individual and Group tasks

Basic Terminology

❖ **What are the differences between Python and Java?**

- class (Python) = class (Java)
- object (Python) = object (Java)
- function (Python) = method (Java)
- data member (Python) = field/instance field/data field/instance variable (Java)
- constructor (Python) = constructor (Java)

Thanks for Listening!

Any Questions?

Class Design: Overview

Class Name
Fields: <visibility identifier> <type> <name>
Methods : <visibility identifier> <return type> <name> <parameter list>

<visibility identifier>: private, protected, or public
<type>: primitive type[1] or any other Java class
<return type>: void[2], primitive type or any other Java class
<name>: programmer's choice, style/convention rules apply
<parameter list>: <type> <name>, comma-separated for each parameter

1. primitive types are commonly used types that are built-in for Java, e.g. integer numbers, real numbers, characters, Boolean values. **No need to worry about the details this week!**
2. Void means a method doesn't return anything

General rule: fields are private, and most methods are public

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