

## About this course



### CS/SE Individual Practical

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- The CS/SE Individual Practical is an individual programming project.
- The practical involves Android programming with Java and XML.
- The Individual Practical is assessed by the coursework only.
- There is no examination paper.

## About this lecture

- This is an introductory lecture explaining this year's practical.
- These slides and a more detailed handout will be available from the course web page after the lecture.
- See <http://www.inf.ed.ac.uk/teaching/courses/ip/>

## Restrictions

- The course is not available to visiting undergraduate students.
- The course is not available to fourth-year students or MSc students.
  - Fourth-year and MSc students have their own individual project.

## What are the aims of the course?

The Individual Practical exposes students to the problems that arise with the design and implementation of large scale computer systems, and to methods of coping with such problems.

## What are the aims of the course?

Students will gain experience in how to:

- Design clearly and coherently structured systems
- Choose the appropriate means of implementation
- Discover and use relevant information
- Schedule their work load
- Present their work in a clear and concise way.

## How is this course different from others?

Because the Individual Project is on a larger scale than the programming courseworks which you have done previously there is

- a set of requirements (rather than a specification);
- a design element to the course; and
- more scope for creativity.

## How is this course different from others?

The course tries to prepare you for

- The System Design Project (in the second semester)
- The Individual Project (in fourth year).

## Industrial relevance

- Employers like to see evidence of practical skills acquisition, and use of state-of-the-art tools.
- The course uses the state-of-the-art Android Development Toolkit in Eclipse, as used by professional developers targeting the Android phone.

## Personal satisfaction

- Phones are a part of our everyday lives ...
- ... it might be interesting to know how they are programmed.

## How much time should I spend?

100 hours, all in Semester 1, of which

- 8 hours lecture/demonstrating
- 92 hours practical work, of which
  - 70 hours non-timetabled assessed assignments
  - 22 hours private study/reading/other

## How much time should I spend?

You can think of this as approximately one day per week in first semester.

- 8 hours in one day (9:00–5:00, say)
- 12 weeks of the semester (Week 2 to Week 13)
- $8 \times 12 = 96$  hours

## Managing your time

It is unlikely that you will want to arrange your work on the CS/SE Individual Practical as one day where you do nothing else, but one day per week all semester is the **amount** of work that you should do for the course.

## Scheduling work

Course lecturers have been asked not to let deadlines overlap Weeks 11–13 because students are expected to be concentrating on IP/AILP in that time.

## Deadlines

The Individual Practical is in two parts:

Part 1 Thursday 27<sup>th</sup> October, 2011 at 16:00

Part 2 Thursday 15<sup>th</sup> December, 2011 at 16:00

## Scheduling work

- It is not necessary to keep working on the project right up to the deadline.
- For example, if you are travelling home for Christmas you might wish to submit the project early.
- In this case you need to ensure that you start the project early.
- The coursework handin is electronic so it is even possible to submit remotely.

## Feedback from last year's questionnaires

Was the total workload of the course:

- 1 Too light
- 2 A bit light
- 3 About right ← Most common answer
- 4 A bit heavy
- 5 Too heavy

## Feedback from last year's questionnaires

Was the content and level of the course:

- 1 Too easy
- 2 A bit easy
- 3 About right ← Most common answer
- 4 A bit hard
- 5 Too hard

## Feedback from last year's questionnaires

Considering all aspects, was the organisation of the course:

- 1 Very poor
- 2 Poor
- 3 Average
- 4 Good ← Most common answer
- 5 Excellent

## Feedback from last year's questionnaires

Overall, do you consider the educational value of this course:

- 1 Very poor
- 2 Poor
- 3 Average
- 4 Good
- 5 Excellent ← Most common answer

## Feedback from last year's questionnaires

Other comments and remarks:

- "The freedom really appealed to me, and the open-endedness of the project was very enjoyable."
- "The project is highly relevant to real-world software development, giving it great interest value."
- "This course rekindled my love of Java."

## Course prize

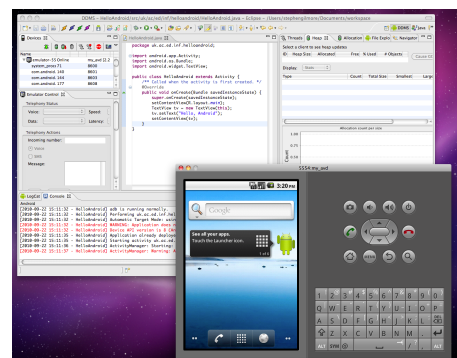
- The **Google Individual Project Prize** is awarded to the student who submits the best CS/SE Individual Project.
- Honours such as being the Google Individual Project prize winner distinguish your CV from the CVs of other job applicants.

## What is the project to produce?

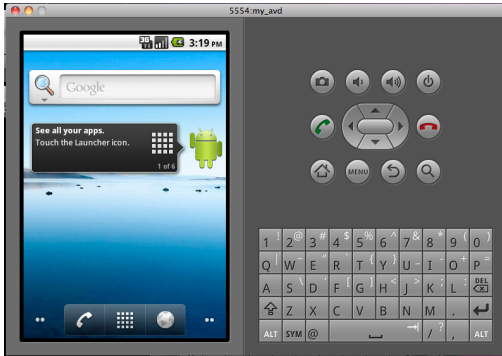


The Individual Project is to produce an app to run on Android phones. You might not have an Android phone, but that's OK. We will use an emulator to run our code on a laptop/PC or DiCE computer (your choice).

## Android development with Eclipse



## The Android emulator



## What is the app to do?



## What is the app to do?

- The purpose of the app is to assist the many visitors who come to the Informatics Forum in Edinburgh.
- Every year the Forum plays host to numerous academic conferences, workshops and symposia; public lectures; and social events.
- These events are attended by delegates who have travelled from all over Scotland, the UK, Europe, the USA, Asia and further afield.
- The purpose of the Forum app is to help these delegates and attendees find the Informatics Forum and plan their visit.

## What is the app to do?

- Your Forum app should tell visitors useful, accurate practical information which will make it easier to find the Informatics Forum even if they have never been to Edinburgh before, or Scotland, or the UK.
- Your app should help visitors locate the Informatics Forum when they are nearby, travelling on foot, and using a map.

## What is the app to do?

- It should help them to get within reasonable walking distance according to their preferred mode of transport.
- For example, your app might tell users about buses which run near the Forum, about local taxi firms, and give general directions on how to get to the Informatics Forum if starting from Edinburgh Waverley train station, or Edinburgh airport.

## What is the app to do?

- Visitors whose involvement with activities at the Informatics Forum lasts for a day or so might want to know about restaurants, cafes or sandwich shops near to the Forum where they could get lunch or dinner.
- The key point here is that these restaurants or other eateries should be close to the Forum, preferably within easy walking distance.
- An exhaustive list of every restaurant or cafe in Scotland is not helpful, because this includes too much irrelevant information.

## What is the app to do?

- Visitors who are staying longer would appreciate information about hotels near to the Forum.
- Again, less is more here, in the sense that a list of five hotels near the Forum is more useful than a list of 500 hotels in Scotland (because the user of the app would have to filter this list to find the hotels near the Forum).

## What is the app to do?

- The app should be **centred on the Forum** in the sense that restaurants, cafes and hotels can be categorised as being 5, 10 or 15 minutes walk away from the Forum.
- Anything beyond 15 minutes walk away can be regarded as too far away to be of sufficient interest to be included in the app.

## Updating the information on the app

- It should be possible to update the data on the app to:
  - delete the information about a cafe, restaurant or hotel entry; or
  - add information about a cafe, restaurant or hotel.
- Some users might like to rate restaurants or hotels that they have been to so that they can remember to visit them again the next time that they come to the Informatics Forum.

## What to submit

- You are to submit the directory which contains your Android project.
- Your work will be assessed by compiling and executing your application so you must ensure that all source code and project files needed to compile your application are submitted.

## What to submit

You are to write accompanying documentation. Use this to record:

- any special instructions for running your application,
- any parts of your application which are not finished or have non-obvious functionality, and
- any additional features of which you are duly proud.

Use screenshots to show your app running in the Android emulator.

## How will this practical be marked?

- 1 The accompanying documentation is read to see how to use the app.
- 2 The Eclipse project is imported into an instance of the Eclipse platform and inspected for errors or warnings ("Java Problems")
- 3 The project is launched as an Android app and run on the emulator
- 4 The app is evaluated in user mode by searching for content
- 5 Evaluation continues by adding and deleting content
- 6 Other additional features of the application will be explored
- 7 The Java source code will be inspected for good programming style

## Expectations

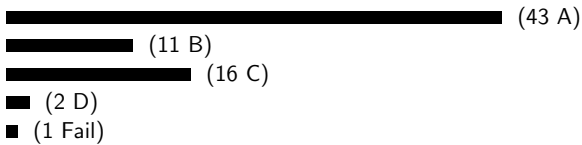
- A submission for the Individual Practical which meets all of the requirements for the practical should expect to get a grade A, but not necessarily a high A, unless the quality of the Java code is exceptionally good, and it is well documented and complete.
- A submission for the Individual Practical which meets most of the requirements for the practical (but not all of them) should expect to get a grade B. This also applies if the submission comes without documentation.

## Expectations

- A submission for the Individual Practical which meets some of the important requirements for the practical (but not most of them) should expect to get a grade C.
- A submission which fails to compile or seems to have only very limited functionality should expect to get a grade D or below.

## Statistics for 2010–2011

The following graph shows the distribution of grades for the practical last year. The vast majority of students got first-class (grade A) or second-class marks (grade B or C).



The average for the course was 67.38%. This is higher than the expected average for a third-year course. There were 73 students.

## Frequently asked questions

- I've never programmed in Java before and I don't know XML. What should I do?
- I don't have an Android phone. I've never written an app before. How can I do this practical?
- All of this information is readily available via a Google search. Why would anyone use this?
- Why not have a proper application downloadable onto a laptop?

## Frequently asked questions

- Can I make an app about kickboxing instead?
- Can I implement my app in Ruby/Python/Scala/Objective C/Go instead?
- Can I implement my app for the iPhone/Windows Phone 7 instead?
- Can I design my app for an Android tablet instead?
- How is this the CS/SE Individual Practical?

## What to do now?

- Think creatively!
  - What features will make your application unique?
- Learn about Android
  - Visit <http://developer.android.com/>
- Download the Android SDK
  - Visit <http://developer.android.com/sdk>

## Have fun!

