KTH Technology and Health

Programming of Mobile Services, HI1017, spring 2012

Aim

This course deals with programming of mobile devices and the special limitations and requirements that occur when programming for such devices.

The course will focus on development for the Android platform for smartphones, although the programming assignments may be solved using other platforms such as Java Micro Edition, Windows Phone 7 or Objective C for iPhone.

Teachers

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Course material

Developing for the Android platform

The preferred textbook is
Professional Android 2 Application Development by Reto Meier, publisher WROX.
ISBN 978-0-470-56552-0

A good alternative is
Android Wireless Application Development, 2nd edition by Darcey and Conder, publisher Addison Wesley.
ISBN 978-0-321-74301-5

Tutorials on Android programming and APIs are found at http://developer.android.com/index.html .

Other

HTML 5: http://www.w3schools.com/html5/default.asp
Cloud messaging: http://code.google.com/intl/sv-SE/android/c2dm/
Developing for the iPhone platform: The course “iPhone Application Programming” from Stanford University is available through iTunes-U.

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Lecture slides etc.

Additional material, such as lecture slides, instructions for the assignments and links, will be available at www.kth.se/social, “Programmering av mobila tjänster med J2ME”.

Lecture plan and recommended readings (Meier)

Lecture 1	Jan 16th	Programming for Mobile Devices. Introduction to Android: Dalvik VM, the Activity class (AsLm)	Chapters 1 and 2
Lecture 2	Jan 18th	Activity and Application lifecycle. Resources. User Interfaces and events. (AsLm)	Chapters 3 and 4
Exercise 1	Jan 18th	Introduction to Android SDK and Eclipse	
Lecture 3	Jan 23rd	Introduction to the iPhone platform (JsWn)	
Lecture 4	Jan 25th	Intents and Broadcast receivers. Adapters. (AsLm)	Chapter 5
Exercise 2	Jan 25th	Building User Interfaces. Resources.	
Lecture 5	Jan 27th	Networking: Using Internet resources. XML parsing Concurrency: Thread, Handler, ASyncTask (AsLm)	Chapter 5, pp 170-172 Chapter 9, pp 300-305
Exercise 3	Jan 27th	Networking	
Lecture 6	Feb 1st	Saving states and preferences. Files (AsLm)	Chapter 6
Exercise 4	Feb 1st		
Assignment 1	Feb 3rd		
Lecture 7	Feb 6th	Graphics: Drawing and Animation (AsLm)	Chapters 4 and 15
Exercise 5	Feb 6th		
Lecture 8	Feb 8th	The SQLite database. Content providers. Working in the background – Services (AsLm)	Chapter 7 Chapter 9
Assignment 2	Feb 13th		
Lecture 9	Feb 15th	Introduction to HTML 5 (JsWn, ReBm)	
Exercise 6			
Lecture 10	Feb 17th	Bluetooth Multimedia Message handling (SMS, MMS, …) (AsLm)	Chapter 13 Chapter 11 Chapter 12
Exercise 7	Feb 17th		
Assignment 3, 4	Feb 24th		
Lecture 11	Feb 27th	Cloud messaging (ReBm, PrSr)	
Exercise 8	Feb 27th		

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Lecture 12	Feb 29th	Cloud messaging (ReBm, PrSr)	
Exercise 9	Feb 29th		
Short paper	Mar 1st	Deadline, first version	
Short paper	Mar 6th	Deadline, criticism	
Short paper	Mar 9th	Deadline, final version	
Assignment 5	Mar 12th		

Assignments

Programming assignments

The programming assignments are to be solved and presented in teams of 2 persons, although each team member has to give an individual account of the solution.
Solutions are submitted at Bilda, and will be checked for plagiarism.

1. Network communication, multi-threading. Deadline: Feb 3rd.
2. Graphics touch events, animations. Deadline: Feb 13th.
3. Introduction to HTML. Deadline: Feb 24th.
4. An application of your own choice. Deadline for an outline of the chosen project is Feb 17th. Deadline for the application: Feb 24th.
5. Cloud messaging. Deadline: Mar 12th.

Register for presentation at Bilda/Tools/Invitations.

The grading for each assignment is based on code style, structure of the solution and additional parameters defined in the individual assignments. The assignments will be graded F (Failed), P (Passed) or M (Passed with Merit).

Assignments handed in after deadline will be graded F or P.

Paper assignment

You can chose between writing a short paper, based on a series of articles on mobile services, or writing an executive summary on a business plan. Detailed information is found at kth/social.

It's mandatory to, prior to the grading, read two other papers/summaries and provide constructive criticism (maximum half a page per paper/summary).

Papers are submitted at Bilda, and will be checked for plagiarism. Deadline for the first version is Mar 1st, the constructive criticism is to be handed in Mar 6th. Deadline for the final version is Mar 9th.

The papers/summaries will be graded F (Failed), P (Passed) or M (Passed with Merit), on each of these three parameters:

- technical content
- technical or business relevance,
- structure, clarity of composition and writing skills

Assignments handed in after deadline will be graded F or P.

Final grading

Requirements for final grade

Passed lab assignments and paper (LAB1; 3 cr.); short paper and cloud messaging, grades A-F.
Passed lab assignments (LAB2; 4.5 cr.); programming assignments 1-4, grades A-F.
Final grades for the course are A-F, calculated as (grade LAB1*3 + grade LAB2*4.5)/7.5.

LAB 1

To get the grade E, or above, you must have passed both assignments.
Programming assignment 5 (cloud messaging) will earn you 3 points (P) or 6 points (M).
The paper assignment will earn you 1 point (P) or 2 points (M) for each of the three parameters mentioned above.

Points	Grading
11-12	A
10	B
9	C
8	D
6-7	E

LAB 2

To get the grade E, or above, you must have passed all 4 assignments.
Programming assignment 1-3 will earn you 1 point (P) or 2 points (M) each. Programming assignment 4 will earn you 3 points (P) or 6 points (M). Thus, you can earn a maximum of 12 points for programming assignments 1-4.

Points	Grading
11-12	A
10	B
9	C
8	D
6-7	E