COMP 433: Mobile Computing Systems

Bulletin Description

Principles of mobile applications, mobile OS, and mobile networks. Coursework includes lectures, programming assignments, in-class programming or design activities, a semester long project, and a final exam.

General Course Info

Term: FALL 2017  
Department: COMP  
Course Number: 433  
Time: T TH, 11:00 – 12:15  
Location: Room FBF 009  
Website: http://mobile.web.unc.edu/

Instructor Info

Name: Prof. Shahriar Nirjon  
Office: Room SN 256  
Email: nirjon@cs.unc.edu  
Phone: 919-590-6039  
Web: http://www.cs.unc.edu/~nirjon  
Office Hours: TH, 12:30 – 1:30, Email for an appointment.

Teaching Assistants

<table>
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<tr>
<th>Name</th>
<th>Office</th>
<th>Email</th>
<th>Office Hours</th>
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Textbooks and Resources

There are no specific textbooks for this course. Online resources on mobile application programming, mobile platforms, and some research papers or book chapters are part of the syllabus. The instructor will provide these via the course web page or the Sakai.

Course Description

This course covers the basics of Mobile Applications development using Android APIs, and some selected topics on Mobile Systems and Networks. There are lectures, class activities, programming assignments, a course project, and a final exam. Upon successful competition, a student should be able to develop proof-of-concept Android apps, and have a better understanding of computing systems and computer networks from the mobile systems perspective.

Target Audience

Undergraduate students who want to learn how to develop mobile apps and those who want to have a scholarly understanding of the technologies behind mobile devices of today are the target audience of this course. Students outside computer science are encouraged to take this course, so
that they can bring new application ideas to the class and develop mobile apps that are related to their majors.

Prerequisites

- COMP 401 or 401H
- COMP 410
- COMP 411
- The knowledge of OS and Networking is not required, but a general understanding of the basic concepts such as processes, threads, and TCP/IP will be handy.

Goals and Key Learning Objectives

Upon successful completion, a student will be able to: develop Android applications using the SDK, make meaningful changes into Android OS, understand the operations of mobile networks (e.g., WiFi, cellular, and Bluetooth LE), and doing challenging programming assignments, and develop a proof-of-concept mobile application.

Course Requirements

The course consists of various types of activities:

- Lectures – The instructor will cover the course topics.
- Class Work – Tasks will be given (e.g. programming task, design, etc.) and students will solve them in class with the help of the instructor and/or the TA.
- Assignments – Programming assignments (usually a small app) that a student will do at home, and bring it to the class.
- Project – Each student has to develop a mobile application. The instructor and the student will discuss the scope of the project and finalize it before the mid-term break. There will be a project show towards the end of the semester. A formal project report and a 2-min video of the project are due on the project show and tell day.
- Final Exam– There will be a final exam.

Key Dates

The project report will be due on the day of project show.

Grading Criteria

- Class Attendance (3%)
- Class Work (12%)
- Assignments (45%)
- Project (30%)
- Final Exam (10%)

Course Policies

This section should address the following:

- Attendance policy – Attendance will be taken on random days.
• Consequence of missing class – Missed lectures will not be repeated for a student. Missing assignments, quizzes, or the project deadline will follow the late work policy.

• Late work policy – Points will be taken off for being late. The exact amount of penalties for different activities (e.g. class work, assignments, project reports) will be specified in the course webpage.

• The course final is given in compliance with UNC final exam regulations and according to the UNC Final Exam calendar.

Honor Code

Programming assignments will be checked with an automatic program checker as well as manually by the TA. Using open source codes is allowed, as long as the student understands “clearly” how it works and cites the source. Discussing programming assignments with a class mate is fine as long as the implementations (code) are different.

Course Schedule

The detailed schedule can be found here: http://mobile.web.unc.edu/schedule/

An outline of the schedule is:

<table>
<thead>
<tr>
<th>Course Phase</th>
<th>Timeline</th>
<th>Topic</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug 22 – Oct 17</td>
<td>Topics on Basic Android Programming</td>
</tr>
<tr>
<td>2</td>
<td>Oct 24 – Dec 12</td>
<td>Topics on Mobile System and Networks</td>
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Disclaimer

The professor reserves to right to make changes to the syllabus, including project due dates and test dates. These changes will be announced as early as possible.