Introduction

CS443 – Mobile Applications
Instructor: Bo Sheng

General Information

• Location and time
  – McCormack M01-0608
  – Tuesdays and Thursdays 7:00~8:15pm
• Instructor (Bo Sheng)
  – bo.sheng@umb.edu
  – 617-287-6468
  – Office: S-3-167
  – Office hours: Tu & Th, 2~4pm
• Check your umb emails
• Course Content: Android programming

Course Contents

• Textbooks
  – No textbooks required
  – Suggested
    • Android Programming: The Big Nerd Ranch Guide (2nd Edition), by Bill Phillips, Chris Stewart, Brian Hardy, Kristin Marsicano
    • The Android Developer’s Cookbook, by Ronan Schwarz, Phil Dutson, James Steele and Nelson To
  – Online documents

Why you should take this course

• Career Opportunities
  – A formal and systematic study of smartphone programming
• Java Basics
  – You will need to learn more about Java, but just a small step
• Have fun!!

What you'll learn

• Programming environment
  – Android Studio: project configuration, emulator setup, …

• Android basic components
  – Manifest configuration
  – Activity, broadcast receiver, …

• Graphics
  – Animations, canvas drawing

• Network connections
• Location service and Google map
• Sensors and gestures
What you’ll learn

• Some general knowledge
  – Java multi-threading
  – Data parsing (e.g., JSON and xml)
  – Network programming (TCP/IP)
  – Use third party APIs, e.g., Google Map, Twitter, Facebook, Dropbox, and etc.

Course Outline

• Android intro (week 1)
• Android studio intro (week 1~2)
• Manifest and activity lifecycle (week 2~3)
• User Interface (week 4)
• Broadcast Receiver (week 5)
• Notification (week 6)
• Services (week 7~8)

Course Outline

• Graphics (week 9~10)
• Location and maps (week 10~11)
• Networks (week 11~12)
• Content provider (week 12~13)
• Access Contact Data (week 14)
• Sensors and gestures (week 15)

Prior Knowledge Expected

• XML format
• Basic Java control flows
• Class, interface, inheritance

Course Work

• Programming-oriented
• No mid-term / final exams
• Homework assignments
• Term project

Course Work

• 3~4 homework assignments (65%)
  – Each homework assignment includes a programming task. Students will be given 1~2 weeks to finish it.
  – Partial points will be given, but no late submissions are accepted.
  – A program that does not successfully compile or produces no output loses 60% of the assignment grade.
Course Work
• 3~4 homework assignments (65%)
  – You will be given a base program to start with
  – Some functions or features are required to be implemented
  – There might be different approaches to solving the problems
  – Only use the components covered in class

Course Work
• A sample homework
  – Google Map
  – Network connection
  – JSON parsing

Course Work
• Term Project (30%)
  – In teams of two or three students. Group members will get the same grade for the project.
  – Submission
    • A project proposal (10/06)
    • A mid-term report (11/10)
    • Present your work at the end of the semester
    • A final report and all project codes

Course Work
• Term Project (30%)
  – Project must be approved by the instructor. So talk to me before submitting your project proposal.
  – Project will be assessed based on
    • Novelty of the idea (25%)
    • Quality of the implementation (40%)
    • Quality of the presentation and reports (35%)
  – Rated by the students at the end of the semester.

Course Work
• Term Project (30%)
  – Start to think about it as early as possible
  – Talk to me once you have sth in mind
  – Think about what you need to accomplish it
    • Server side program, cloud side services, multiple devices, access to Bluetooth/WiFi/accelerometers, APIs from other services, and so on.
  – Consider sth feasible, but not trivial
  – Do not postpone it to the end of the semester
  – I’ll provide a backup list if you can’t come up with your own ideas

Course Work
• Term Project (30%)
  – Project submission: GitHub
    • Get a github account if you haven’t got one
    • Learn how to use it if you haven’t used it before
Course Work

- Programming Environment
  - Android Studio
  - Eclipse IDE + ADT
  - Android emulator

- Devices
  - Homework assignments will be evaluated on Android emulator.
  - *Students could get mobile devices (either a tablet or smartphone) for the projects when necessary. The devices should be well maintained during their uses. Students will be responsible for any damage to the devices.

Course Work

- In class
  - Lecture + demo (Introducing concepts + reading codes)
  - I’ll show a lot of samples
  - You will be able to download all the slides and sample codes
- Your work
  - Use your computers
  - Or computers in the labs
- Ask questions

Grading Policy

- Attendance and participation: 5%
- Homework assignments: 65%
- Term project: 30%

  A(90~100), A-(87~89)
  B+(84~86), B(80~83), B-(77~79)
  C+(74~76), C(70~73), C-(67~69)
  D+(64~66), D(60~63)
  F(<60)

Other Info

- Course web page
- Prerequisite
  - CS 310
  - Permission of the instructor

Policies

- Homework
  - Partial points will be given, but no later submissions are accepted.

- Honor code
  - If caught cheating, you’ll get an ‘F’.
  - Discussions are OK, but don’t look at each other’s codes.
  - The dept asks us to use a software tool to compare the similarity of two programs.
Policies

• Accommodations
  – Ross Center for Disability Service
    • Campus Center Room 211
    • 617-287-7430

• A quick question
  – *What are the major differences between Java API and Android API?*