CSC 491/391 Mobile Application Development for iOS II

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CSC 491/391 Mobile Application Development for iOS II

- Spring Quarter AY 2020-21
- On-Line Learning (D2L)
  - http://d2l.depaul.edu/
- Course Home Page
  - http://venus.cs.depaul.edu/csc491
- Synchronous discussion sessions:
  - Monday 5:45 – 7:15 pm
  - Zoom

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Instructor

- Prof. Xiaoping Jia
- Office Hours:
  - Monday 4:00 - 5:30pm
  - Via Zoom
- E-mail: xjia@cdm.depaul.edu
- Home Page: http://venus.cs.depaul.edu/xjia

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Prerequisite

- CSC 371/471 Mobile Application Development for iOS

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Textbooks and References

- No required textbook.
- Lecture notes and sample code will be provided in D2L.
- Various on-line resources and tutorials may also be helpful.
- Official iOS API, SDK references
  - **Apple's iOS Development website**
    SDK, Guides, Sample Code,
    http://developer.apple.com/devcenter/ios/index.action

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Tentative Topics

- Deep dive in Swift
  - Error handling
  - Protocol based programming
  - Extensions
  - Closures & functional programming
  - System libraries
- Memory management
- SwiftUI
- iOS SDK
  - Motion sensors
  - Location and maps
  - Audio, video, and speech recognition
- Multi-threading & background processing
- Security and privacy

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Grading – Programming Assignments

- 70% - Programming Assignments
  - Weekly individual assignments
  - Estimated 4-5 assignments
  - Assignments will be posted before Monday lectures and usually due on 11:59pm of the following Tuesday.
    - There will be a 6-hour grace period, during which the late penalty will be waived.
  - All submissions in D2L.

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Grading – Research Paper & Project

- 30% - Term-length research paper and project
  - Individual
- Objectives
  - Identify an interesting problem involving mobile devices
  - Research iOS based technologies for potential solutions
  - Design a solution using iOS based technologies
    - Technically sound and practical to implement
    - Feasible in time and resources available
    - Involve interesting technical solutions and/or research problems
    - Possibly, original solutions, findings, insights

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Research Paper & Project – Time Line

- Project ideas, week 3, April 12, 2021
- Preliminary proposal, week 5, April 26, 2021
- Research and project design presentation, by week 9, May 4, 2021
- Final project due, week 11, June 7, 2021
  - Research paper
  - Project deliverables
  - Documentation
  - Demo video
- No late submission will be accepted for the research paper and project

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Grading – Late Policy

- Late policy for programming assignments
  - 10% penalty for up to 7 days. Additional 10% for each week thereafter.
  - One free pass for a one-week extension.
    - You may only use the free pass on one assignment during the entire quarter. Use it wisely.
    - The free extension pass does not apply to the final project.
  - The last day to submit programming assignments for partial credit is May 31, 2021 (week 10)

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Discussion Forum

- Use D2L Discussion Forum for questions related to the topics and materials covered in the lecture.
- Students are encouraged to respond to questions
- I will monitor and respond to questions

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Aims of Our Study

- Engineering of better mobile apps
  - Features and functions
  - Performance, responsiveness, power consumption, memory consumption
  - Design and architecture
- Research in mobile computing
  - What problems can we solve using mobile devices?
  - Design solutions to solving real-world problems using mobile devices.

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Week 1 Assignment

- Identify potential problems for your research paper
  - Some interesting problems: health, auto, voice, speech, etc.
  - Potential solutions using mobile devices
- Research iOS based technologies for potential solutions
  - What are the relevant technologies?
  - What has been done?
- Prepare to discuss your ideas and what you find during the next two weeks
  - On-line and in-class discussion

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Let's Take a Deep Dive!

- Become more proficient in Swift programming
- Learn more about iOS SDK and Xcode
- Develop better mobile apps
  - Improved qualities
  - Architecture and design of mobile apps
- Research the state of art technologies and development in mobile computing

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Term-Length Project Discussion

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Preparation for the Term-Length Project

- Identify potential topics of interests
  - Mobile computing in general and iOS in specific
- Preliminary research
  - Finding articles, tutorials, research papers
  - Finding related documentation, sample project
- Define outcome
- Prepare a proposal
  - April 12 and 19 – ideas and discussion
  - April 26 (week 5) – proposal due

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