Overview

CSD3156 Mobile and Cloud Computing

Li Xiaorong & Chen Kan

Spring 2025

Course info

Instructors:

Dr. Xiaorong Li
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Cloud part (2nd)

Dr. Kan Chen
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Mobile part (1st)

Course info

Syllabus, lecture notes, assignements, annoncements,…CSD3156-Mobile and Cloud Computing [2024/25 T2] on xSite

Post questions regarding material covered in class or an assignment to Discussions forum on **Slack**

Lecture: Tue 1:00 PM to 3:00 PM. E2-02-14

Lab: Tue 3:00 PM to 5:00 PM. E2-08-05 and E2-08-14

Office hours: TBC

TAs

Marcus Tan Kee Woon
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Aris Cahyadi Risdianto
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Acknowledgment

First part of this course borrows materials from the following source:

CSC2007 & ICT2105 & INF2007 Mobile Application Development

Jeannie S. Lee & Tan Chek Tien & Ng Pai Chet

Assessments

Assessment Item	Weight
Team Project 1	30%
Quiz1: Lab quiz x 4 (1% each) + Programming quiz x 2 (8% each)	20%
Team Project 2	30%
Quiz2	20%
Exam (None! Yay!!)	0%
Total	**100%**

First part schedule

Week	Topics (tentative)		Quiz (marks) (tentative)
1	Introduction	Development Environment Intro, Application Fundamentals, Activity, Intents, Kotlin, Jetpack Compose	Lab Quiz 1 (1)
2	Jetpack Compose	UI, States, Navigation	Lab Quiz 2 (1)
3	More UI	Animation, DataStore	Programming Quiz 1 (8)
4	Architecture Components	Room, Live Data, View Model, Dependency Injection	Lab Quiz 3 (1)
5	Threading	Coroutines, Flow, Networking	Lab Quiz 4 (1)
6	Tasks	Work Manager / Service / Broadcast Receiver / Content Provider	Programming Quiz 2 (8)
7	Recess Week		
8	Cloud Computing Fundamentals	Cloud computing concept, key technologies, and evolvement	TBA
9	Cloud Computing Service Models	IaaS, PaaS, SaaS, etc.	
10	Cloud Deployment Models	Private cloud, public cloud and hybrid cloud	
11	Cloud Application Development	Cloud architecture and design considerations	
12	Cloud Data Analytics	Cloud data management and analytic methods	
13	Cloud Security	Cloud security key concepts, threats, and solutions	

Project presentation: Video

Assessments (1st harf)

Lab Quizzes

Submission the week after the practical session

Fork repo and commit code

~4 total throughout the 1st harf of the trimester

Programming Practical Quizzes

Individual programming question; conducted during practical sessions in lab,

Open book, consult any online material, ~2 hrs

Individual effort only, no discussion or team

~2 total throughout the 1st harf of the trimester

Team Project

Half-semester long implementation of a real, working mobile application (game)

Requires submission of the working code, video and a report

What is this course about?

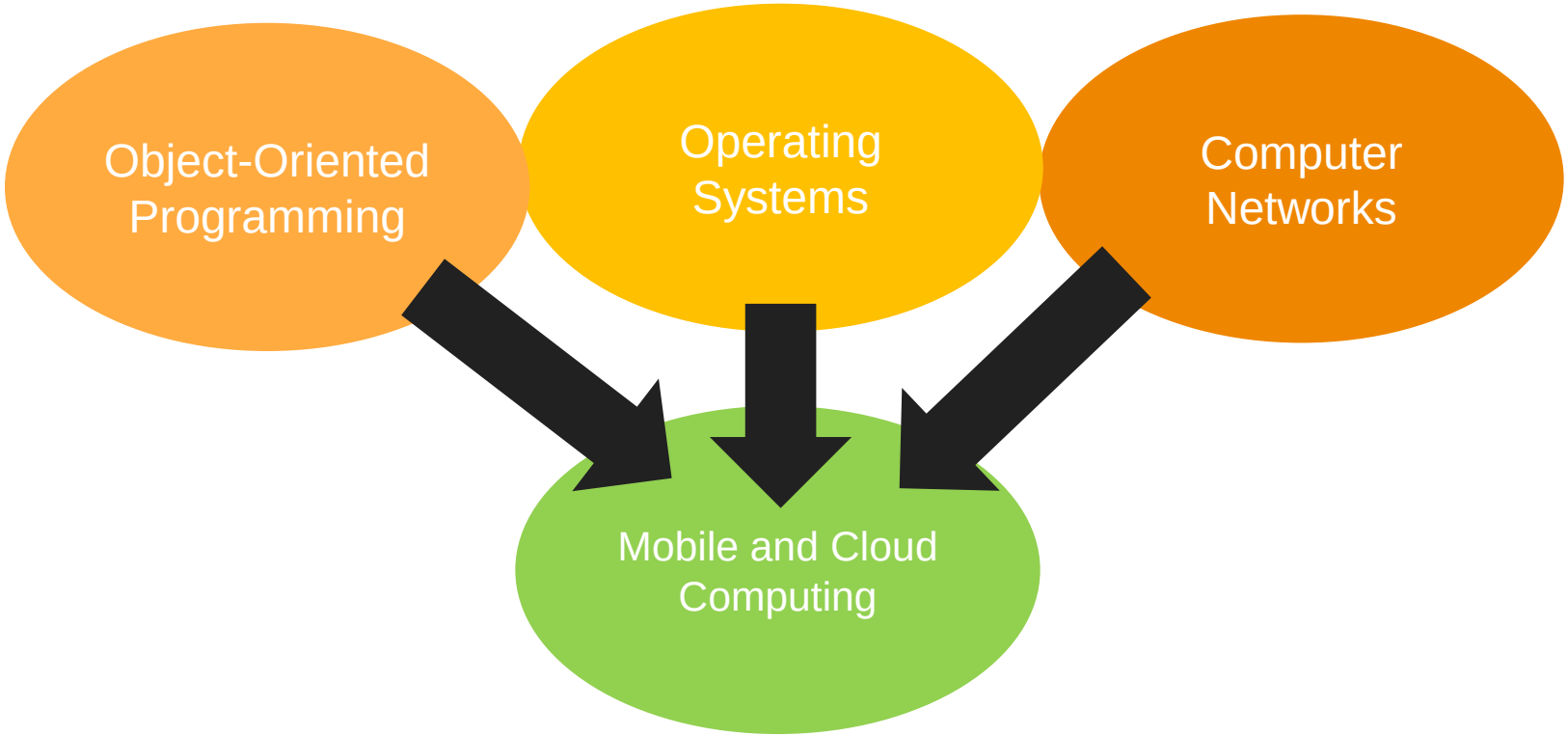
Principles and concepts for programming on a mobile/cloud platform

Software architecture and components of common mobile/cloud platforms e.g. Android & Amazon Web Services

Designing, coding and testing a mobile and cloud application

Developing a real-world, working mobile and cloud application!

Recommended Pre-Requisites



Recommended Knowledge Areas

Programming Fundamentals

Object-Oriented Programming

Operating Systems

Networking & Web

Human-Computer Interaction

Computer Architecture

Data Structures & Algorithms

Databases (aka Information Management)

Learning Outcomes

Describe the core components of a mobile operating system, platform and the associated development tools

Explain the differences between mobile and desktop platforms and their complexities and issues

Design and implement a working mobile application

Understand the cloud computing concept, different cloud service models and deployment methods

Know the key cloud technologies e.g., virtualisation and recent development

Learn how to use a cloud platform to build cloud services and the design consideration in different application contexts

Learning Resources

Required Resources

1. Cloud computing: Concepts and technologies, by Sunilkumar Manvi and Gopal Shyam

Recommended Resources

1. Galata, E. Shapiro & J. Howard, Kotlin Apprentice, Razeware, 2019.

2. General Information: https://developer.android.com/

3. Android Developer's Guide http://developer.android.com/guide/index.html

4. API Reference: http://developer.android.com/reference/packages.html

More Learning Resources

5. Android Blog: http://android-developers.blogspot.com

6. Stack Overflow Q&A: http://stackoverflow.com/questions/tagged/android

7. Cloud Computing By Michael Miller

8. Essentials of Cloud Computing, by K. Chandrasekaran

9. Docker Hub Container Image Library: https://hub.docker.com

Questions

Lecture Content

(1st Half) Chen Kan

(2nd Half) Li Xiaorong

Practical Sessions (Labs)

(1st Half) Chen Kan / Marcus Tan Kee Woon,

(2nd Half) Li Xiaorong / Duan Rubing / Aris Cahyadi Risdianto

Team Project

(1st Half) Chen Kan

(2nd Half) Li Xiaorong

Course URLs

LMS (xSite): announcement, project submission
CSD3156-Mobile and Cloud Computing [2024/25 T2]
https://xsite.singaporetech.edu.sg/d2l/home/156643

GitHub: (first part) lab/programming quiz
https://github.com/csd3156/

Slack: (first part) announcement, question
https://csd3156-2025.slack.com

Announcements

- Join the Slack group: https://bit.ly/3DHUUVM
- Add and Double confirm your GitHub **NAME** and slack name: http://bit.ly/3vtYnj9
- Receive GitHub invite to join CSD3156 GitHub Organization
- Form a project team (5-6 per team): https://bit.ly/3vwA1oZ
- Install Android Studio, Java JDK, Android SDK (Do at home!):
- https://developer.android.com/courses/pathways/android-basics-compose-unit-1-pathway-2

Any questions?