MONASH University

Information Technology

FIT5183: Mobile and Distributed Computing Systems (MDCS)

Lecture 1A
Unit Overview

Lecturer & Tutor

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This Week

Unit Administration and Schedule

Assessment Overview

Lecture

- MDCS Definitions and Concepts
- Distributed Computing Models
- Distributed Systems Software and System Architectures

Tutorials

- Integrated Development Environments (IDEs)
- Java Coding Standards
- Commence Web Service Tutorial #1

Unit Overview

Learning Outcomes

1. Identify and describe different approaches and methods for building distributed and mobile computing systems;

2. Evaluate several models and approaches and select suitable mobile computing solution to a particular case;

3. Propose and develop a mobile or distributed system that is appropriate to a problem domain;

4. Identify the current research directions in the field and their impacts.

Learning Materials

- Moodle will be used to deliver your unit content:

  http://moodle.vle.monash.edu/

  - Lecture notes
  - Tutorial notes
  - Assignment specifications and marking guides
  - Recommended readings

- The discussion forum on Moodle can also be used to ask questions or discuss ideas with your fellow classmates and teaching staff.
- News and announcements during the semester will be posted on Moodle.

Workload

- Students are expected to spend a total of **12 hours** a week on this unit including:
  - Two-hour lecture (with associated reading)
  - Two-hour tutorial (with advance preparation)

- Up to an **additional 8 hours** in some weeks for:
  - Completing assigned lab exercises and assignments
  - Private study
  - Revising core topics

	Weekly Topics
1	Introduction to Mobile and Distributed Computing Systems: Models and Architectures
2	Inter-process Communication and Remote Invocation; SOAP Web Services
3	REST Architecture and RESTful Web Services
4	WSDL, UDDI and WS* Standards; Extending REST methods
5 *	Mobile Computing and Enabling Wireless Technologies
6	Android Programming Fundamentals
7	Android Interface Development
8	Android advanced topics
9 *	Wireless Sensor Networks
10	Pervasive Networks and Ubiquitous Computing
11	Context, Situation and Location Awareness in Mobile Environments
12 *	New trends in MDCS and the “Internet of Everything”. Course Summary and Review.

Week	Lecture Topics	Tutorials and Assessment
Week 1	Introduction to MDCS: Models and Architectures	Get familiar with IDE; Java reflection
Week 2	IPC, RPC and RMI; SOAP Web Services	Web Services tutorial 1 – *SOAP*
Week 3	REST Architecture and RESTful Web Services	Web Services tutorial 2,3 – *REST*
Week 4	WSDL, UDDI and WS* Standards; Extending REST	Web Services tutorial 4 – *Named Queries*
Week 5	Mobile Computing and Enabling Wireless Technologies	Android tutorial 1 – *Hello Android!* Practical Assignment 1 (20%) Due
Week 6	Android Programming Fundamentals	Android tutorial 2 - *ListView*
Week 7	Android Interface Development	Android tutorial 3 - *SQLLite*
Week 8	Advanced Android Topics	Android tutorial 4 - *NavDrawer*
Week 9	Wireless Sensor Networks (WSNs)	Work on Assignment 2 Practical Assignment 2 (20%) Due
Semester Break (the May Day break)		
Week 10	Pervasive Networks and Ubiquitous Computing	Practical Assignment 2 Demos / Interviews Group work on Research Paper
Week 11	Context, Situation and Location Awareness	Group work on Research Paper - Slides Due
Week 12	New Trends in MDCS. Course Summary and Review	Research Paper Presentations (10%)
Week 13	SWOT VAC	--
Week 14	--	EXAM (50%)

Assessment Overview

Assessment Overview

- Marking weight: 50% in-semester assessment, 50% Exam
  - **40%** Practical Assessment tasks
    - **20%** Practical assignment 1
      - **Due Week 5** (RESTful web services)
    - **20%** Practical assignment 2
      - **Due Week 9** (Android application)
  - **10%** Research Assessment tasks
    - **10%** Research Paper Presentation
      - **Due Week 11** (Presentation slides)
      - 10 Minute **Presentation Week 12**
  - **50%** Final Examination **Week 14**

Practical Assignments

- Practical Assignment Phase 1 (20%)
  - Submit a zip file to Moodle
    - NetBeans project and tables
    - A report in Word that includes ER diagram, your own written code (Java, SQL and JPQL and screenshots following exactly the specified format (numbered headings, a brief description of each part)

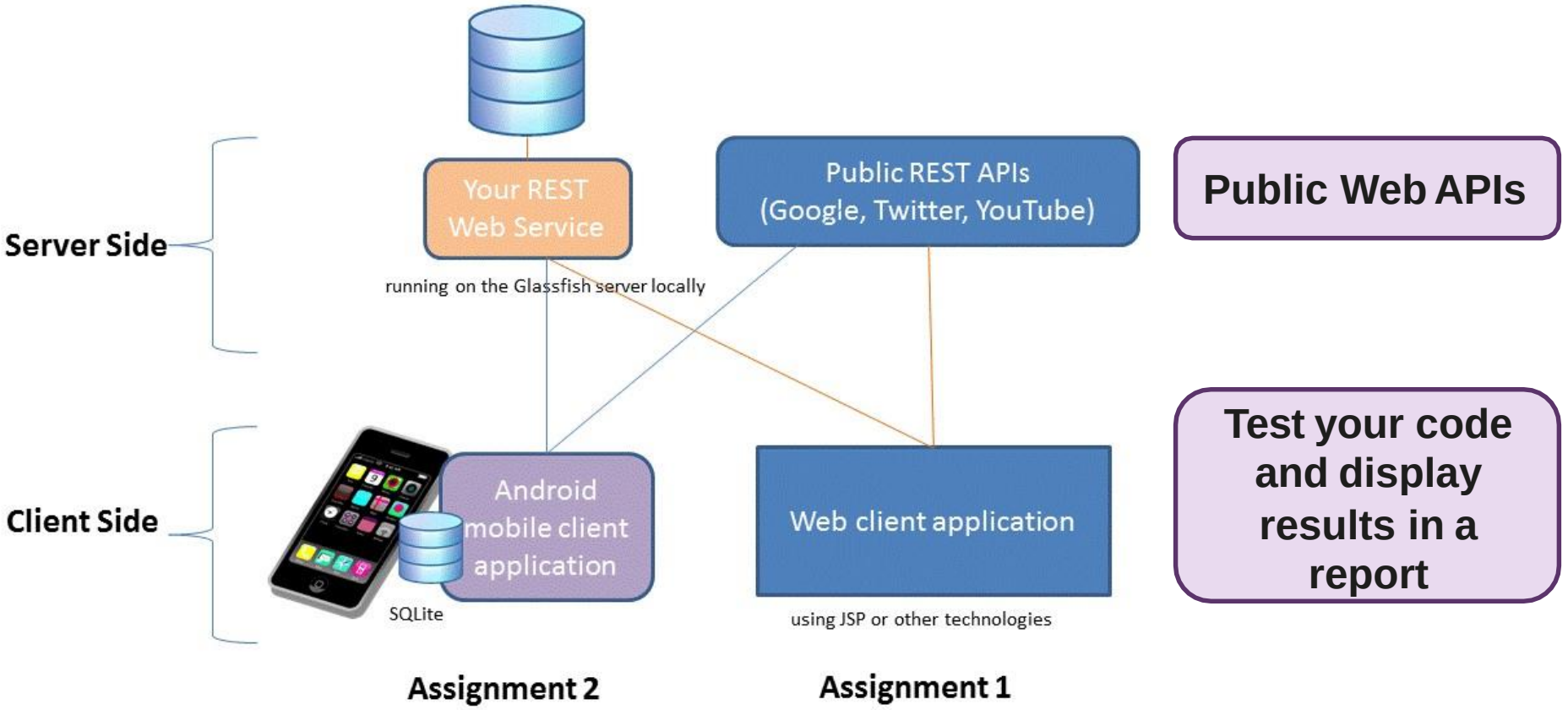
- Practical Assignment 1 Phase 2 (20%)
  - Submit a zip file to Moodle
    - NetBeans project (with all the files and folders)
    - Android project (with all the files and folders)
    - All the screenshots in a proper order with a title in a Word Document
  - Interview/Demo

**All submission should include a signed Assignment Cover Sheet

Assignment Submission

- All assignments must be submitted **electronically via Moodle**
- Late submissions lose 5% of the total mark per day late
- Submissions later than 7 days will NOT be accepted.
- Extensions will only be considered to students who submit a Special Consideration Application Form to the lecturers.
- You should aim to complete your assignments before the deadline.

Practical Assignments - Main Components



Research Presentation

- Group assignment (Groups of 3)
  - Group members from your own tutorial ONLY
    1. A list of seminal papers in mobile, distributed computing will be provided
    2. each group will select a paper to study and present
    3. The group will read and analyse the paper
       - Research question/problem?
       - The proposed approach and solution without going into technical details
       - Discussion of the evaluation results briefly
       - The group's deep understanding, results of in-depth analysis, and any open issues
  - The group will present the paper description and analysis in 15 minutes (a maximum of 5 slides), each member 5 minutes
  - The ppt file submission to Moodle before your tutorial starts by one of the members

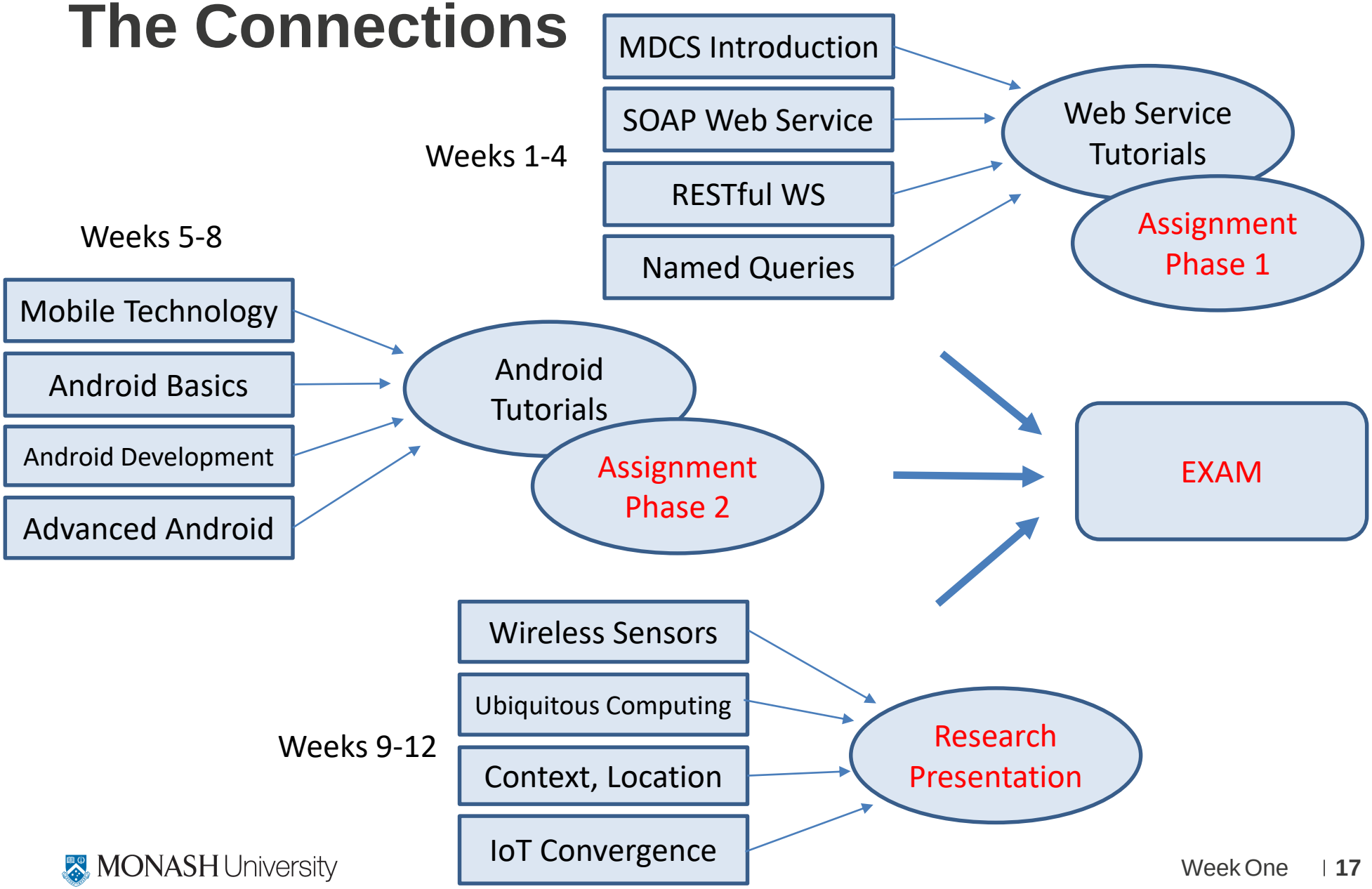
Plagiarism Policy

- **Zero Tolerance!**
  - Any assignments found to have been plagiarised will be awarded zero marks.
  - Any student found involved in plagiarism may be reported to their course leader and subject to a disciplinary process.

- Guidelines for external programming libraries and tutorials
  - When using external resources or libraries for your assignments, always provide in-line comments referencing the author of the code.
  - Guidelines for external programming libraries and tutorials

- Use proper references and citations in written reports and slides

The Connections



Software to be used in this Unit

- **NetBeans 8.2 but Glassfish 4.1 (an older version)**
  - https://netbeans.org/downloads/
- **Android Studio (**Android 7.1.1 API 25 Nougat, version 2.2.3)
  - All the teaching materials including tutorials are written based on this version
  - The help desk will be provided to this version
  - Make sure you also use this version
  - https://developer.android.com/studio/index.html