Mobile Computing

COMP5216/4216

Week 13 – Course Review and Exam Preparation

Semester 2, 2023

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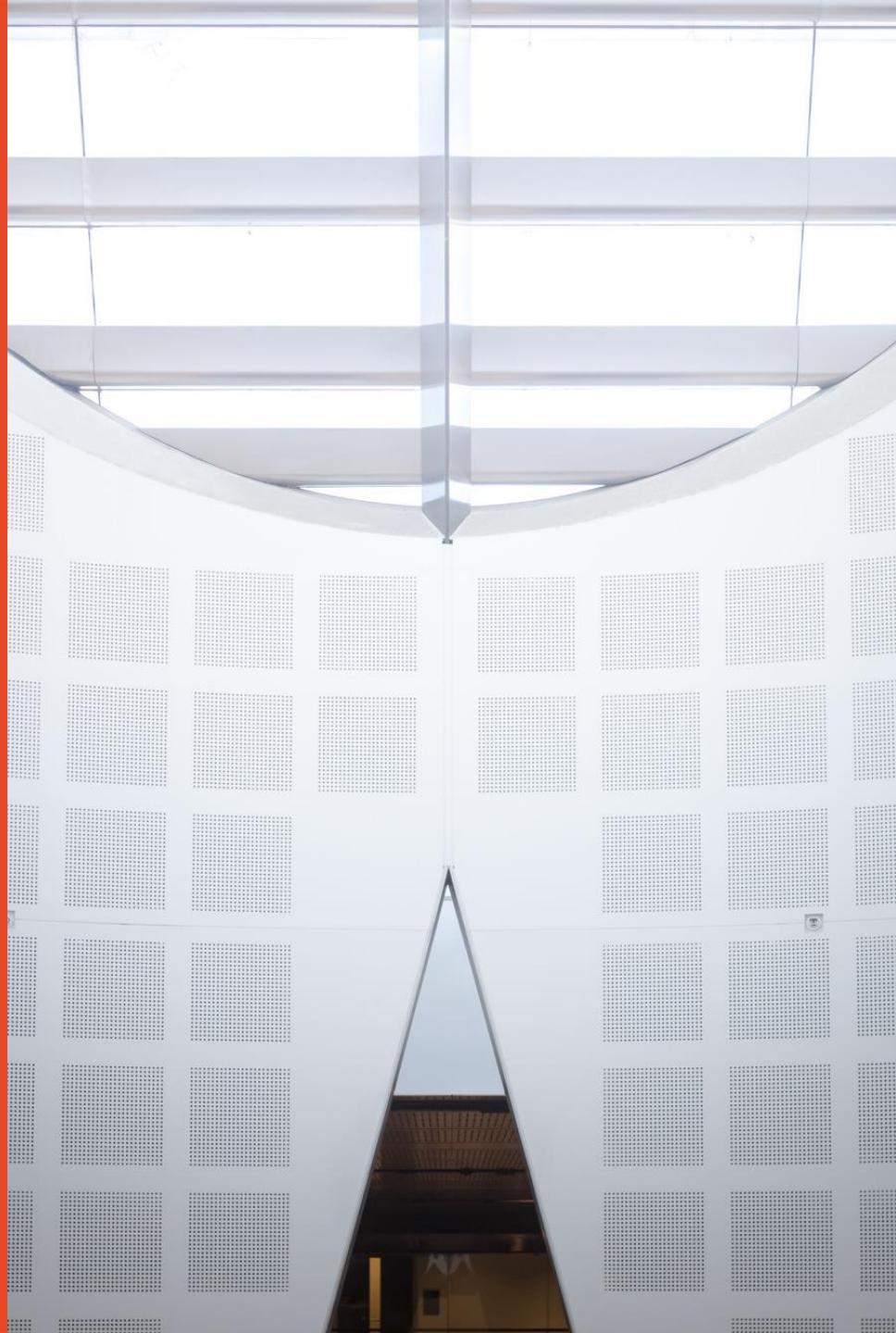


Final Project Evaluations

- Well done everyone !
  - Every group presented and demonstrated a final product.

  - In class presentation (4 evaluators)
    - Presentation content (audio and visual aids)
    - Logical flow
    - Presentation skills (attitude/confidence, time, pace, eye contact)

What's next for your projects ?

- You can definitely consider publishing your app at Google Play store.
- Submit your app to an app competition
  - https://www.sydney.edu.au/study/student-life/employability-and-careers/student-entrepreneurship/innovation-awards.html
  - https://myobdigitalchallenge.com/about/
  - https://tadhack.com/2023/
  - https://www.austechcomp.com/
- Do not worry a lot about monetization at the beginning. It will follow naturally, if your app is trendy.
- Pitch your app to an incubator program
  - Funding
  - Mentorship
  - Networking
  - Coaching
  - …

Things to be aware of: Compatibility of Licenses

- See whether just the release of one platform (Android only) will have a significant impact.
  - Can you think of example apps (out of the ones developed by you);
    1. That must have multiple platforms?
    2. That one platform is sufficient at the beginning?

- Every external SDK, Library, Platform, etc. you connect have their terms of services. You need to verify all of them before you publish
  - Carefully review your app for licensing incompatibility
- Release your app under the correct license

- **Fedora Wiki for Licencing**
  - https://fedoraproject.org/wiki/Licensing:Main?rd=Licensing

- Examples:
  - Apache v2 is not compatible with GPLv2.
  - Eclipse Public License v1 is not compatible with GNU GPLv2.
  - "GPL v2 only" is not compatible with GPLv3 or LGPL v3

- If you use GPL code you will need to make all of the source code for your programs available to the public

You can not combine all open source libs

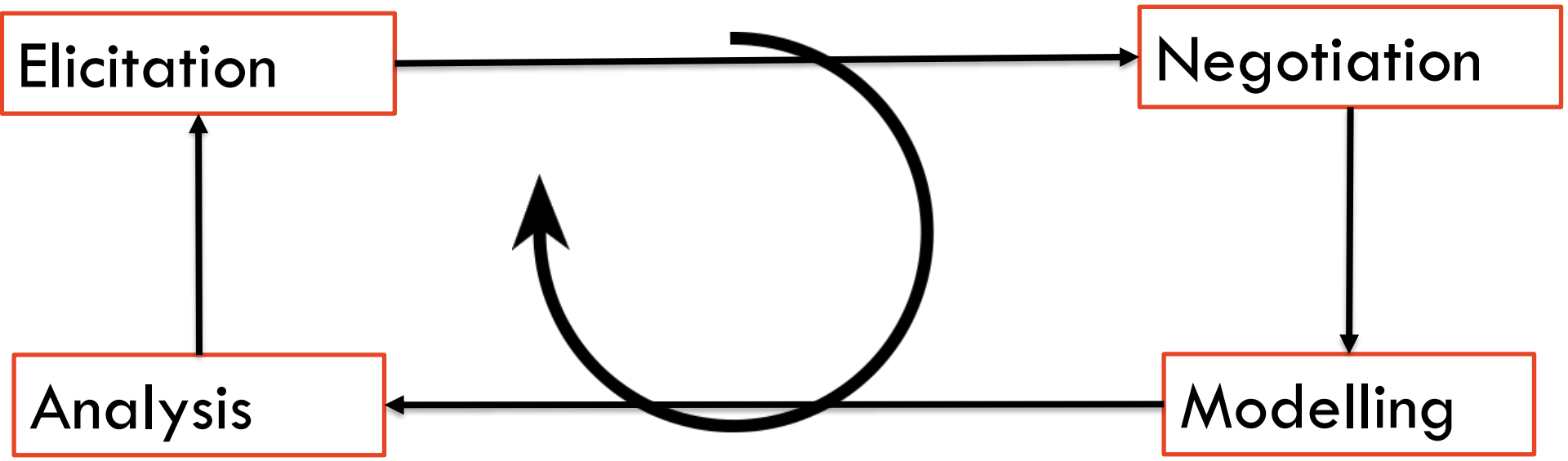
- GPL Compatibility Matrix
  - https://fedoraproject.org/wiki/Licensing:Main?rd=Licensing#GPL_Compatibility_Matrix

							I want to release a project under:
		GPLv2 only	GPLv2 or later	GPLv3 or later	LGPLv2.1 only	LGPLv2.1 or later	LGPLv3 or later
	GPLv2 only	OK	OK 2	NO	OK if you convert to GPLv2 7	OK if you convert to GPLv2 7 2	NO
	GPLv2 or later	OK 1	OK	OK	OK if you convert to GPL 7	OK if you convert to GPL 7	OK if you convert to GPLv3 8
I want to copy code under:	GPLv3	NO	OK if you upgrade to GPLv3 3	OK	OK if you convert to GPLv3 7	OK if you convert to GPLv3 7 3	OK if you convert to GPLv3 8
	LGPLv2.1 only	OK if you convert to GPLv2 7	OK if you convert to GPL 7 2	OK if you convert to GPLv3 7	OK	OK 6	OK if you convert to GPLv3 7 8
	LGPLv2.1 or later	OK if you convert to GPLv2 7 1	OK if you convert to GPL 7	OK if you convert to GPLv3 7	OK 5	OK	OK
	LGPLv3	NO	OK if you upgrade and convert to GPLv3 8 3	OK if you convert to GPLv3 8	OK if you convert to GPLv3 8	OK if you upgrade to LGPLv3 4	OK

							I want to release a project under:
		GPLv2 only	GPLv2 or later	GPLv3 or later	LGPLv2.1 only	LGPLv2.1 or later	LGPLv3 or later
	GPLv2 only	OK	OK 2	NO	OK if you convert to GPLv2 7	OK if you convert to GPLv2 7 2	NO
	GPLv2 or later	OK 1	OK	OK	OK if you convert to GPL 7 1	OK if you convert to GPL 7	OK if you convert to GPLv3 8
I want to use (link to) a library under:	GPLv3	NO	OK if you upgrade to GPLv3 3	OK	OK if you convert to GPLv3 7	OK if you convert to GPLv3 7 3	OK if you convert to GPLv3 8
	LGPLv2.1 only	OK	OK	OK	OK	OK	OK
	LGPLv2.1 or later	OK	OK	OK	OK	OK	OK
	LGPLv3	NO	OK	OK	OK	OK	OK

Things to be aware of: Requirements!

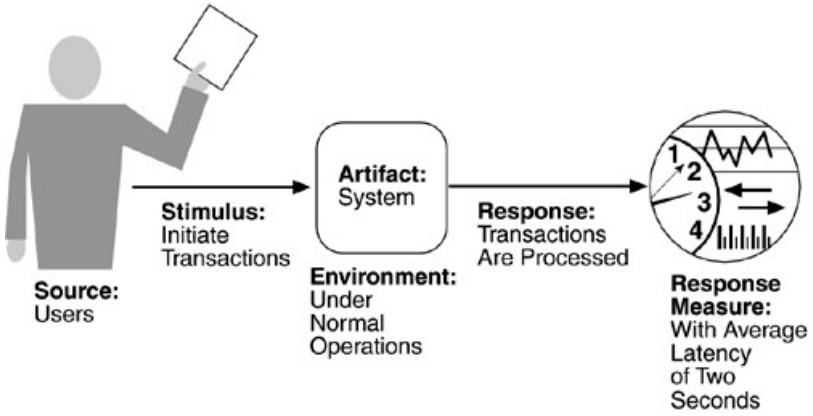
- Requirement gathering/Analysis VS Requirement Engineering



Things to be aware of: Requirements!

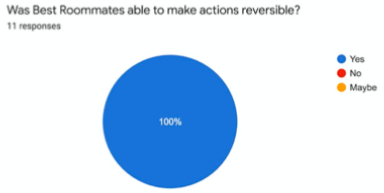
- Requirements
  - Quality Attributes (Tradeoffs)
  - Functional Requirement
    - Rrequirements that have a well-defined satisfaction criteria.
  - Non-Functional Requirement or Quality Attribute
    - requirements that do not have clear satisfaction criteria ???

"Users initiate 1,000 transactions per minute stochastically under normal operations, and these transactions are processed with an average latency of two seconds."

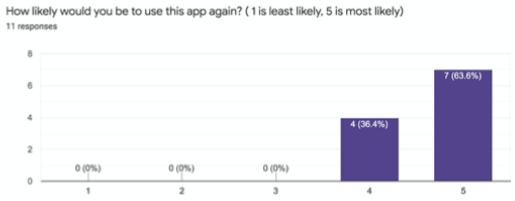


Things to be aware of: UX-UI Matters !

- Too many lists and form filling in many apps !
  - UX-UI is one of the most important aspects of real-world applications
    - Google device market is diverse, make sure you test your app in various circumstances and restrict the distribution to what you have already tested.
    - Try Google Beta testing
- Learn from user studies. Pick users who honestly evaluate your product.



Interview and Questionnaire result



What to expect from the final exam ?

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Week	Lectures
1	Introduction
2	App Development Workflow
3	Android Programming Basics - 1
4	Android Programming Basics - II
5	Smartphone capabilities and sensors
6	Challenges in Mobile Computing - UX
7	Challenges in Mobile Computing - Network
8	Challenges in Mobile Computing – Energy and Computation
9	Public Holiday
10	Guest Lecture – Cross-Platform
11	Project & Exam Preparation + Course Review
12	Demo Day
13	Model Paper

Final Exam

- 2-hour paper
- 5 Questions (20 Marks each)
- Short and long descriptive answers.
- Please effectively use the space provided.

- Questions categories:
  - **Short** – Android Fundamentals, Understanding of mobile computing
  - **Long** – Specific mobile app development
  - **Design** - Creative mobile app development

Final Exam – Model Questions - Short

You are tasked with developing a mobile application similar to uber eats. List challenges you may encounter when developing such an application

Final Exam – Model Questions - Short

- List advantages of using Network Location instead of GPS location and provide example use cases


WHAT IS
GEOFENCING?

Final Exam – Model Questions - Design

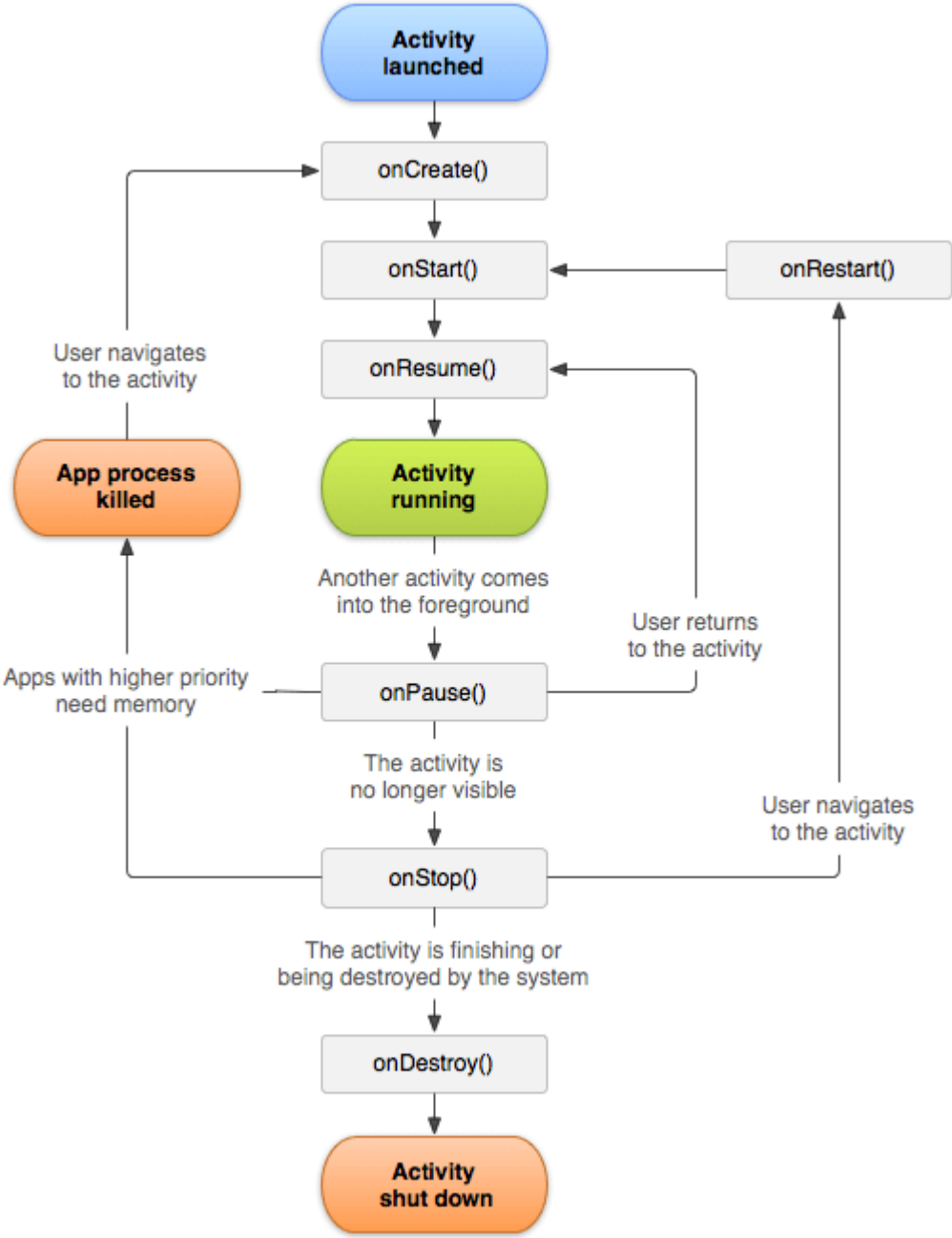
- You are tasked to design an Android mobile app that records the distance travelled by the user throughout the day and display it to the user whenever the user invokes the app with historical statistics. *Note: This is a design question only. You don't have to write code for this.*
  - Describe two methods of obtaining the distance travelled by the user and explain why one method will not be sufficient to record distance throughout the day.

Final Exam – Model Questions – long

- Explain Android Doze mode highlighting how that would affect behavior of an application.

Final Exam – Model Questions - Design

- Suppose you started a new media company to cover local news in your suburb. It would also allow local journalists to capture small video clips and share those as part of coverage. One of your colleagues suggested to develop a mobile application to make the news sharing process efficient and streamlined. Explain how you would handle the Android Activity Lifecycle to provide seamless and smooth user experience:



Course Outcomes

What is our "Role" ?

App Developers

Role: Uncovering the true potential of mobile devices

→ Mobile Computing

Challenges

- Sensitive personal data
  - Storage, management, sharing
- Resource utilization
  - Computation, network, power, storage
- User interaction
  - Voice, text, touch, gestures

- Your work will impact all stakeholders on the chain.

Background does not matter

- **Mobile Computing is becoming a commodity**

- Mobile computing is for everyone !

- Knowledge and experience in mobile computing will be useful;
  - For your final year thesis project
  - To improve your productivity
  - Pursue your passion as a hobby
  - Just for Fun !
  - **Improve your chances of getting a better job**

Outcomes

- Pursue your passion
- Exercise your creativity
- Gain rewarding experiences
- Understand mobile computing techniques
- Thorough knowledge of mobile app based eco-system

At the end of the course;

- You will be able to develop your own mobile app
- You will be able to publish it in the app store
- Maybe you will be able to start your own business
- Participate and win an App Competition

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  - Pursue your passion as a hobby
  - Just for Fun !
  - **Improve your chances of getting a better job**

It's time for you to support me…!

- https://student-surveys.sydney.edu.au/
- Please take 10 minutes to complete the USS survey.

Your Unit of Study Survey (USS) feedback is **confidential**.

It's a way to share what you enjoyed and found most useful in your learning, and to provide constructive feedback. It's also a way to 'pay it forward' for the students coming behind you, so that their **learning experience** in this class is as good, or even better, than your own.

When you complete your USS survey (https://student-surveys.sydney.edu.au), please:

Be specific.
Which class tasks, assessments or other activities helped you to learn? *Why* were they helpful? Which one(s) *didn't* help you to learn? *Why* didn't they work for you?

Be constructive.
What practical changes can you suggest to class tasks, assessments or other activities, to help the next class learn better?

Be relevant.
Imagine you are the teacher. What sort of feedback would you find most useful to help make your teaching more effective?

Thank You !

- Remember – Final Exam is at
  - 13/11/2023 **13:00 (check your exam timetable)**
    - New Law School Annexe LT 106
    - Physics Road SR LG19
    - R.C. Mills Lecture Room 209
    - Quadrangle Building Latin 2 S225 (4216)
- **Good Luck !**