

Mobile Computing

COMP5216/ COMP4216

Week 01 - Introduction

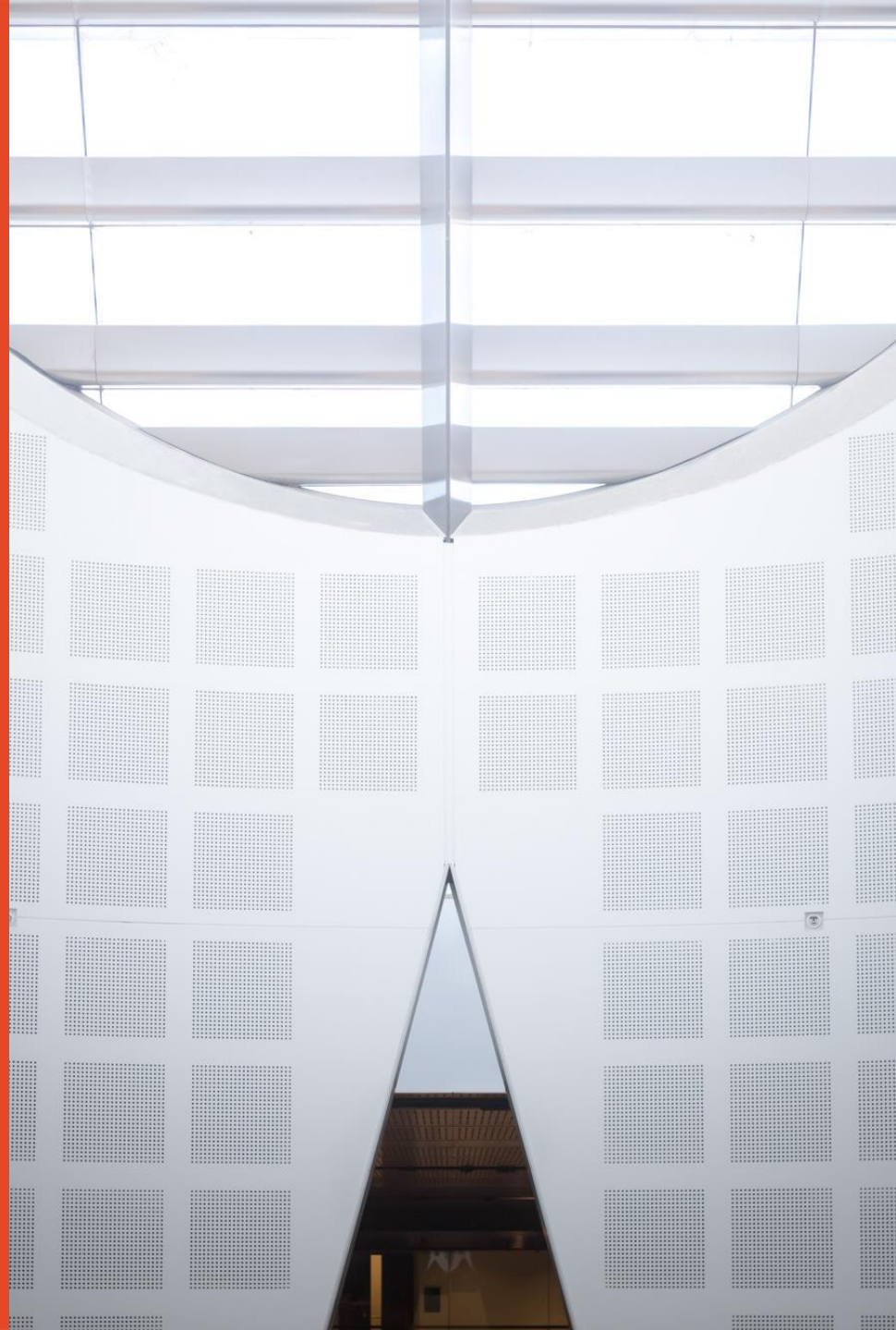
Semester 2, 2023

Dr. Thilina Halloluwa

School of Computer Science



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SYDNEY



Acknowledgement of Country

I would like to acknowledge the Traditional Owners of Australia and recognise their continuing connection to land, water and culture. I am currently on the land of the Gadigal people of the Eora Nation and pay my respects to their Elders, past, present and emerging.

I further acknowledge the Traditional Owners of the country on which you are on and pay respects to their Elders, past, present and future.

For details of traditional custodians of campuses and facilities visit the intranet page below.

<https://intranet.sydney.edu.au/contacts-campuses/campus-information/traditional-custodians-of-the-land.html>

For other locations refer to the AIATSIS map of Indigenous Australia

<https://aiatsis.gov.au/explore/articles/aiatsis-map-indigenous-australia>

Outline

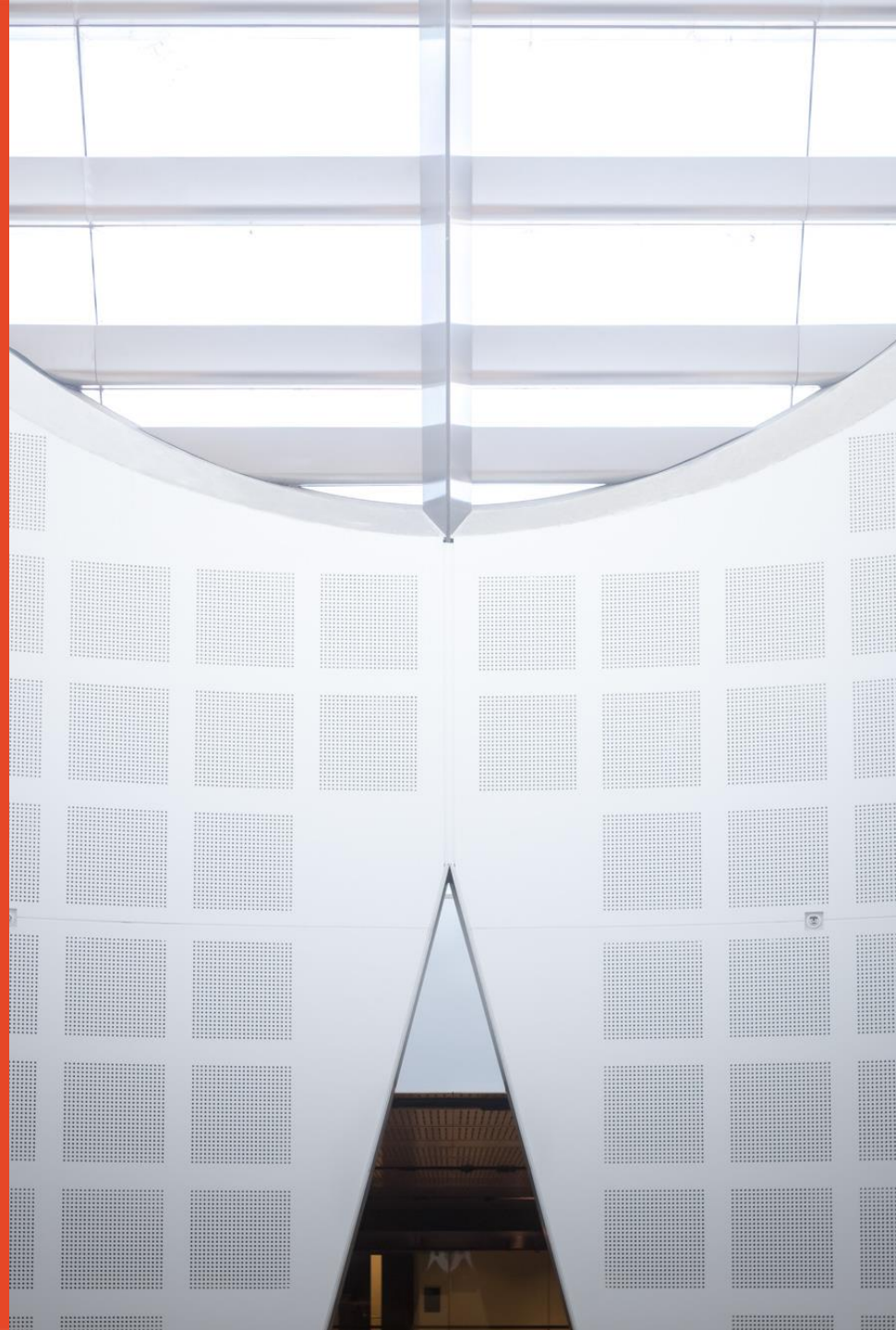
- WHS
- Why this course ?
- Course Logistics
 - Lectures/Tutorials
 - Assessments
 - Expectation and Outcomes
- Mobile Ecosystem
- What is your “role” as students of COMP5216/4216?
- Tutor introduction

WHS Induction

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General Housekeeping – Use of Labs

- Keep work area clean and orderly
- Remove trip hazards around desk area
- No food and drink near machines
- No smoking permitted within University buildings
- Do not unplug or move equipment without permission



EMERGENCIES – Be prepared



<https://sydney.edu.au/campus-life/safety-security.html>

The screenshot shows the University of Sydney website. At the top is the university logo and a navigation bar with links: Study, Campus life, Research, Engage with us, About us, News & opinion, and a search icon. Below the navigation bar is a large image of two people looking at an evacuation diagram. Underneath the image is a breadcrumb trail: Home / Campus life / Emergencies and personal safety.

Left Sidebar:

- Home
- Campus life
- Accommodation
- What's on
- Health, wellbeing and success
- Clubs and societies
- Getting to campus
- Sports and fitness
- Food, shops and bars
- Emergencies and personal safety
- Maps and locations
- Life in Sydney

Main Content Area:

University_

Emergencies and personal safety

Procedures to follow in the case of an emergency

We're committed to keeping our students, staff and visitors safe.

Emergencies can occur at any time for a variety of reasons. Be prepared to respond independently, particularly if working after hours. Watch our [video on emergency procedures](#) and read our [tips for staying safe on campus](#).

In an emergency

1. Dial triple zero (000)
2. Call Campus Security on 9351 3333

Counselling, support and reporting services

If you have witnessed or been involved in a critical incident, whether on or off campus, and would like to talk to a counsellor:

Students should contact the University's [Counselling and Psychological Services](#) on 8627 8433 or 8627 8437 (9am to 5pm, Monday to Friday).

Right Sidebar 1: Safer communities on campus

Our commitment to building a safer campus


Right Sidebar 2: Emergency alerts

Find out about our system

EMERGENCIES

Evacuation Procedures

ALARMS

 **BEEP... BEEP...** Prepare to evacuate

1. Check for any signs of immediate danger.
2. Shut Down equipment / processes.
3. Collect any nearby personal items.




 **WHOOOP... WHOOOP...** Evacuate the building

1. Follow the **EXIT** exit signs.
2. Escort visitors & those who require assistance.
3. DO NOT use lifts.
4. Proceed to the assembly area.

EMERGENCY RESPONSE

1. Warn anyone in immediate danger.
2. Fight the fire or contain the emergency, if safe & trained to do so.

If necessary...

3. Close the door, if safe to do so.
4. Activate the **"Break Glass"** Alarm  or 
5. Evacuate via your closest safe exit. **EXIT** 
6. Report the emergency to 0-000 & 9351-3333

Emergency procedures (on campus)

- In the unlikely event of an emergency, we may need to evacuate the building.
- If we need to evacuate, we will ask you to take your belongings and follow the green exit signs .
- We will move a safe distance from the building and maintain physical distancing whilst waiting until the emergency is over.
- In some circumstances, we might be asked to remain inside the building for our own safety. We call this a lockdown or shelter-in-place.
- Further information is available at www.sydney.edu.au/emergency

MEDICAL EMERGENCY

– If a person is seriously ill/injured:

1. **call an ambulance 0-000**
2. **notify the closest Nominated First Aid Officer**

If unconscious– send for Automated External Defibrillator (AED)
AED locations.

NEAREST to CS Building (J12)

- Electrical Engineering Building, L2 (ground) near lifts
- Seymour Centre, left of box office
- Carried by all Security Patrol vehicles

3. **call Security - 9351-3333**
4. **Facilitate the arrival of Ambulance Staff (via Security)**



Nearest Medical Facility

University Health Service in Level 3, Wentworth Building

First Aid kit – SIT Building (J12)

kitchen area adjacent to Lab 110

School of Computer Science Safety Contacts

CHIEF WARDEN

Greg Ryan
Level 1W 103
9351 4360
0411 406 322



FIRST AID OFFICERS



Julia Ashworth
Level 2E Reception
9351 3423



Will Calleja
Level 1W 103
9036 9706
0422 001 964



Katie Yang
Level 2E 237
9351 4918

**Orally REPORT all
INCIDENTS
& HAZARDS
to your SUPERVISOR**

OR

Undergraduates: to Katie Yang
9351 4918

Coursework

Postgraduates: to Cecille Faraizi
9351 6060
or Keiko Narushima
8627 0872

CS School
Manager:

Priyanka Magotra
8627 4295

Assistance

- There are a wide range of support services available for students: <https://sydney.edu.au/campus-life/health-wellbeing-success.html>
- Please make contact, and get help
- You are not required to tell anyone else about this
- If you are willing to inform the unit coordinator, they may be able to work with other support to reduce the impact on this unit
 - eg provide advice on which tasks are most significant

DISABILITY SERVICES

Do you have a disability?

- You may not think of yourself as having a ‘disability’ but the definition under the **Disability Discrimination Act** is broad and includes temporary or chronic medical conditions, physical or sensory disabilities, psychological conditions and learning disabilities.
- The types of disabilities we see include:
 - anxiety, arthritis, asthma, asperger's disorder, ADHD, bipolar disorder, broken bones, cancer, cerebral palsy, chronic fatigue syndrome, crohn's disease, cystic fibrosis, depression, diabetes, dyslexia, epilepsy, hearing impairment, learning disability, mobility impairment, multiple sclerosis, post traumatic stress, schizophrenia , vision impairment, and much more.
- Students needing assistance must register with Disability Services –
 - it is advisable to do this as early as possible.
- <http://sydney.edu.au/study/academic-support/disability-support.html>

Do you have a disability?

You may not think of yourself as having a 'disability' but the definition under the **Disability Discrimination Act (1992)** is broad and includes temporary or chronic medical conditions, physical or sensory disabilities, psychological conditions and learning disabilities.

The types of disabilities we see include:

Anxiety // Arthritis // Asthma // Autism // ADHD
Bipolar disorder // Broken bones // Cancer
Cerebral palsy // Chronic fatigue syndrome
Crohn's disease // Cystic fibrosis // Depression
Diabetes // Dyslexia // Epilepsy // Hearing impairment //
Learning disability // Mobility impairment // Multiple
sclerosis // Post-traumatic stress // Schizophrenia //
Vision impairment
and much more.

Students needing assistance must register with Disability Services. It is advisable to do this as early as possible. Please contact us or review our website to find out more.



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Disability Services Office
sydney.edu.au/disability
02-8627-8422



Other support

- Learning support
 - <http://sydney.edu.au/study/academic-support/learning-support.html>
- International students
 - <http://sydney.edu.au/study/academic-support/support-for-international-students.html>
- Aboriginal and Torres Strait Islanders
 - <http://sydney.edu.au/study/academic-support/aboriginal-and-torres-strait-islander-support.html>
- Student organization (can represent you in academic appeals etc)
 - <http://srcusyd.net.au/> or <http://www.supra.net.au/>
- **Please make contact, and get help**
- You are not required to tell anyone else about this
- If you are willing to inform the unit coordinator, they may be able to work with other support to reduce the impact on this unit
 - eg provide advice on which tasks are most significant

Why “Mobile Computing” ?

Got an “App” for everything...



Mobiles are everywhere ... !

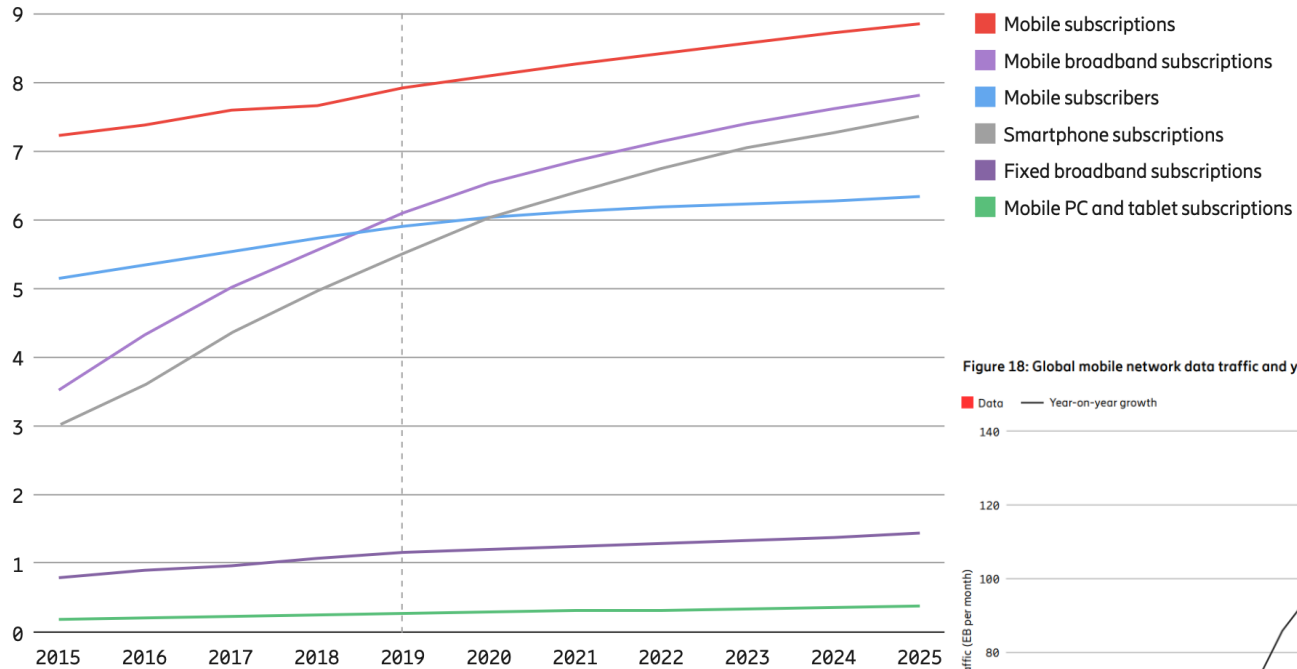
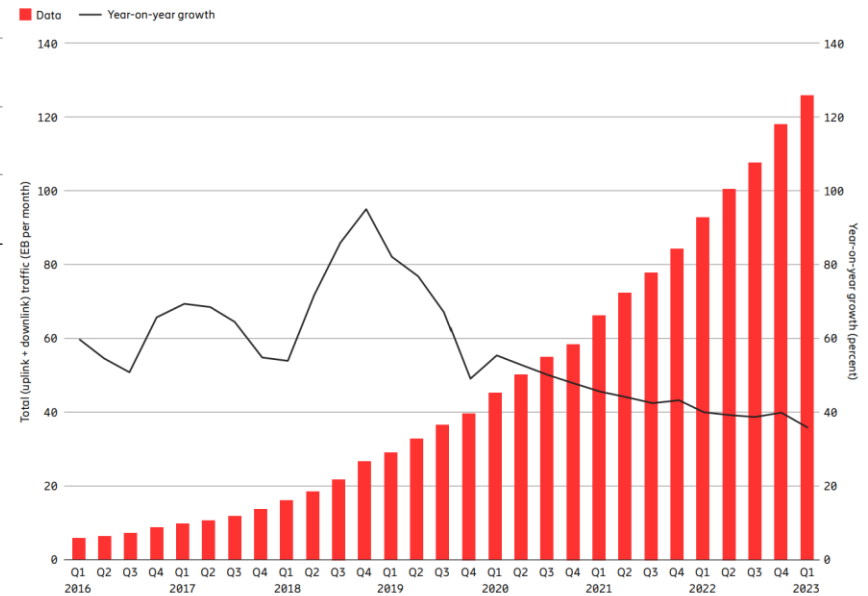


Figure 18: Global mobile network data traffic and year-on-year growth (EB per month)

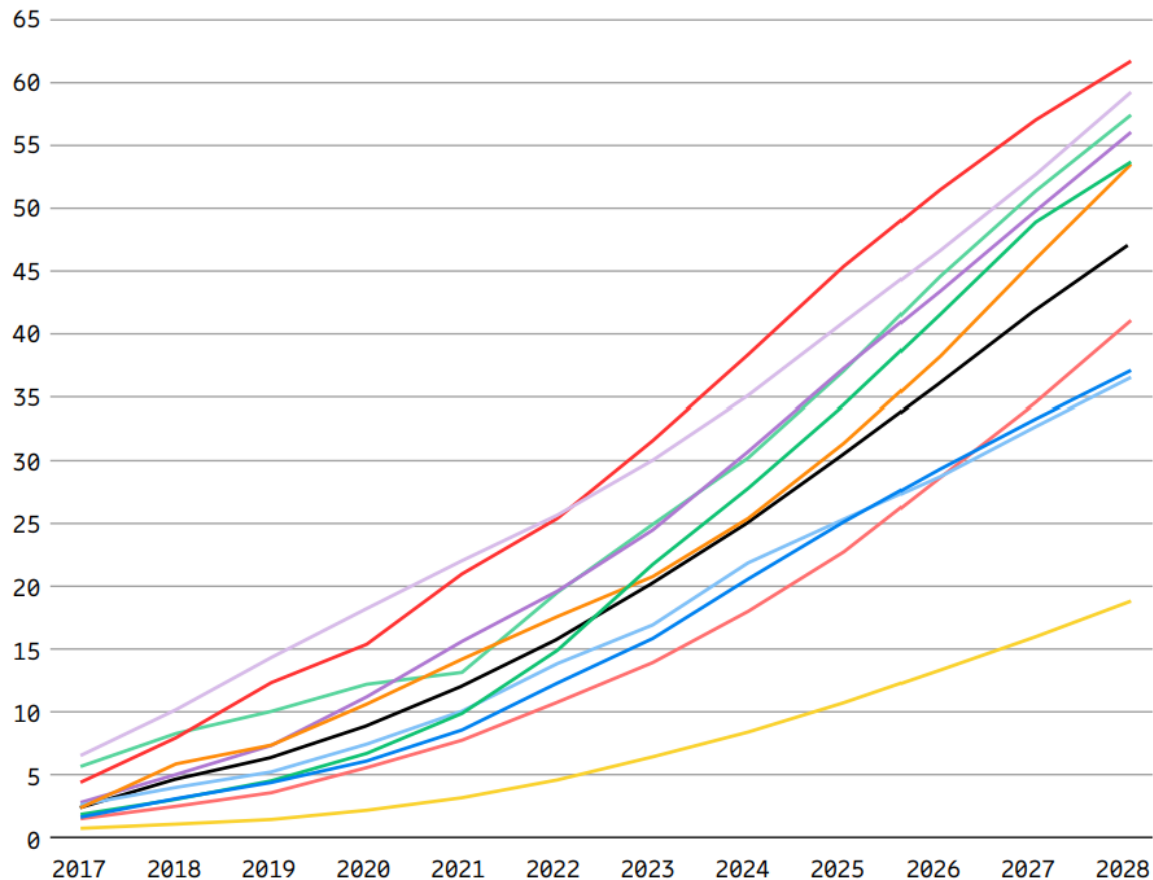


Source: Ericsson traffic measurements (Q1 2023).

Note: Mobile network data traffic also includes traffic generated by Fixed Wireless Access services.

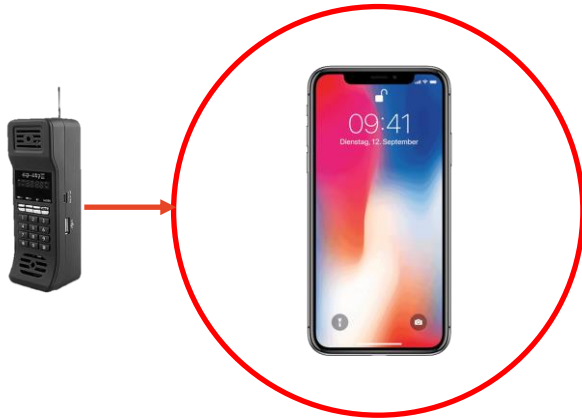
Mobiles are everywhere ... !

Figure 20: Mobile data traffic per smartphone (GB per month)



Regions	2022	2028	CAGR 2022–2028
India, Nepal, Bhutan	26	62	16%
GCC	26	59	15%
North America	20	58	20%
Western Europe	20	56	19%
North East Asia	18	54	20%
South East Asia and Oceania	15	54	24%
Global average	16	47	20%
Latin America	11	41	25%
Middle East and North Africa ¹	12	37	20%
Central and Eastern Europe	14	37	18%
Sub-Saharan Africa	4.7	19	26%

Revolution of mobile devices



Revolution of mobile devices



Ever increasing capabilities of mobiles

- **Variety**
 - Multiple screen sizes, from \$xx - \$xxxx,
- **Multiple input modalities**
 - Type, touch, swipe, speech, gestures
- **Connectivity**
 - Cellular (4G), WiFi, Satellite, Bluetooth, NFC
- **Sensors**
 - Accelerometer, GPS, temperature,...
- **Camera**
 - Ultra-HD video, HDR, depth sensing,...
- **Computing power**



Mobility

Impact of Mobile Computing

- **Commerce and Business**

- Amazon, eBay, Taobao, ...

- **Networking (Social)**

- Facebook, Twitter, WhatsApp, WeChat, ...

- **Education**

- Anytime, anywhere, anybody

- **Entertainment**

- Game, video, mixed reality, ...

- **Tourism**

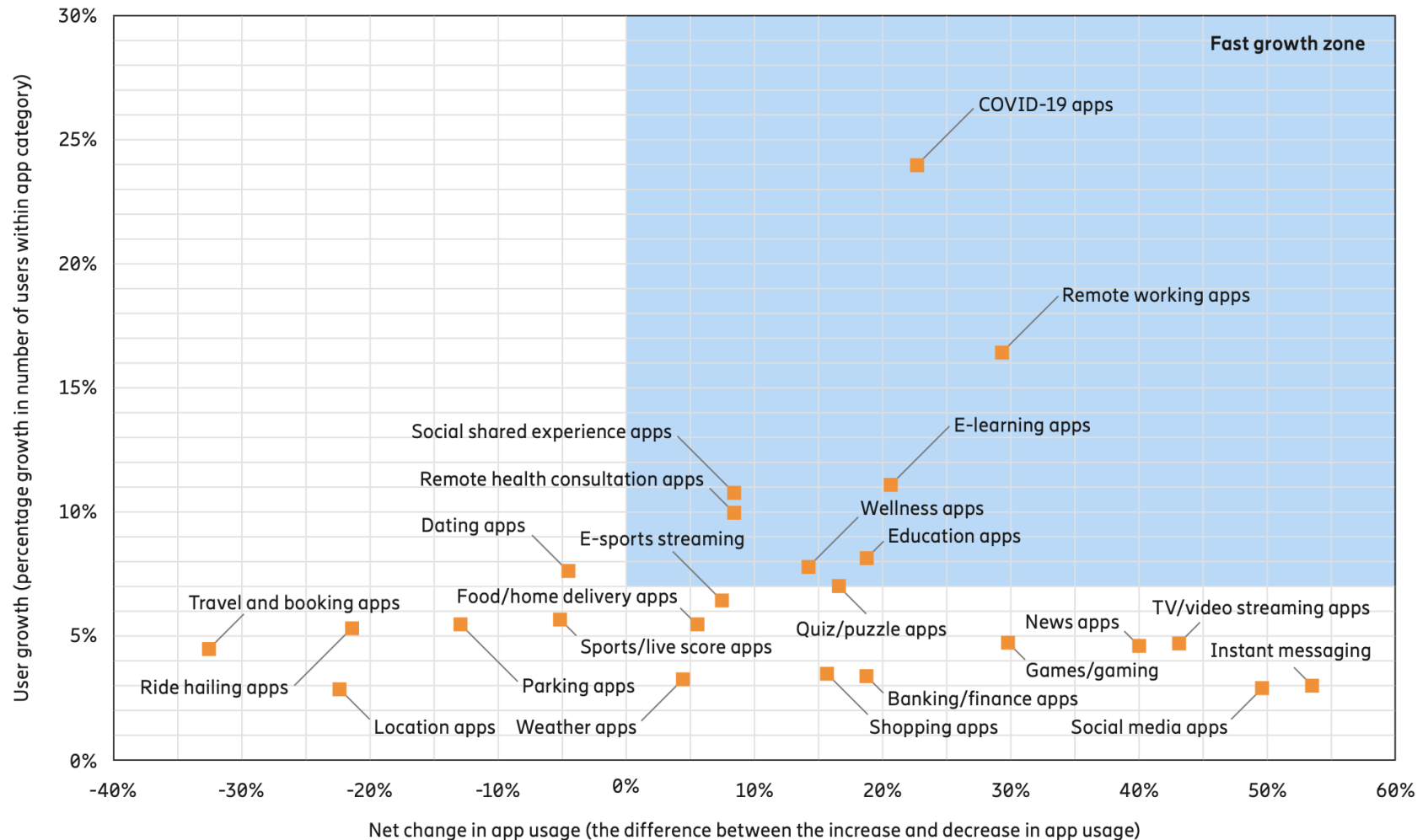
- Augmented reality, Maps, ...

- **Health**

- Fitbit, Apple health kit, Google Fit, ...

Impact of Mobile Computing











Figure 4: Smartphone apps – user growth and net change in usage during COVID-19 lockdown restrictions



Impact of Mobile Computing

Examples of AI driven mobile applications

The top 10 AI mobile apps have already pulled in over \$14 million this year

Rank		App Name	Company Name
1		Genie - AI Chatbot	AppNation
2		AI Chat - Chatbot AI Assistant	Social Media Apps & Games
3		Pixelcut AI Photo Editor	Pixelcut
4		AI Chatbot - Open Chat Writer	Vulcan Labs
5		Apo - AI Personal Assistant	Vulcan Labs
6		Chat AI Bot- Writing Assistant	AppTesun
7		ChatOn - AI Chatbot Assistant	AIBY
8		AI Chat - Ask Anything	tappz
9		Chat AI - Ask Anything	ElevenThirteen LLC
10		GoatChat	Adaptive Plus

Key AI Uses in Mobile Apps (ideas)

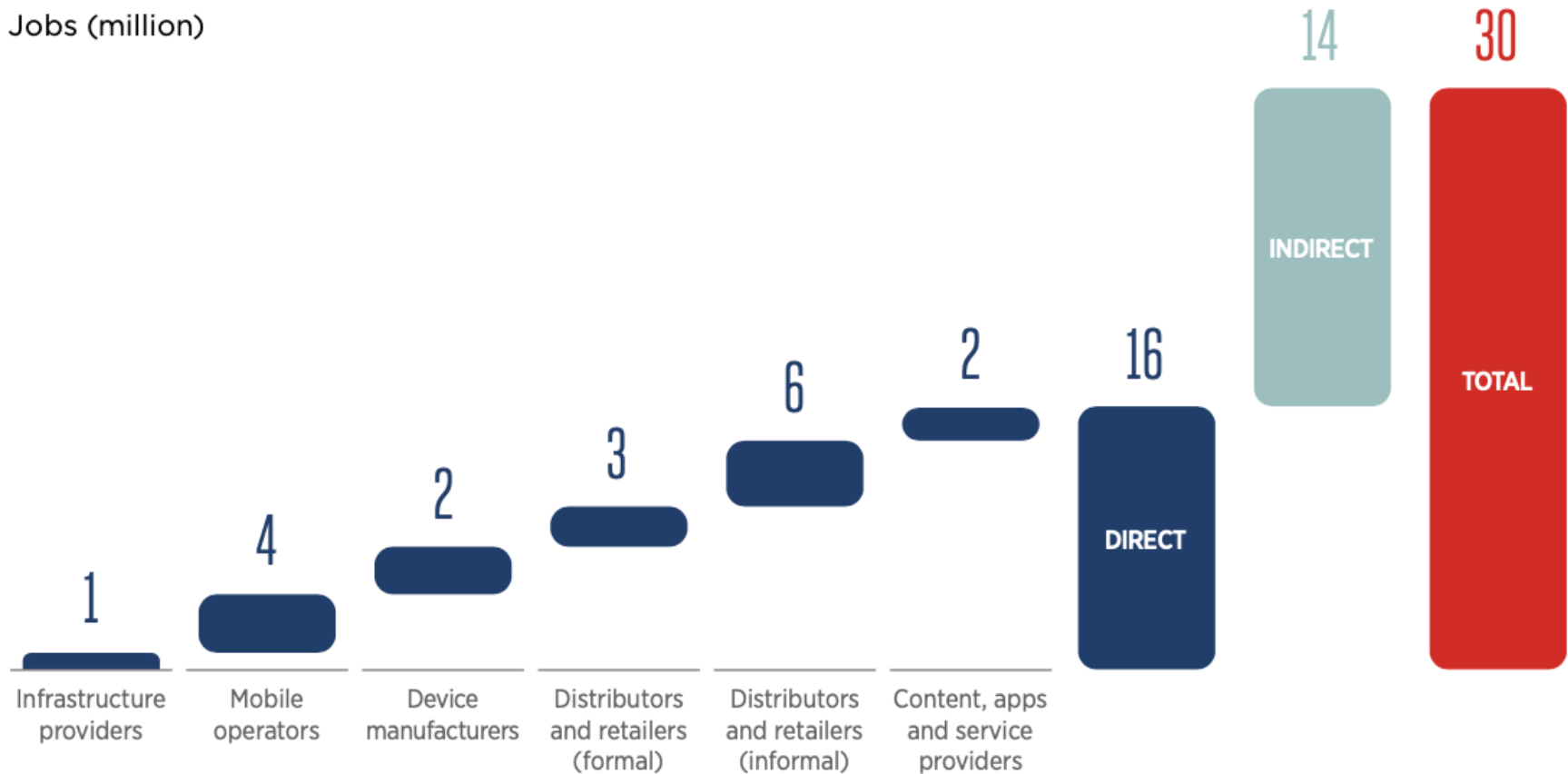
Mobile app market is highly saturated. Thus, standing out is imperative. With AI, you can do precisely that.

- Chat Automation
 - Intelligent tools that help automate the process of responding to customer queries with the help of natural language processing.
- Digital Assistance
 - Allow users to essentially communicate with the app without having to click around it
- Security
 - Processing big data at a high speed and detecting potential threats
- Object detection
 - Computer vision can identify objects, people, locations, and other relevant elements.
- Personalization
 - By continuously analyzing your user's behavior and identifying their unique preferences.

Employment Impact of mobile ecosystem

The global mobile ecosystem directly employs 16 million people, plus another 14 million indirectly through adjacent industries

Jobs (million)



The Mobile Economy 2020, GSM Association.

<https://www.gsma.com/mobileeconomy/>

Android Developer Salary in Australia (July, 2023) – SEEK

What can I earn as an Android Developer?

Annual salary

The average annual salary for Android Developer jobs in New South Wales ranges from **\$125,000** to **\$130,000**.



How does your salary compare?

Enter your annual salary

Location

Did you find this helpful?



Course Logistics

COMP5216/COMP4216

COMP5216/COMP4216
Week 01 - Introduction
Semester 2, 2023



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COMP5216/4216 – Course Description

“Mobile computing is becoming a **mainstream** for many IT applications, due to the availability of more and more powerful and affordable mobile devices with rich sensors such as cameras and GPS, which have already significantly changed many aspects in business, education, social network, health care, and entertainment in **our daily life**. Therefore it has been critical to equip students with sufficient knowledge of such new computing platform and necessary skills. The unit aims to provide an in-depth overview of existing and **emerging mobile computing techniques and applications**, the **eco-system** of the mobile computing platforms, and its key building components. The unit will also train students with hand-on experiences in developing mobile applications in a broad range of areas.”

Course Logistics

- Course Website
 - Canvas
 - COMP5216 [COMP5216 Mobile Computing \(sydney.edu.au\)](https://sydney.edu.au/COMP5216)
 - COMP4216 [COMP4216 Mobile Computing \(sydney.edu.au\)](https://sydney.edu.au/COMP4216)
- Lectures
 - Week 01 – 13: **Mondays 5:00pm to 7:00pm**
 - Refer to Canvas for schedules.
 - Recorded lectures will be made available.
- Labs/Tutorials
 - PRAC01, PRAC02, PRAC03- **Mondays 7:00pm to 8:00pm**
 - PRAC04, PRAC05, PRAC06- **Mondays 8:00pm to 9:00pm**
 - PRAC07, PRAC08 - **Tuesdays 6:00pm to 7:00pm**
 - **Refer to your timetable for the allocated tutorial room**
 - Android app development with Android Studio
 - Encouraged to experiment with an Android smartphone (if available)
 - **[Optional] Developed a set of Kotlin tutorials for you to practice at home. Labs will be conducted following Android tutorials.**

COMP5216/COMP4216 – Schedule -Tentative

Week	Lectures	Labs/Tutorials
1	Introduction	Android basics
2	Mobile App Development 1 – Basics	Handling Interactions
3	Mobile App Development 2 - Capabilities	Local data storage
4	Mobile App Development 3 - Challenges	Cloud service
5	Mobile Networking	Media access
6	Mobile Security & Privacy	AR/VR
7	Mobile Cloud & Energy	User management
8	Break	Break
9	Mobile Innovation: Beyond Smartphones	Access to sensors
10	Cross-platform app development	Location access
11	Industry Guest Lecture	App analytics and publishing
12	Demo Day	
13	Course Review	Exam Review

Schedule
may
Change

Assessment - Assignments

- **Two Assignments** along with the labs/tutorials

Task	Release	Due	Marks
Assignment 1	Week 2	Week 4	5%
Assignment 2	Week 5	Week 8	5%

- Each assignment contains app development exercises
- **Submissions:**
 - Submit all project files as one zipped file. Tutors will recompile your project for assessment.
 - Video of the screen capture demonstrating the actions/features that are required to be developed.

Assessment – Group Project

- Build a Mobile App
- Group size is 5 (I will confirm the group size on Week 2)
- Project guidelines will be released on Week 2

Task	Release	Due	Marks
Proposal	Week 2	Week 6	10%
Final (Report, Video, Demo, Presentation)	Week 2	Week 12	30%

- Groups will be created and linked to tutorial classes in Canvas.
 - Try to join to a group linked to your tutorial.
 - Change of tutorial class will be approved if there is enough space.
- **Try to solve a real-world problem that you have**
- Two project help-desk sessions during the semester
- Start thinking now !

Assessment – Final Exam

- **Online final exam**
- Exam type: Take-home short release
- Exams are set up on exam-specific Canvas site
- Exams are taken synchronously during the formal exam period

Task	Due	Marks
Project	Week 6, 12	40%
Assignments (2)	Week 4, 8	10%
Final Exam	Formal Exam Period	50%

- To **Pass** this course, you must
 - Score at **least 50% overall**, and
 - Score at **least 40% in the final exam**

Special Consideration

- In case of **Illness** or **Misadventure**
 - You can apply for special consideration
- The first thing you do should be
 - **Let the coordinator know** (best by email and while still sick)
 - **Submit your assignment**
- Follow proper bureaucratic procedures
 - Have professional practitioner sign special USyd form
 - Submit application for special consideration online, upload scans
 - Note you have only a quite short deadline for applying
- No special consideration for missing out a few days or being on holiday etc.
 - Take the responsibility of your time management
- University Policy:
http://sydney.edu.au/current_students/special_consideration/index.shtml

Assessment - Late submission policy

- Suppose you hand in work after the deadline:
- If you have not been granted special consideration or arrangements
 - **A penalty of 5% of the maximum marks will be taken per day late.**
 - **After ten days, you will be awarded a mark of zero.**
- Warning: submission sites get very slow near deadlines
- Submit early; you can resubmit if there is time before the deadline

Academic Dishonesty & Plagiarism

- Academic Integrity
 - Plagiarism: NO
 - Outsourcing: NO
 - See more details on the course website in Assessment section
- “The University of Sydney is unequivocally opposed to, and intolerant of, plagiarism and academic dishonesty.”
 - Academic dishonesty means seeking to obtain or obtaining academic advantage for oneself or for others (including in the assessment or publication of work) by dishonest or unfair means.
 - Plagiarism means presenting another person’s work as one’s own work by presenting, copying or reproducing it without appropriate acknowledgement of the source.” [from site below]
- Submitted work is compared against other work (from students, the internet, etc)
 - Turnitin for textual tasks (through Canvas), other systems for code
- **Penalties for academic dishonesty or plagiarism can be severe**
- University Policy: <http://sydney.edu.au/elearning/student/EI/index.shtml>

Different levels/types of Academic Integrity practice

- Source:
 - Different types of **sources of help** are accepted for **different academic levels** (Junior, Intermediate, Senior, Postgraduate)
- Nature of Help:
 - Different types of help are accepted for **different types of assessment**.
- Two slides explaining “Source” and “Nature” of help allowed
- **You can adjust** the chart to suite the academic integrity requirement for your assessments.

Example 2: Intermediate/Senior level specialist UoS

Source of Help

Lecturer	Teaching Assistants / Tutors	Classmates	Private tutors	Online forums/ Online tutors	Students outside course/UoS	Hired coders Tutorial Company outside University	Relatives	Other
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- Individual assessment
- A student needs to gain an understanding of high level knowledge/skills
- A student needs to gain skills to find, evaluate and apply existing knowledge/solutions



Encouraged



Attribution required



Not acceptable



Ask Lecturer/Coordinator

Example 2: Intermediate/Senior level specialist UoS

Types of Help

Understanding General Concepts	Explained using similar material (not assignment)	Sharing approach/concept to derive assignment solution	Designing code/solution	Implementing code/solution
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- Individual assessment
- A student needs to gain an understanding of fundamental knowledge/skills
- It is important to master the knowledge/skills themselves
- Students are encourage to obtain help through relevant teaching material and practices



Encouraged



Attribution required



Not acceptable



Ask Lecturer/Coordinator

Self-test

- When is the first assessment work due?
- What do you do if you get sick during semester?
- What help can you use when answering assessments?
- How do you find out about assignment instructions?
- How do you submit your work?
- What is Turnitin?
- What language will you be coding in?

Mobile Ecosystem

COMP5216/COMP4216

Week 01 - Introduction

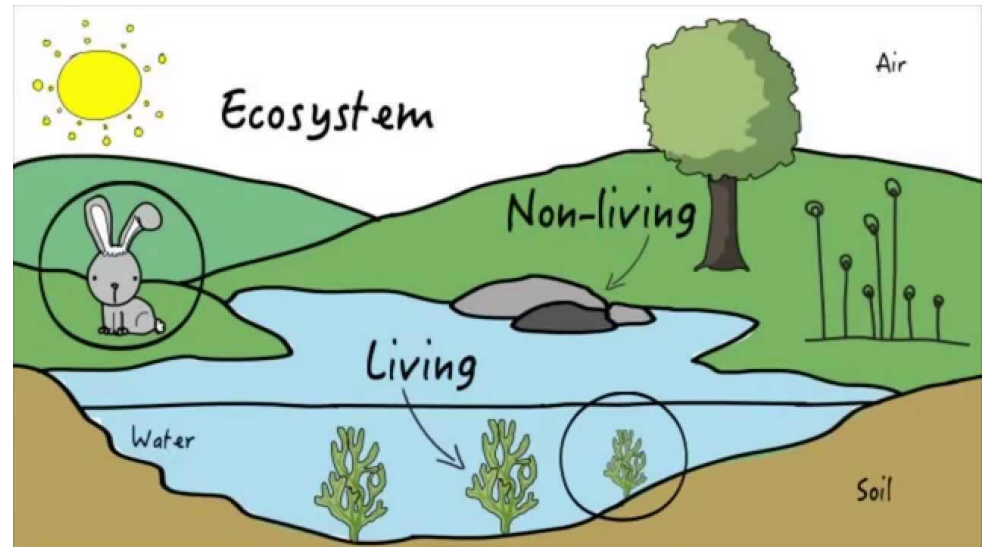
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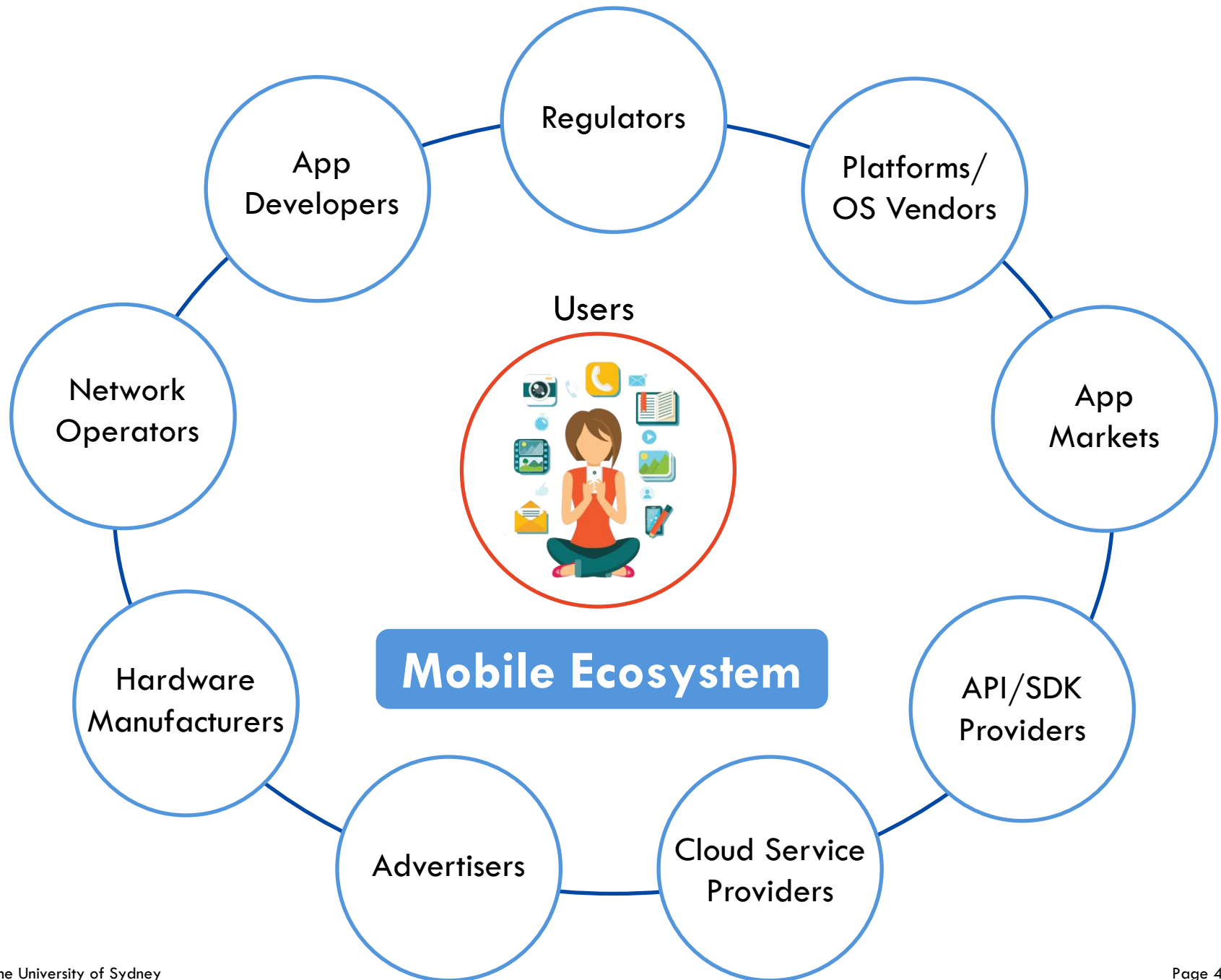


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Mobile Ecosystem

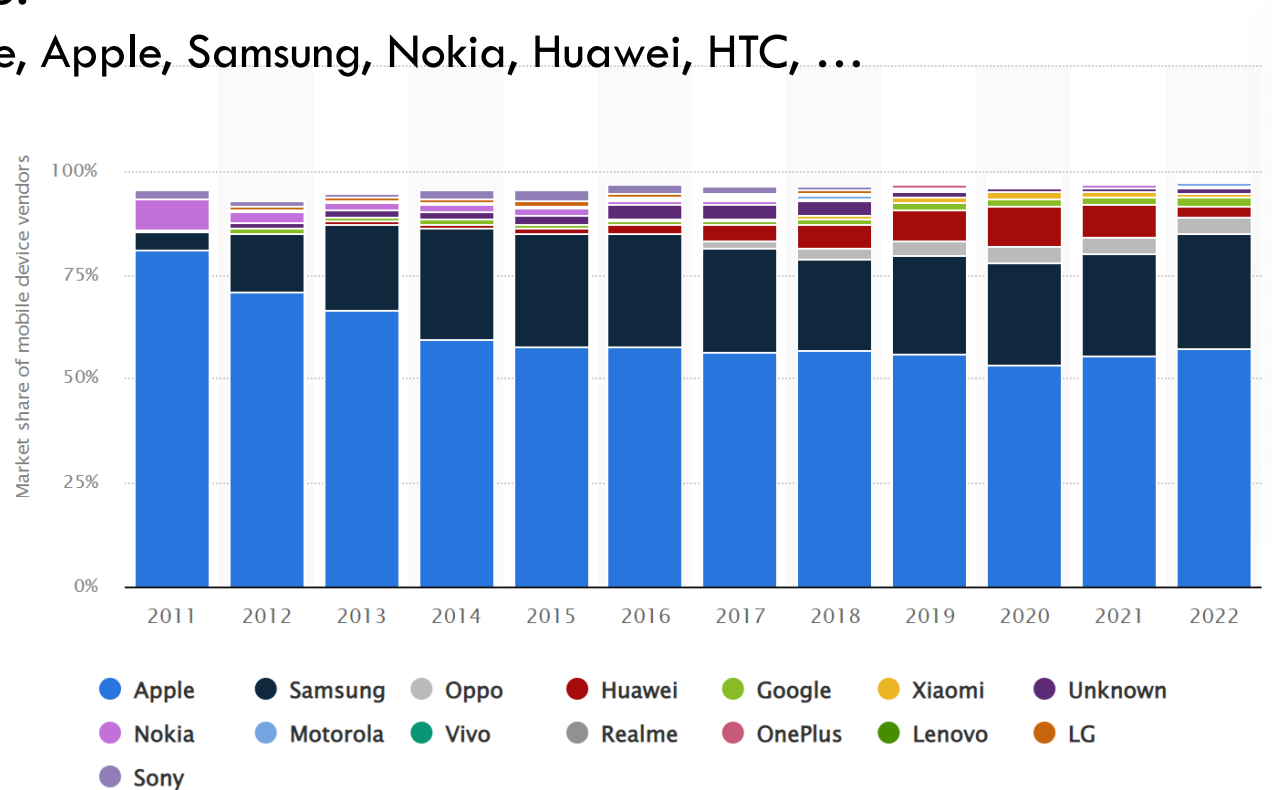
- Number stakeholders interact as a system to provide or consume hardware and software related to smartphones, each having different benefits (financial or non-financial).
- Example stakeholders,
 - Manufacturers
 - Distributors
 - Infrastructure providers
 - Advertisers
 - Users





Hardware Manufacturers

- Hardware:
 - Google, Apple, Samsung, Nokia, Huawei, HTC, ...



- Market share of mobile device vendors in Australia- <https://www.statista.com>

Platforms/OS Vendors





OS	Maintained By	OS Details	Hardware Vendors	Development Tools
Android	Google	Unix-like	Samsung HTC Motorola	Android Studio Eclipse Java
iOS	Apple	Unix-like	Apple	Xcode Swift (Used to be Object C)
Windows	Microsoft	Windows	Microsoft HTC (Nokia)	Visual Studio C#
Blackberry	RIM	Unix-like	RIM	Momentics IDE C/C++

Many other
small players



Smartphone platforms

	OS	Maintained By	OS Details	Hardware Vendors	Development Tools
	Android	Google	Unix-like	Samsung HTC Motorola	Android Studio Eclipse Java
	iOS	Apple	Unix-like	Apple	Xcode Swift (Used to be Object C)

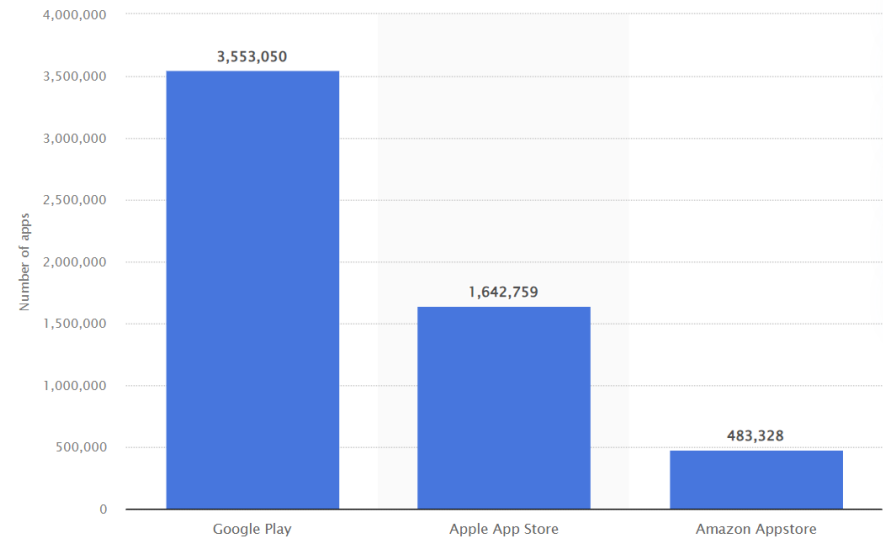
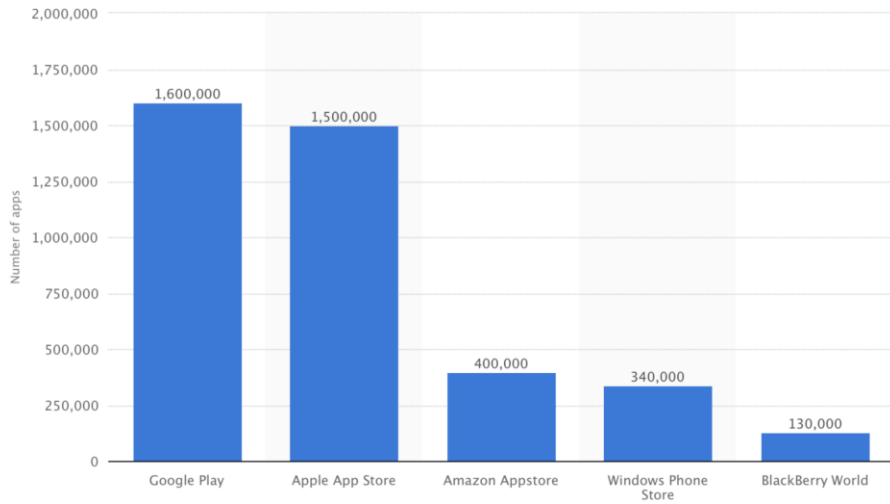
 Windows Phone

	Windows	Microsoft	Windows	Microsoft HTC (Nokia)	Visual Studio C#
	Blackberry	RIM	Unix-like	RIM	Momentics IDE C/C++

Many other
small players



App Markets



<https://www.statista.com>

Smartphone apps

- **Free:** Users can download and use these apps without any direct cost. However, most of the time these apps contain in-app advertisements.
- **Paid:** In the case of paid apps, users are required to make a payment before the app can be downloaded. Subscription based apps involve a recurring payment to get continuous access to the services offered.
- **Freemium:** These apps are offered for free as well. However, a user only has access to a limited set of features or levels of the app, and the rest is locked.

Third Party API/SDKs Providers

- Advertising (Provides In-App advertisements)



- Analytics (Collect data from users for analytics)



- Bug Tracking (Assist developers identify problems/bugs)



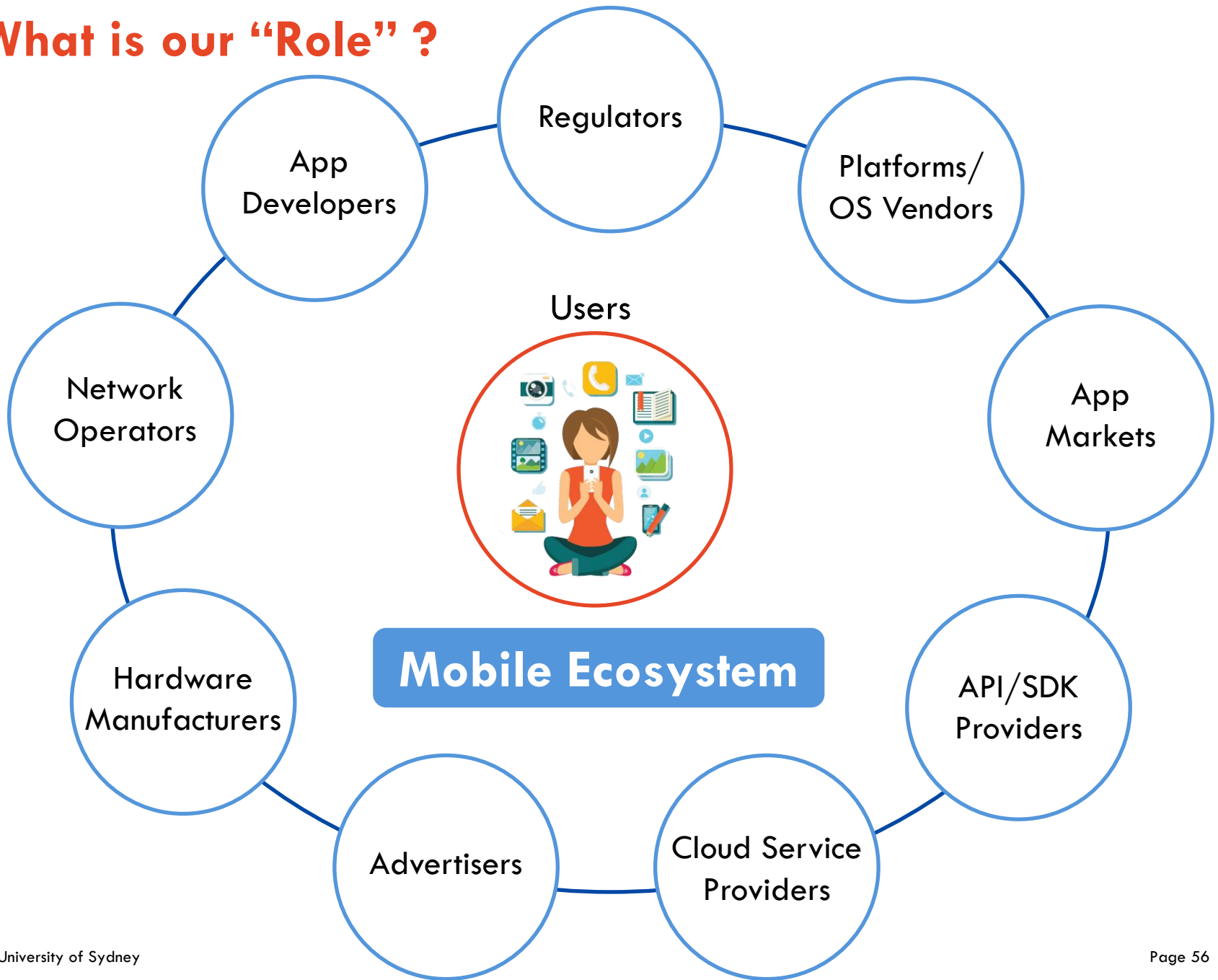
- Payments (Provides capabilities to support in-app purchases)



Regulators

- Government Regulations
 - Australian Consumer Rights
 - <https://www.accc.gov.au/consumers/consumer-rights-guarantees>
 - EU General Data Protection Regulation (GDPR)
 - <https://www.eugdpr.org>
 - NIST – National Institute of Standards and Technology
 - <https://www.nist.gov>
- Industry standards
 - ISO standards, IEEE standards
- Human ethics
 - USYD Research Ethics and Integrity
 - <https://intranet.sydney.edu.au/research-support/ethics-integrity/human-ethics.html>

What is our “Role” ?



What is your “Role” ?

As students of COMP5216/COMP4216

COMP5216/COMP4216

Week 01 - Introduction

Semester 2, 2023



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What is our “Role” ?

As students of COMP5216

Role: Uncovering the true potential of mobile devices

→ Mobile Computing (App developers)



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

- Does computer programming limited to Computer Science students ?
- **Mobile Computing is becoming a commodity**
- Mobile computing is for everyone !

Expectations

- **COMP5216 is not a programming course.**
- Pre-requisites
 - Knowledge in a high-level programming language
 - Android programming is based on JAVA
 - Many books in the university library
 - External resources
 - <https://itunes.apple.com/us/itunes-u/introduction-to-programming/id548675644>
 - <https://www.udemy.com/java-tutorial/>
 - <https://itunes.apple.com/us/course/introduction-to-java/id551000192>
 - Kotlin Resources
 - <https://developer.android.com/courses/pathways/android-basics-kotlin-one>
- To understand **Concepts and Principles**
- To be skillful in **Programming**
- To practice **Problem Solving**
- To be **Creative**

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

- 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**







Get Help...!

- Consultation
 - 4:00pm on Mondays, or by appointment
- **Know your Tutors !**
 - **Teaching Assistant:** Kshitiz Bhargava kbha5940@uni.sydney.edu.au
 - **Tutors:**
 - PRAC1, PRAC5 (Lab 114) - Kshitiz Bhargava kbha5940@uni.sydney.edu.au
 - PRAC2 (Lab 130B), PRAC6 (Lab 117)- Iwan Budiman - iwan.budiman@sydney.edu.au
 - PRAC3, PRAC4 (Lab 115) – Yanlong Li yali8838@uni.sydney.edu.au
 - PRAC7, PRAC8 (Lab 226)- Tuesday - Kshitiz Bhargava kbha5940@uni.sydney.edu.au
- Separate Ed discussion forums for each tutorial
 - Get help for tutorial/programming matters from tutors
 - [COMP5216 – Ed Discussion \(edstem.org\)](https://edstem.org/COMP5216/)
 - [COMP4216 – Ed Discussion \(edstem.org\)](https://edstem.org/COMP4216/)
- **Programming/Project help-desk sessions during the semester !**

What's Next ?

- Labs/Tutorials starts at Monday 7:00pm and Tuesday 6:00pm
- Tutorial 1 – Android Basics
 - Programming environment setup
 - “Hello World” Android app
- Metacognition
 - Pay attention to the learning outcomes in Canvas
 - Self-check that you are achieving each one
 - Think how each assessment task relates to these
- Time management
 - Watch the due dates
 - Start work early, submit early
- Networking and community-formation
 - Make friends and discuss ideas with them
 - Know your tutor, lecturer, coordinator
 - Keep them informed, especially if you fall behind
 - Don't wait to get help !
- Enjoy the learning!