Mobile Application Development

Introduction to the course

LTAT.06.021

Fall 2022
Agenda

1. **Organizational** matters
   - Topics covered
   - Grading, deadline policies
   - How lectures & labs, communication take place

2. Introduction to the **Android** platform
Jakob Mass

- Junior Lecturer / PhD Student @ Mobile & Cloud Lab since 2016
- Helping teach Mobile Development courses since 2014
- Interested in Android development, BPM, Real-time Data integration- and visualization for IoT
Poll

You & mobile (development)?

https://pollev.com/atipoll3410
Course Outline
Outline of topics

● **Android Development**
  ○ UI & UX
  ○ Kotlin
  ○ State & Data management
  ○ Architectural patterns, testing
  ○ External APIs and libraries (REST APIs, Google Maps, Firebase Storage, ...)

● **iOS**
  ○ Introduction

● **Cross-platform Mobile development**
  ○ Flutter, React Native

● Guest lectures from Industry

● Preparing a mobile project for release

● Team Projects
Kissing Students

Kissing Students (Estonian: Sündlevad tudengid) is a sculpture and fountain in Raekoja plats, Tartu, Estonia. The structure is located in front of Town Hall Square. The structure is one of the most recognized symbols of Tartu. [1]
Who is this course for?

A student who...

- Has programming skills
  - Object-Oriented Programming (OOP)
  - (Previous Java experience will be handy)
- Is comfortable trying out different languages, frameworks
  - Kotlin, Swift, Dart, JavaScript
- Is capable of finding additional learning material on their own
  - Lectures, labs will provide links and references to get you going
- Has a laptop (and Android device*)
  - *not necessary if your laptop isn’t ancient
How will the course take place?

- **Weekly lectures**
  - Recorded, Streamed - Panopto and/or Zoom

- **Weekly labs**
  - Work on your own laptops (emulator), phones

- **Homeworks & Mini projects**
  - Homeworks - 1 week deadline tasks
  - Mini projects - 2-3 week deadline tasks, some with partner

- **Final Team project**
  - Plan your own idea, pitch, implement and present it

- *No Exam*
Poll - Your infrastructure

https://pollev.com/atipoll3410
Grade breakdown

- **Homeworks** - 6 x 5 pts  
  - 1 week deadline  
  - Total: 30 pts
- **Mini-projects** - 2 x 15 pts  
  - 2 week deadline  
  - Total: 30 pts
- **Tests** - 2 x 5 pts  
  - Total: 10 pts
- **Team projects**  
  - Last few weeks, in 3-4 persons  
  - Total: 30 pts
- **Bonus points (up to 10)**
Grading Policy

● Submit homeworks by 23:59 on the given deadline
  ○ Submission on courses.cs.ut.ee
  ○ Ideally, finish before lab session

● Late submission penalties:
  ○ Up to 1 week late:
    ■ Lose 10% every day, down till 50%
  ○ More than 1 week late:
    ■ you get 0 pts for that task
  ○ Example:
    ■ 2 days late - you lose 20% points,
    ■ 6 days late - you lose 50% points
    ■ 8 days late - you get no points
Passing the course

To pass, need to:

- Score at least 50% in BOTH of the 2 sub-categories:
  1. Homeworks & Mini-projects
  2. Tests
- And your total points (after the project) must be above 50 pts
- Generally, participation not mandatory for lectures/labs, **but project involves mandatory presentations (during lecture time)**
Submission of tasks

● We will use the course webpage submission system
  ○ https://courses.cs.ut.ee/2022/MAD/fall
● Team Project will be submitted with a VCS (e.g. GitHub)

Always aim to provide comments and clarifications for own assumptions made, materials referenced
Communication & Online/Remote Learning

- Lectures and labs take place in Delta
- Sessions will be recorded and uploaded to Panopto
  - We aim to also provide livestreams for lectures
- We will use **Slack** for daily communication
  - Asking for help online related to labs, tasks, lectures etc
  - Organizing into teams
  - Quick announcements
  - Etc
Getting information

- **Course webpage**
  - [https://courses.cs.ut.ee/2022/MAD/fall](https://courses.cs.ut.ee/2022/MAD/fall)
  - Links to slide pdfs, videos, homework descriptions

- **Search online**
  - To complete assignments, independent searching for material is assumed!
    - Aim to include references in source code comments
  - [https://developer.android.com/](https://developer.android.com/) -- you will use this a lot during the first weeks of the course
Dealing with problems & getting help

● Ask lecturers / lab instructors
  ○ In person, on Slack or via e-mail:
    ■ Jakob Mass - jakob.mass(at)ut.ee
    ■ Ulrich Norbisrath - ulno(at)ulno.net

● Write & check on Slack
  ○ Maybe somebody already dealt with a similar issue. If not, write about the issue so others may help you!
Questions?

Is the organization of the course clear?
About us: ulno (you’ll know)

**UL**rich **NO**rbisrath (ulno.net)

Educator/Consultant/Mentor
Researcher/Inventor/Maker/Artist
YouTuber (youtube.ulno.net)
→ Geek

Globalist (Living, Teaching, Research)
   Estonia, USA, Germany, Austria, Kazakhstan, Singapore, Indonesia, Brazil

**Research:** VR/AR, Internet of Things, Software Craftsmanship,
   Pedagogy/Andragogy, PhD: Home Automation (RWTH Aachen)
This week

● 1st labs take place on Wednesday
● Bring your laptop!
● Download & Install Android Studio and Emulator before the lab!
● Follow the guide here:
  ○ https://courses.cs.ut.ee/2021/MCIoT/fall/Main/SettingUpAndroidStudio