

# Mobile Application Development

(Course Introduction)

Instructor: Thanh Binh Nguyen

February 1st, 2020



**“The future of mobile is the future of online. It is how people access online content now.”**

– David Murphy, Founder and Editor of [Mobile Marketing Daily](#)

# General Information



- Instructor: Ph.D. Thanh Binh Nguyen
  - Email: [binhnt@uit.edu.vn](mailto:binhnt@uit.edu.vn)
  - Website: <https://islab.uit.edu.vn/>
- Credit: 3 (3 lectures)
- Course Duration: 11 weeks
- Course Code: CS 4153
- Prerequisites: CS 2133

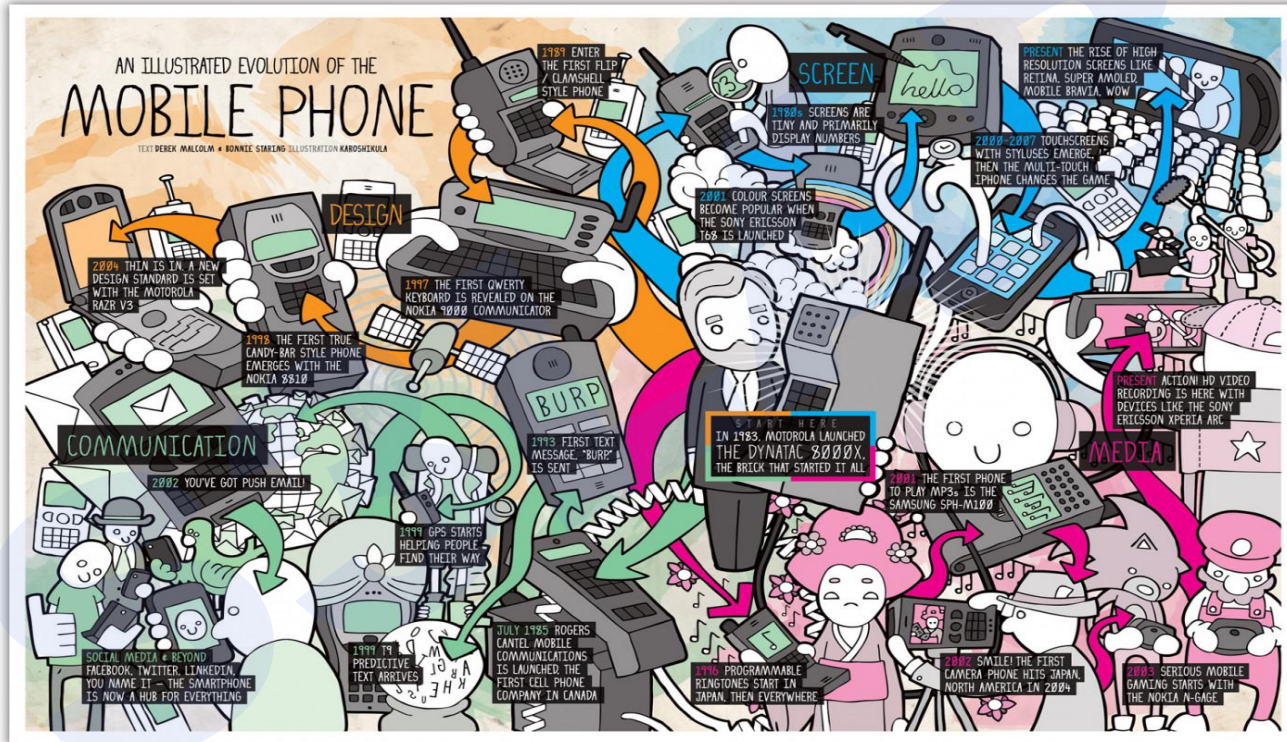
# Student Assessment



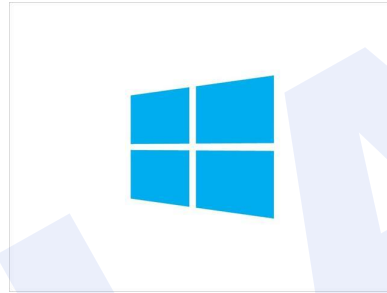
- Final Examination (QUIZ): 50% - 5 / 10
- Assignments, projects, and class attendance: 50% - 5 / 10
  - Attendance, Attitude and Assignments: 1 / 10
  - 1 Final Project (included presentations, 2 students per group): 4 / 10
- **Note:**
  - Be dishonest during the studying: 0 - Failed
  - English is the recommended language in the class
  - Maximum absent time per semester is 6 hours



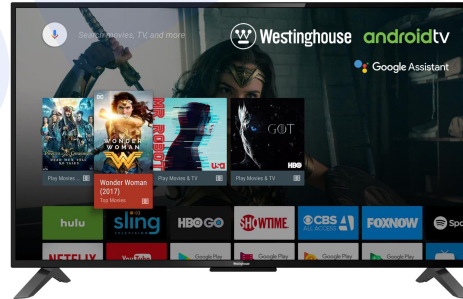
# Objectives



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# Objectives





# Contents



- 1<sup>st</sup> Week: about the course & mobile application
  - Course introduction
    - Overview
    - Student Assessment
    - Course Contents
    - Materials
  - Understanding of Mobile Application
    - Why study this course?
    - Something we need to know
    - Approaches to build a mobile application
    - 10 important things for success

# Contents

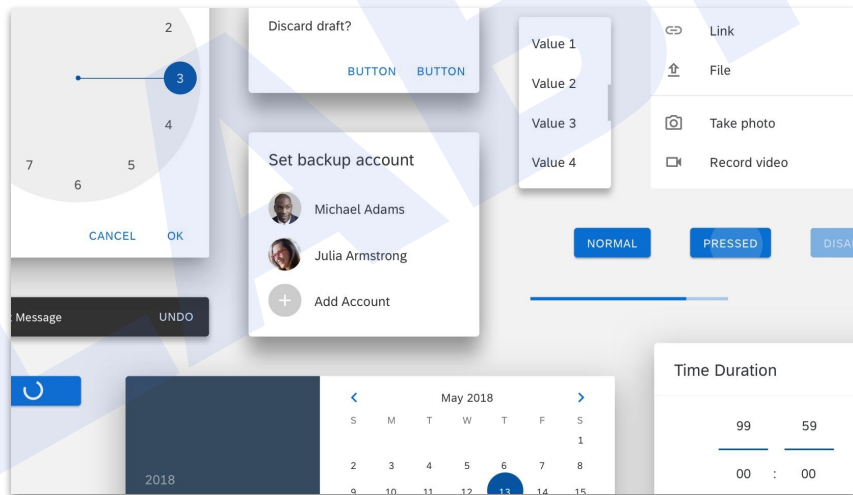


- 2<sup>nd</sup> Week: android & development
  - Android OS, SDK
    - Architecture
    - Versioning
    - Application Development
  - IDE (Android Studio)
  - Create the first Android Application
  - **Homeworks**

# Contents

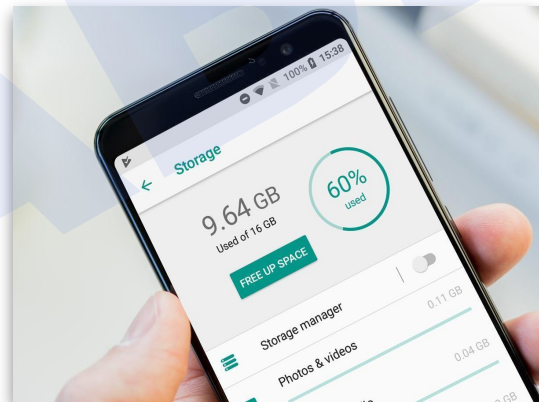
- 3<sup>rd</sup> Week: GUI

- GUI on Android
- Activity
- Fragment
- Intent
- GUI Controls
  - Views
  - Group Views
  - XML Layout and Code
- Media & Resources
- **Homeworks**



# Contents

- 4<sup>th</sup> Week: android data storage
  - Shared Preferences
  - Internal Storage
  - External Storage
  - SQLite Databases
  - Network Connection
  - **Homeworks**



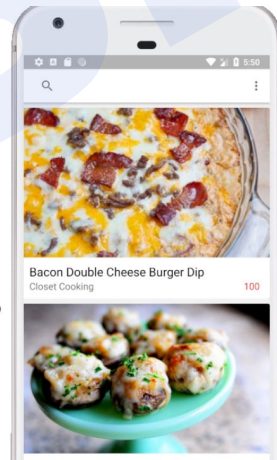


# Contents

- 5<sup>th</sup> Week: restful API
  - Introduction
  - Consume Restful API
    - Traditional Method
    - Using Retrofit 2
  - **Homeworks**

{ REST  
API }

Retrofit2



# Contents

- 6<sup>th</sup> Week: background Task
  - UI Thread
  - Service Notifications
  - Thread Management
  - Services
  - Broadcast Receiver
  - AsyncTask, AsyncTaskLoader
  - Timer
  - **Homeworks**



# Contents

- 7<sup>th</sup> Week: sensors & context-aware
  - Overview about sensors
  - Sensors in Android
  - Categories
  - Android Sensor Framework
  - **Homeworks**



# Contents

- 8<sup>th</sup> Week: advanced android programming
  - About OPENCV library
  - Native / C++
  - OPENCV on Android
  - Camera API
  - **Homeworks**





# Contents

- 9<sup>th</sup> Week: deploy mobile application
  - Cross platform programming
  - Google Play Store
  - Publish Application
- 10<sup>th</sup> and 11<sup>th</sup> Week:
  - Final project presentation
  - Evaluate, discuss about the projects
  - Suggest new ideas
  - Encourage the creativities



# How To



- Final Project (2 weeks)
  - Using the studied technologies to build a complete application:
    - Activity, Fragment
    - Background Thread
    - Restful API Call
    - Pagination
    - Sensors ...
  - Register:
    - Team, topic from second week.
    - Spend 30 minutes a week to discuss about student's project ideas
  - Student will receive bonuses for the new and innovative ideas.

# How To



- Final Examination
  - All the answers was included in lecture, homework and student's final project report.
  - The exam consists of 50 questions
  - Multiple-choice test: select 1 among 4 answer
  - Exam duration: 60 minutes
  - Student submit both exam questions and answers

# How To



- Homeworks
  - Almost all topics have homework
  - Exercises are the instructions for creating example programs. And the requirements to expand the program
  - The lecturer will randomly ask for a short demo at the start of each new lecture.



# Course's Keywords



## Mobile application development

**[Restful API] [Android] [Retrofit] [Mobile] [PWA] [Android Studio]  
[SQLite] [Mobile Client] [Google Play Store] [Sensors] [Activity]  
[Broadcast Receiver] [Service] [Fragment] [Mobile UI/UX] [OPENCV]  
[Native/C++] [Android SDK] [Material Design] [...]**

# Books & Materials

- Lectures and resources



# Books & Materials



- Tools: Android Studio
- Books
  - Head First Android Development: A Brain-Friendly Guide - Dawn Griffiths & David Griffiths
  - Android Cookbook: Problems and Solutions for Android Developers – Ian F. Darwin
  - Practical Android: 14 Complete Projects on Advanced Techniques and Approaches - Mark Wickham

# Books & Materials



- Blogs and Others references
  - <https://developer.android.com/guide>
  - <https://codelabs.developers.google.com/android-training/>
  - [https://www.tutorialspoint.com/mobile\\_development\\_tutorials.htm](https://www.tutorialspoint.com/mobile_development_tutorials.htm)
  - <https://www.viralandroid.com/>
  - <https://www.vogella.com/tutorials/android.html>
  - <https://github.com/google-developer-training>

# Q & A



**Thank you for listening**

*"Coming together is a beginning;  
Keeping together is progress;  
Working together is success."  
- HENRY FORD*