ĐẠI HỌC BÁCH KHOA HÀ NỘI
VIỆN CÔNG NGHỆ THÔNG TIN VÀ TRUYỀN THÔNG

IT4785/IT4785E

Mobile Programming

Lecturer's information

- Tống Văn Vạn
- Faculty: Computer Engineering
- Email: vantv@soict.hust.edu.vn
- Research interests
  - Network Security
  - Traffic Fingerprinting
  - Vulnerability Detection
  - Network Management

Introduction

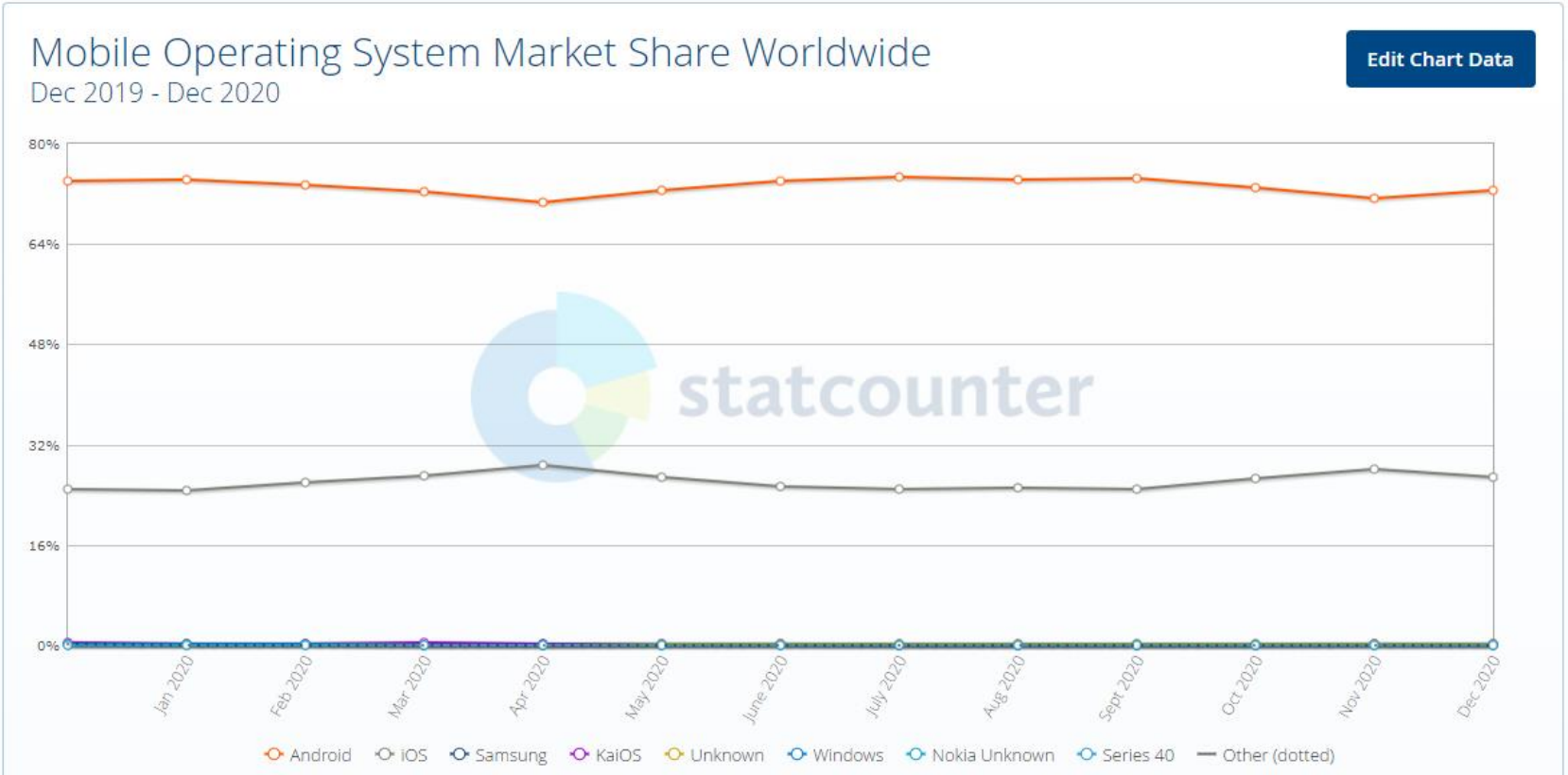
- Mobile platforms
  - Android
  - iOS
  - Windows: tablet versions
  - Tizen?
  - IoT devices

This subject focus on Android platform.

Why Android?

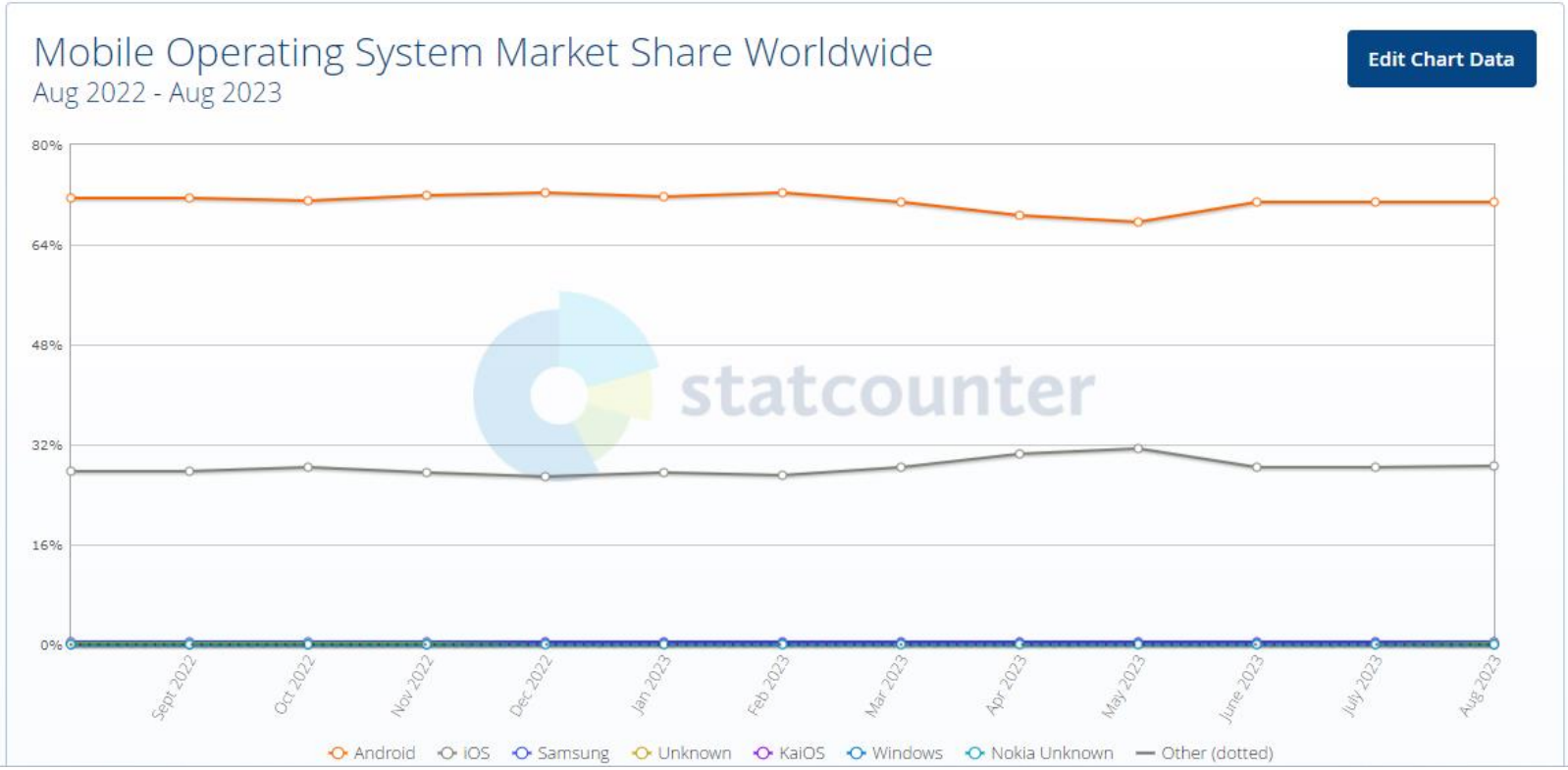
Android	iOS	Samsung	Unknown	KaiOS	Windows
72.48%	26.91%	0.23%	0.14%	0.13%	0.02%

Mobile Operating System Market Share Worldwide - December 2020



Why Android?


statcounter
GlobalStats
Press Releases
FAQ
About
Feedback
Android
70.77%
iOS
28.52%
Samsung
0.37%
Unknown
0.17%
KaiOS
0.1%
Windows
0.02%
Mobile Operating System Market Share Worldwide - August 2023


Mobile Operating System Market Share Worldwide
Aug 2022 - Aug 2023
Edit Chart Data
80%
64%
48%
32%
16%
0%
statcounter
Sept 2022
Oct 2022
Nov 2022
Dec 2022
Jan 2023
Feb 2023
Mar 2023
Apr 2023
May 2023
June 2023
July 2023
Aug 2023
Android
iOS
Samsung
Unknown
KaiOS
Windows
Nokia Unknown
Other (dotted)

Why Android

- The most popular platform
- Open source by Apache license
- Google stands behind
- Various devices
  - mobile
  - tablet
  - TV
  - IoT devices
  - Automotive technologies

Mobile programming

- Directions:
  - Native
  - Web-based
  - Multi-platform
    - Flutter
    - React native
    - Xamarin
    - Unity
    - …

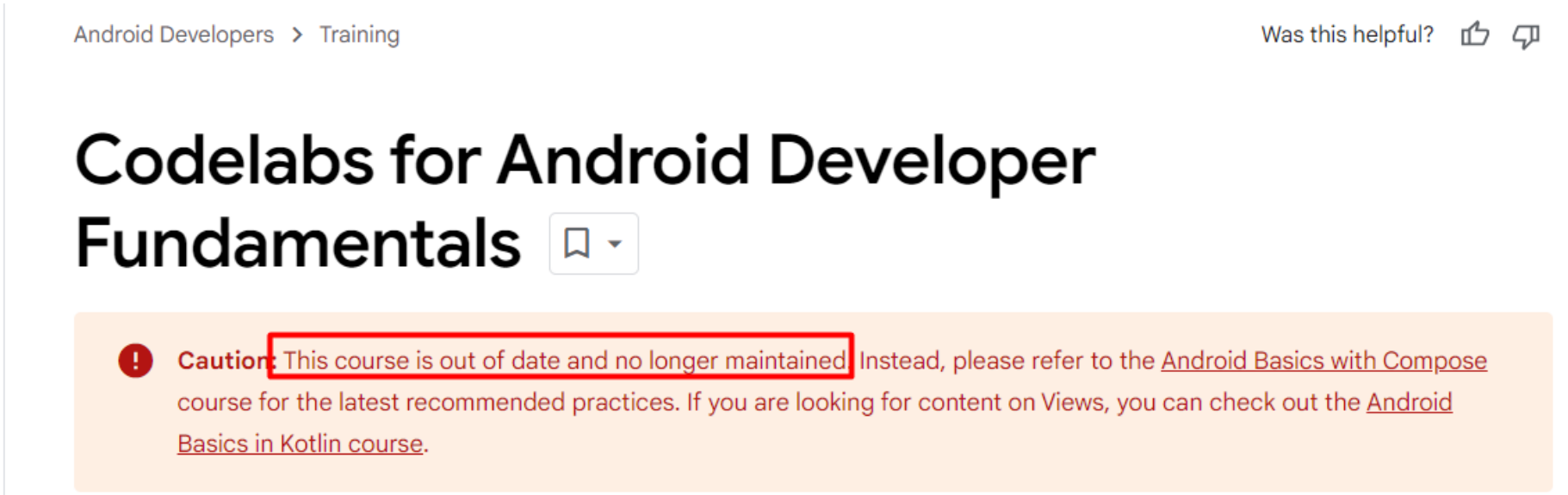
➡ This course will focus on native approach.

Why native approach?

- Learn not only language but also the platform
- Go deeper to OS layer, i.e., work with hardware devices
- Performance

Scope

- Android programming
- Focus on native programming
  - Java
  - Kotlin



References

- Android developer (google)
- Code lab for android developer
- Android programing tutorial
- Material documents in our TEAM

Some Android-based projects

Smart Locker

Smart Locker

Access control

VNeID


VNeID
TRUNG TÂM DỮ LIỆU
QUỐC GIA VỀ DÂN CƯ
CUNG CẤP CÁC TIỆN ÍCH
PHÁT TRIỂN CÔNG DÂN SỐ,
CHÍNH PHỦ SỐ, XÃ HỘI SỐ
Định danh mức 2
Trần Hoài Nam
Mã định danh điện tử
Thủ tục hành chính
An sinh xã hội
Phòng chống dịch
Dịch vụ khác
Welcome to Viet Nam
Tiện ích yêu thích
Bảo hiểm y tế
KBDC Nội địa
Truyền hình
CUNG CẤP CÁC TIỆN ÍCH
THAY THẾ CÁC GIẤY TỜ
TRUYỀN THỐNG
Mã định danh điện tử
Đăng ký xe
Thẻ CCCD
Bảo hiểm y tế
Thông tin cá nhân
Mã số thuế
Người phụ thuộc
Giấy phép lái xe
Bảo hiểm xã hội

Grading criteria

- Attend the class - mini quizzes
- Demo project (optional, bonus points)
- Mid-term (40%)
  - Mid-term = (average(mini quizzes/assignments) + mid-term exam)/2
- Final-term examination (60%)

Content

IT4785(E): 2-1-0-4

❖ 4 units with a total of 13 lessons across 13 weeks

Unit 1 (3 weeks)	Unit 2 (3 weeks)	Unit 3 (6 weeks)	Unit 4 (1 week)
Get Started with Kotlin Basics, Functions, Classes & Objects, Extensions	**Introduction to Android** First App, Layouts, Navigation	**Android App Architecture** App Architecture, Data Persistence, Display Lists, Connect to Internet, Background Work	**App Design** App UI Design

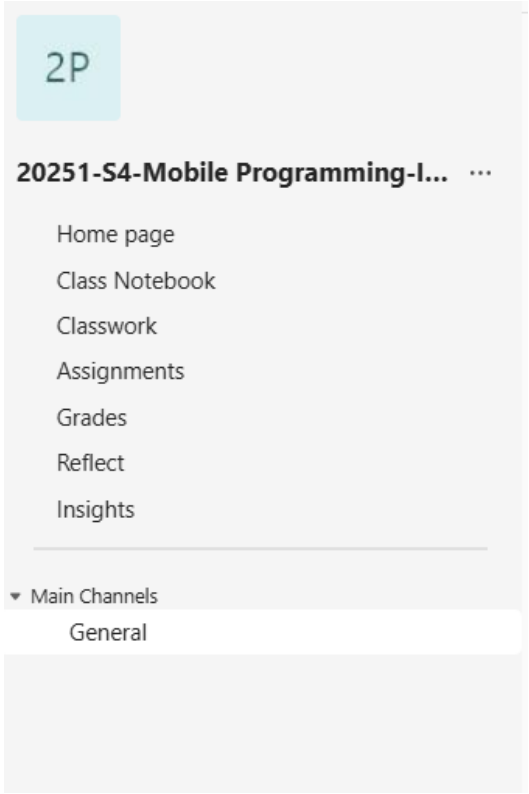
❖Extra units

- **Working with Native C**
- **Working with hardware peripherals**

Communication

❖ Teams code: tnimxxv

discussion and notification



❖ Google Form

code assignments

Format: Lx-StudentID-FullName.zip