BUSINESS, DESIGN, AND TECHNOLOGY PERSPECTIVES

MOBILE APPLICATION DEVELOPMENT

SESSION A - INTRODUCTION

Agenda:

- Introduction
  - Demo
  - Course Objectives
  - Course Structure
- Why Mobile Apps?
  - Major Technologies
  - Components of a Mobile App
- Frontend Structure
  - Frontend Architecture
  - Build Our First Page
  - Next Session

INTRODUCTION

- Tooraj Helmi
  - I am also a trojan! I have engineering degrees in CS, EE, IE, and MBA from USC
  - I also have a PhD Econ from Suffolk University in Boston
  - I have 17 years of experience in software development, architecture, and management
  - I am an entrepreneur, have founded one startups and have advised a few startups

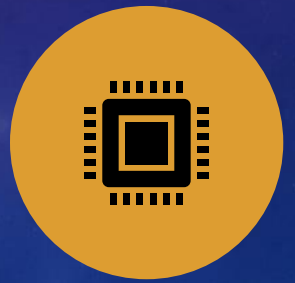
COURSE STRUCTURE

TAs, Graders, Office Hours

Class Format (Lecture, Classroom Discussions, Semester Overview,

Ask Questions!

Grading (Quizzes, Exams, Homework, Project)

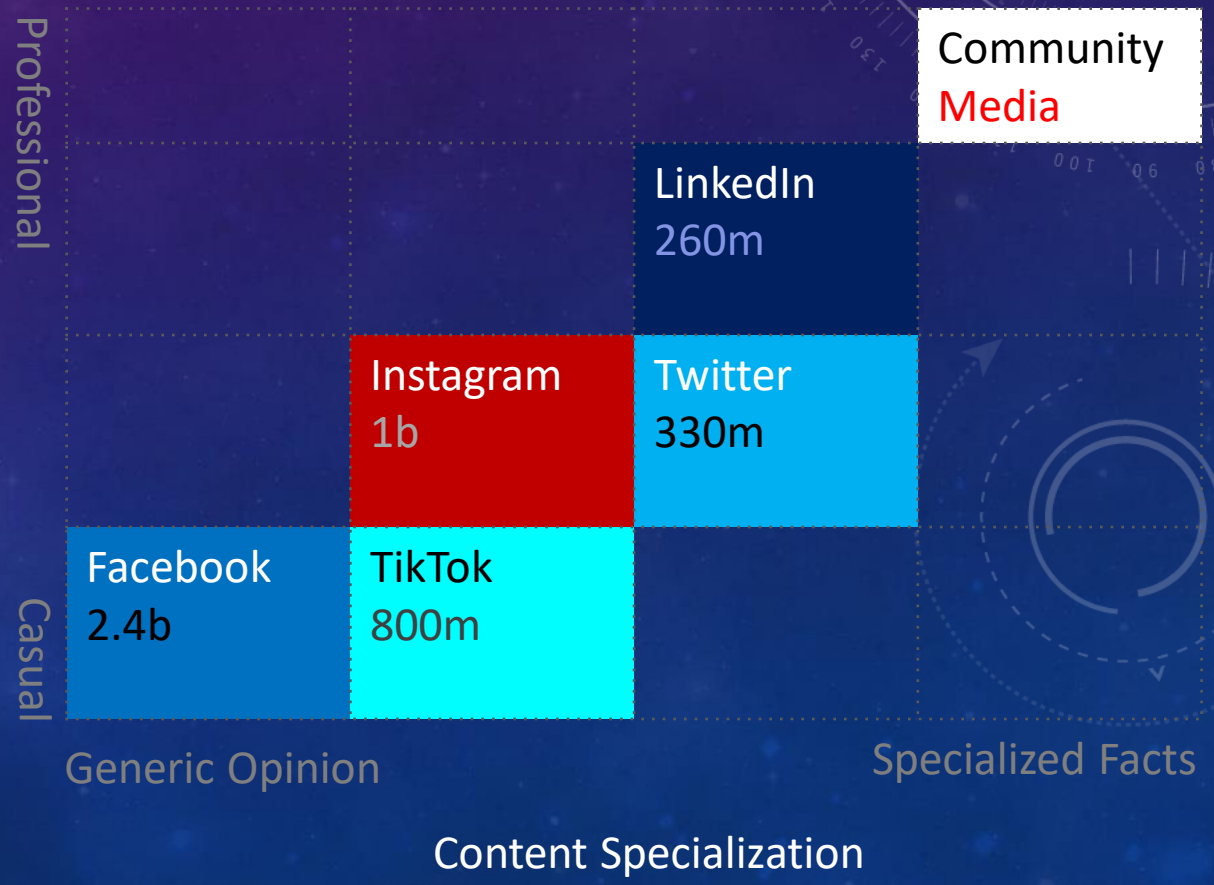


Requirements (Pre-reqs, You need to have a Mac)

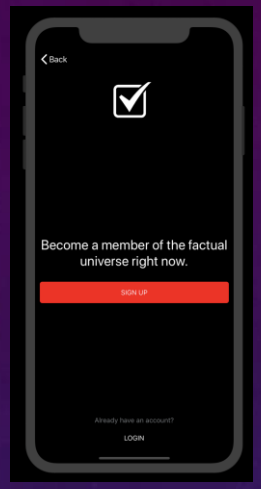
THE CLASSROOM PROJECT, COMMUNITYMEDIA: A COMMUNITY-BASED SOCIAL PLATFORM

- Problem: As a professional, I'd like to engage with other people to share ideas, have a dialogue on specific topics. Existing social media does not allow that.

- Solution: Community-media, people join specific communities like medicine, engineering, politics, art, … and share and see content specific to those communities.

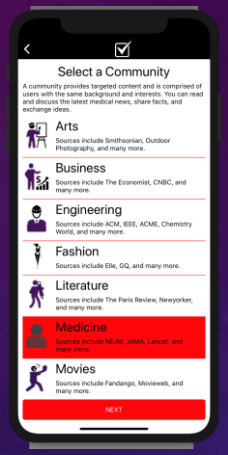


COMMUNITY-MEDIA WIREFRAMES



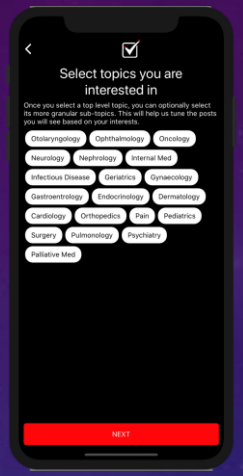
1

Users can sign up by providing a valid phone number.



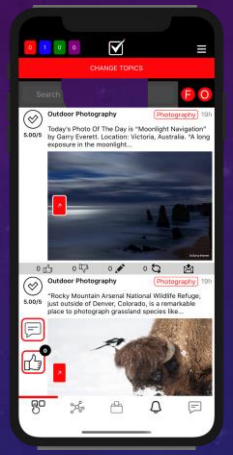
2

They can join one of the communities like medicine, technology, arts, politics, …



3

They can select a topics with that community

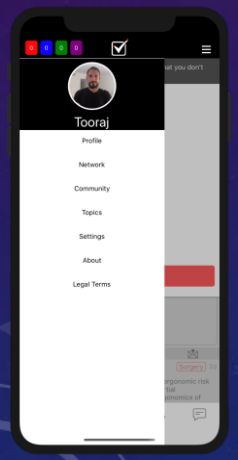


4

Once logged in they can see facts & opinion make by their connections or based on topics

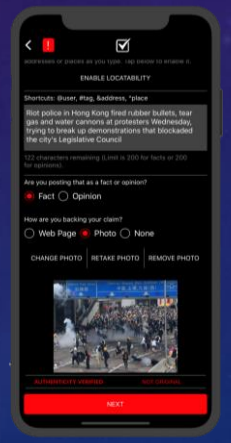
5

They can interact by poster by leaving a comment, debunk, share, or vouch for the post



6

Menu allows user to update profile, connections, settings, and interested topics



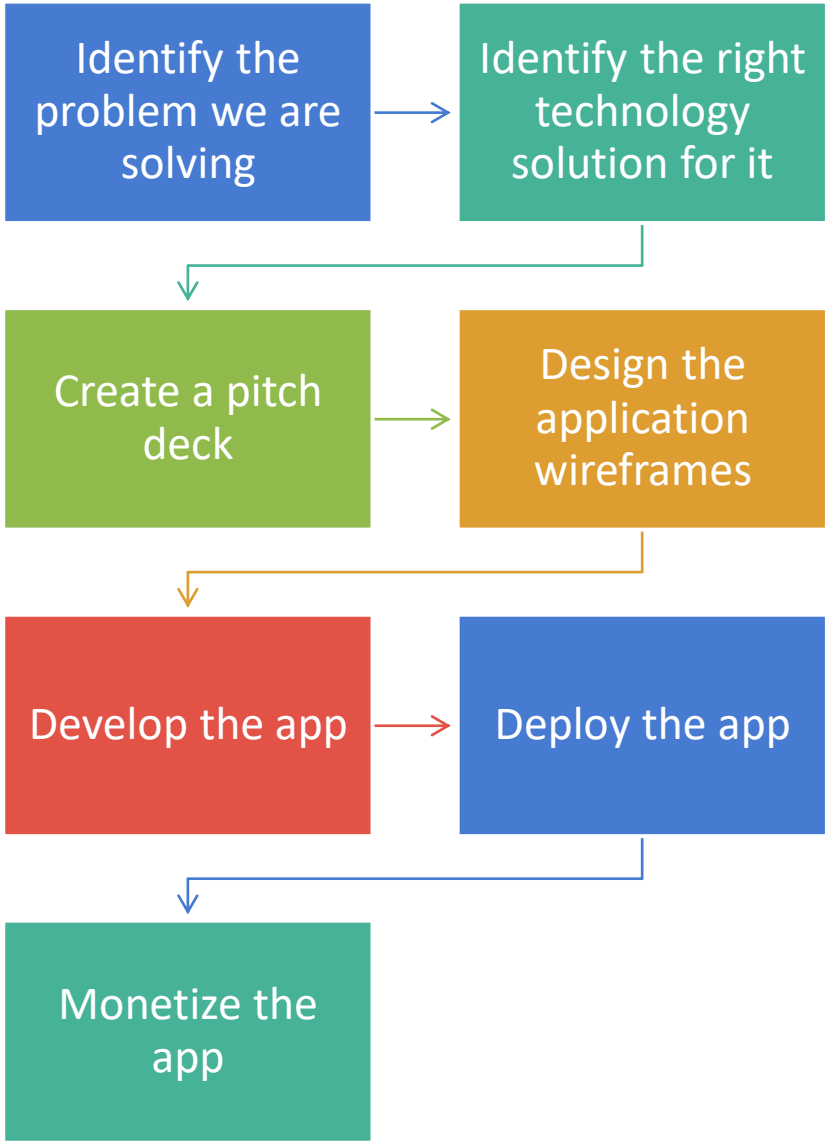
7

A claim can include specific auto-suggested tags based on users, addresses, places, and topics. It can be be backed by a web or a photo source. The source is fact-checked right-away using AI and if passes will go through a voting process.

8

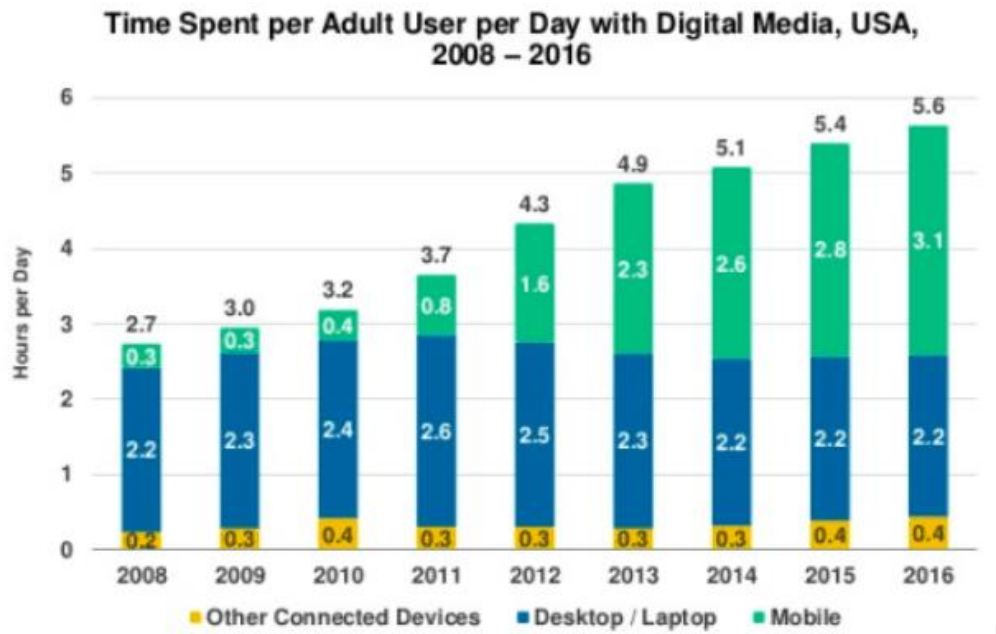
Users can see their posted facts and opinions on the home page. They can also see how their credibility score has changed over time

COURSE OBJECTIVES

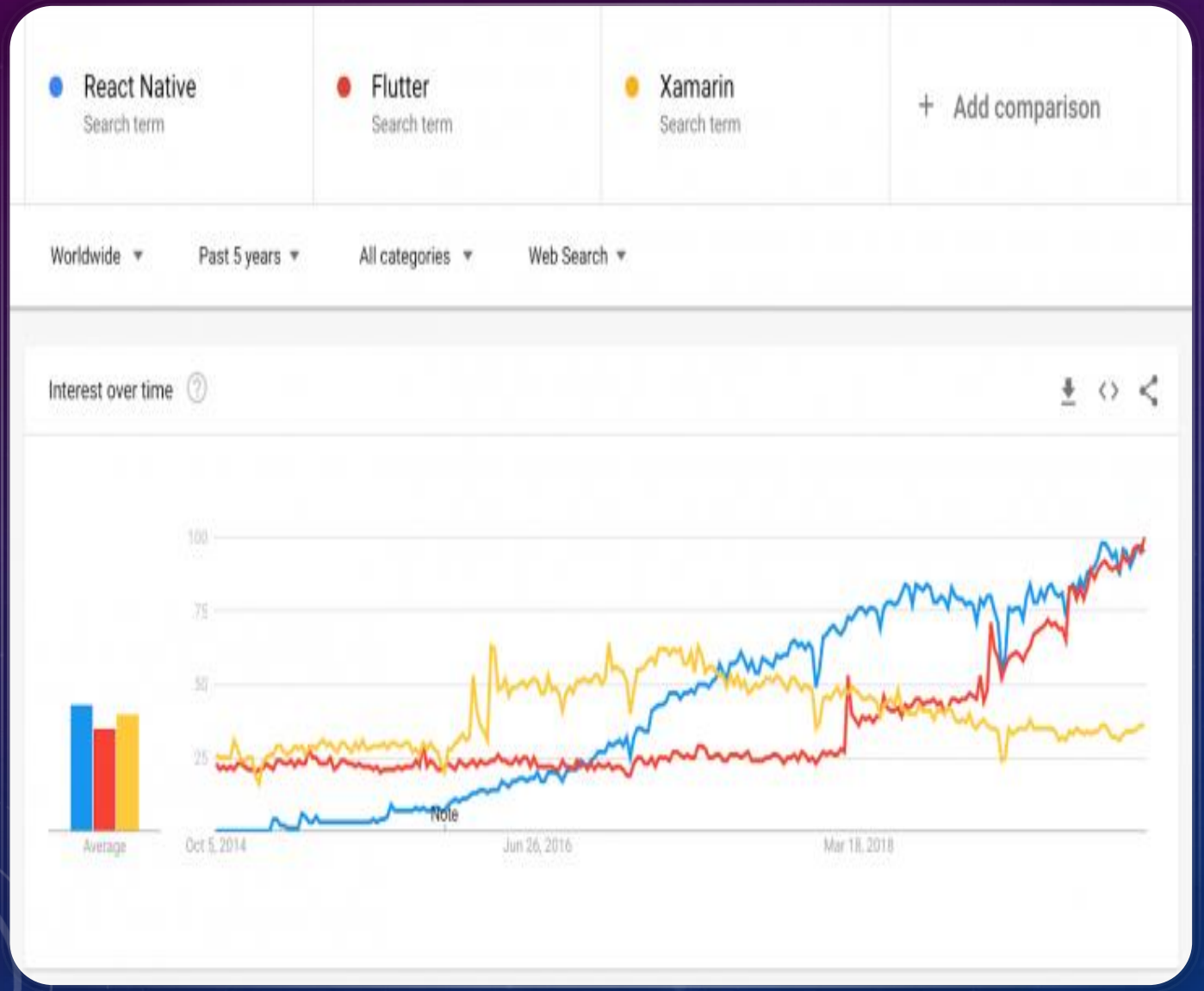


WHY DO WE CREATE MOBILE APPS?

2017 MARY MEEKER REPORT



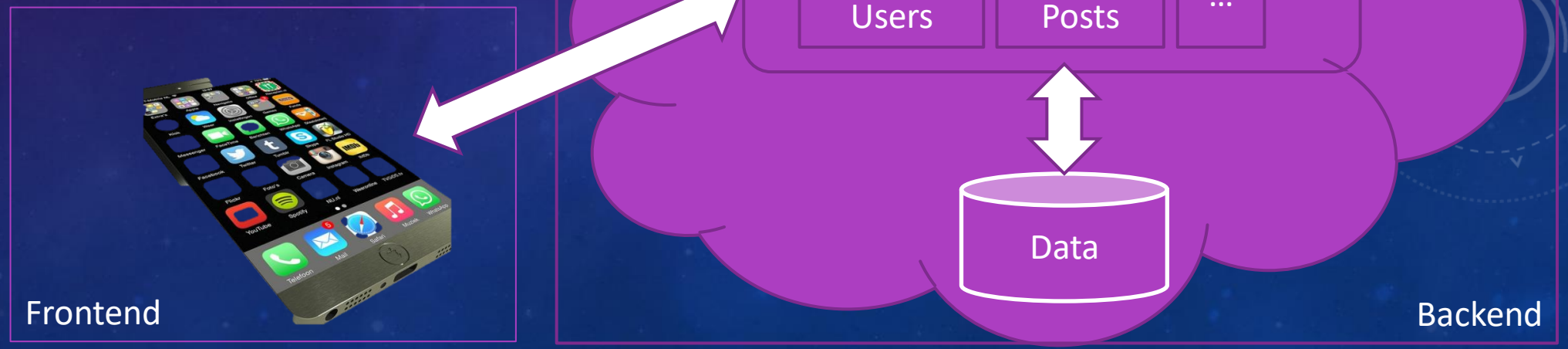
MAJOR TECHNOLOGIES USED FOR MOBILE DEVELOPMENT



- Native
  - iOS
  - Android
- Cross-platform
  - Xamarin (Microsoft), 2013
    - Easy to pickup, mature tooling, abundant 3rd party component providers, one language for everything (C#)
    - UPS, Alaska Airlines
  - React Native (Facebook), 2015
    - Is preferred if web is also required, requires different skillsets (JavaScript, CSS, Node.js), better integration with design tools like Sketch
    - Facebook, Instagram
  - Flutter (Google), 2017
    - Newer technology, less resources available on the web
    - Square, New York Times

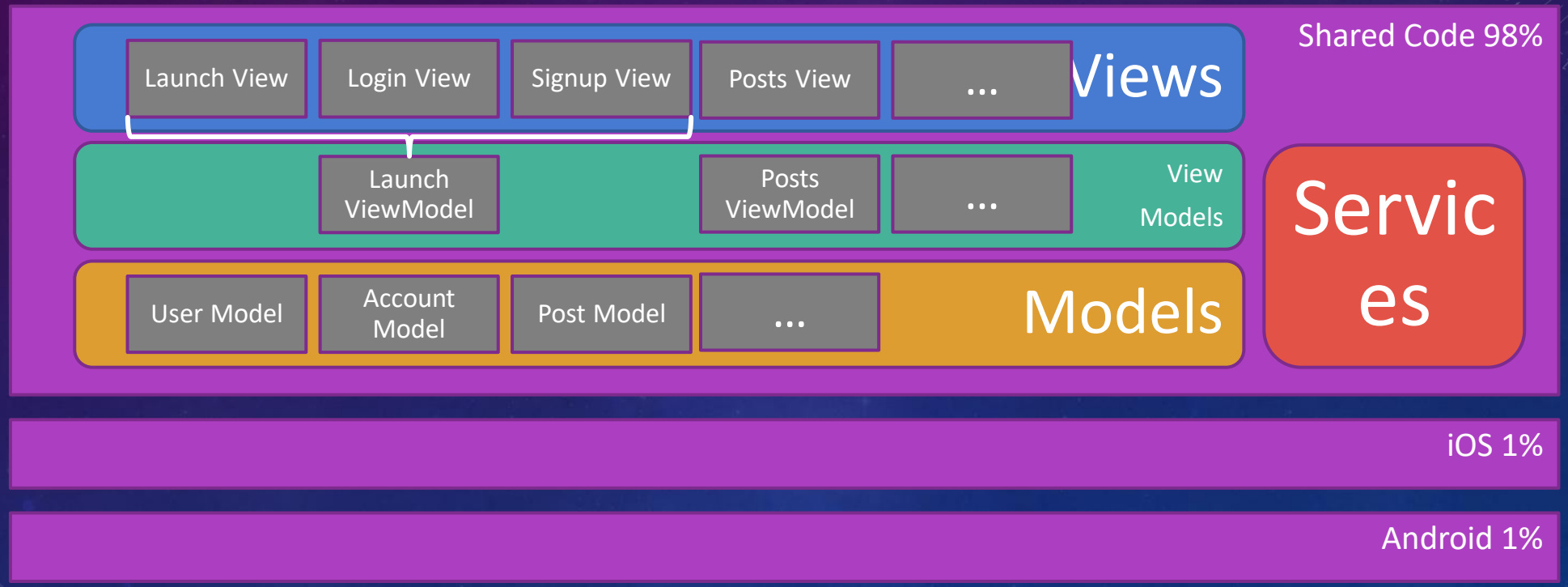
DIFFERENT COMPONENTS OF AN END-TO-END MOBILE APPLICATION

What is it?	Where is it?
Front-end - Interaction Logic - User Interface (UI)	Mobile
Back-end - Databases - API	Cloud

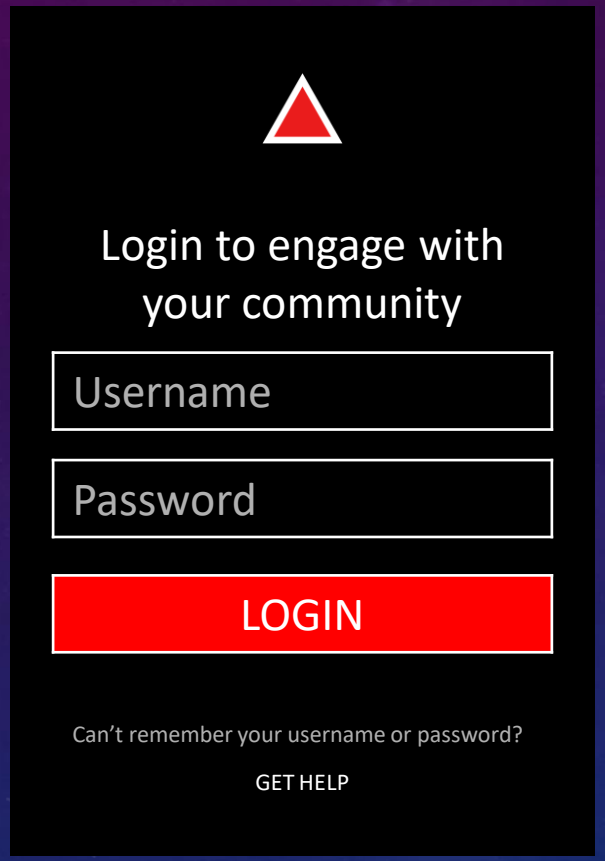


APP FRONT-END STRUCTURE

MVVM (MODEL-VIEW-VIEW MODEL) ARCHITECTURE



LET'S BUILD THE FIRST SCREEN



Classroom Coding A.1
Build the UI in Visual Studio
(30 Min)

PREP FOR THE NEXT SESSION

Join teams (4 person per team)

- TA will randomly select the team you will be part of

Homework: Select a problem you want to solve as a team

- Meet with your team and identify a problem you want to solve
- Write your problem – one paragraph
- What is your solution to that problem – one paragraph
- Do some research on what other solution exists that are like yours. Try to list 3 or more players with their website. Explain how your solution is different from those.
- Submit a page that includes all the information above
- Be ready to explain your problem for the entire class

Next session

- Pitch-deck structure
- Walk you through how to create wireframes for your app.
- More frontend topics: Defining UI Interactions, Creating ViewModels & Models

SESSION C2

BUILDING THE APP - FRONT-END FOUNDATIONS, UI INTERACTIONS

BUSINESS PITCH DECK

- Problem (Pain)
- Solution
- Market size and segmentation: # of users, $ user spending, demographic
- Go-to-market strategy: How to reach out to our customers and convince them to start using our solution
-  Competitive Analysis
- Business model: how do we make money
- Founding team: why this team is the perfect team to make this happen? How the team members know each other
- Financial prediction: Revenue, profit, LTV, CAC, …

SESSION C3

BUILDING THE APP - FRONT-END ADVANCED TOPICS: STYLING, NAVIGATION, ASYNCHRONOUS TASKS

PHASES IN APP DEVELOPMENT

SESSION D1

BUILDING THE APP - BACK-END FOUNDATIONS

SESSION D2

BUILDING THE APP - BACK-END ADVANCED

SESSION E

BUILDING THE APP END-T0-END

SESSION F

BUILDING THE APP - DEBUGGING TECHNIQUES

SESSION G

BUILDING THE APP - DEPLOYING THE APP FOR TESTING

SESSION H

BUILDING THE APP - PUBLISHING THE APP