The First CSAI Workshop

where innovation meets intelligence!

17 jul	9:00 - 9:30	Introduction to Mobile App Development	*Eng. Sarah Ahmed*
	9:30 - 10:30	Overview of iOS and Android Development Platforms	*Eng. Sarah Ahmed*
	10:30 - 12:30	Secure Programming in Python	*Eng. Omar Khaled*
	1:30 - 3:00	Introduction to Cloud Computing	*Dr. Mohamed Khamis*
18 jul	9:00 - 11:00	Regular Expressions Analysis using Python--Introductory and Intermediate	*Eng. Ahmed Salem*
	11:00 - 12:30	Competitive Programming	*Dr. Mohamed Abdel Wahab*
	1:30 - 2:00	Regular Expressions Analysis using Python-Advanced	*Eng. Ahmed Salem*
	2:00 - 2:30	Quiz Session	
	2:30 - 3:00	Workshop Conclusion and certificates distribution	

All sessions will be held in G6 at Zone B in the Academic building.

Workshop Schedule

The First CSAI Workshop

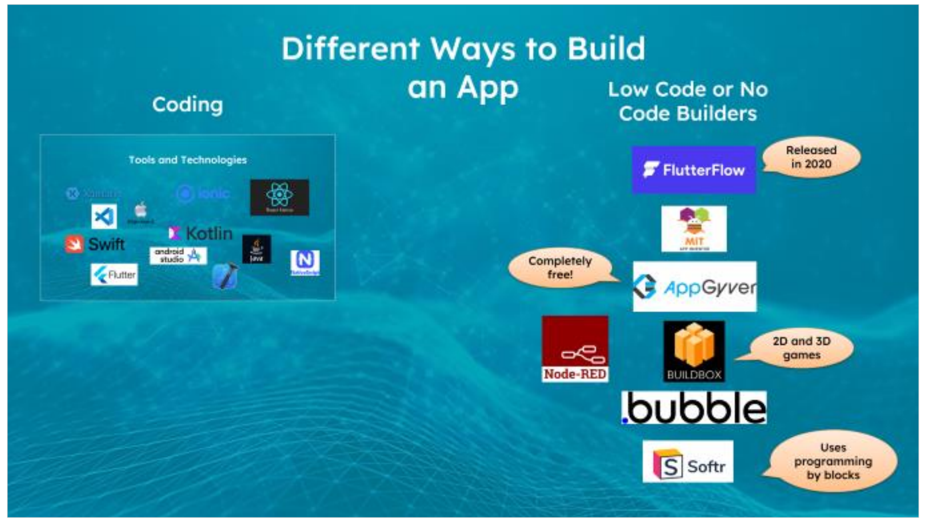
Intro to Mobile Development

Eng. Sara Ahmed

Computer Engineer,
Frontend developer,
Teaching Assistant at ZC
& Flutter enthusiast

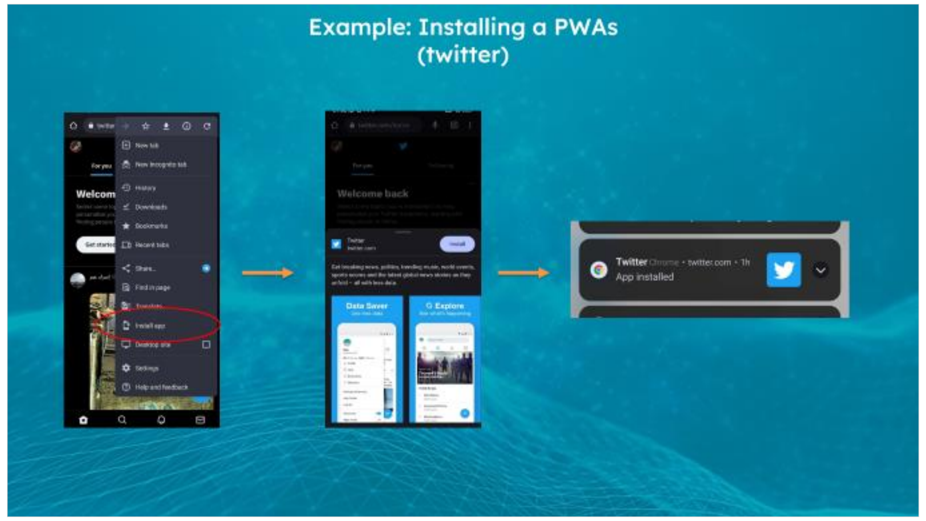
Session 1 Attendance

Overview

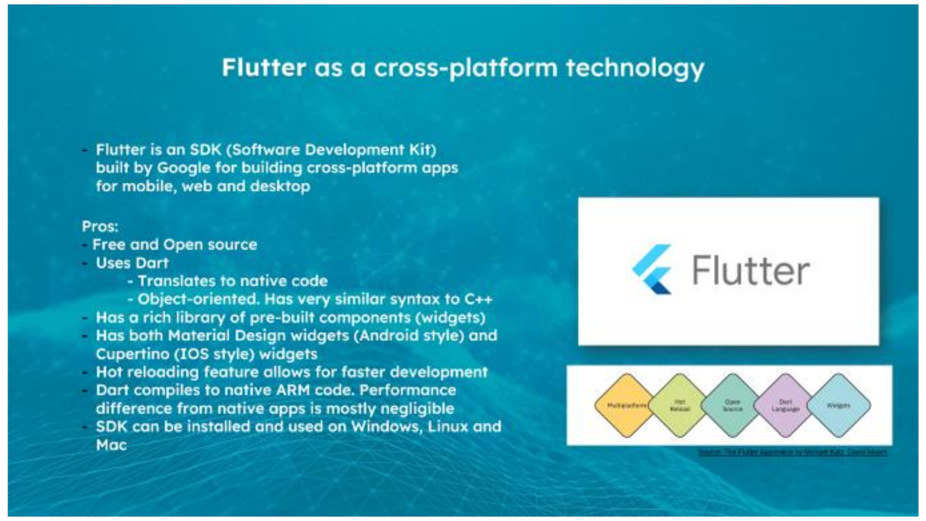


Different Ways to Build an App

Tools and Technologies



Example: Installing a PWAs (twitter)



Flutter as a cross-platform technology

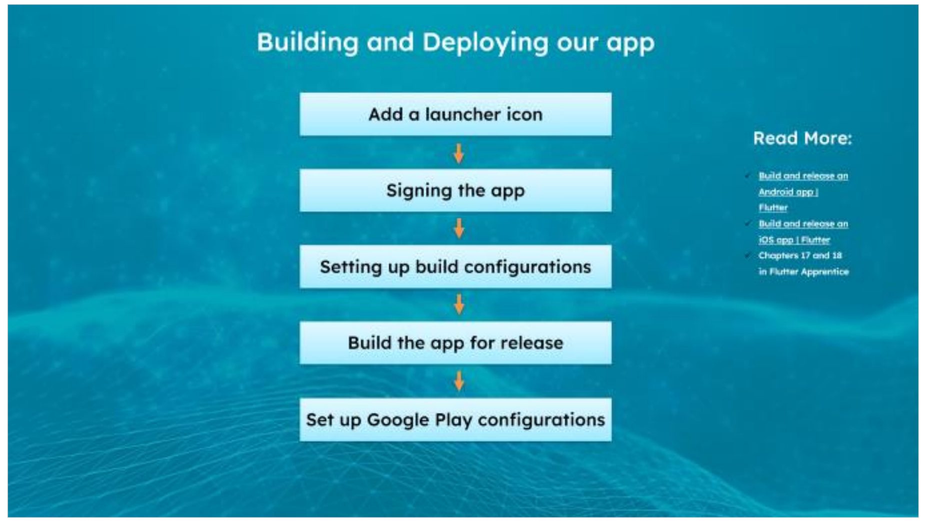
- Flutter is an SDK (Software Development Kit) built by Google for building cross-platform apps for mobile, web and desktop

Pros:

- Free and Open source
- Uses Dart
  - Translates to native code
  - Object-oriented. Has very similar syntax to C++
- Has a rich library of pre-built components (widgets)
- Has both Material Design widgets (Android style) and Cupertino (IOS style) widgets
- Hot reloading feature allows for faster development
- Dart compiles to native ARM code. Performance difference from native apps is mostly negligible
- SDK can be installed and used on Windows, Linux and Mac

Source: The Flutter Apprentice by Michael Katz, David Moore

Creating a Flutter Project



Building and Deploying our app

Add a launcher icon → Signing the app → Setting up build configurations → Build the app for release → Set up Google Play configurations

Read More:

- ✓ Build and release an Android app | Flutter
- ✓ Build and release an iOS app | Flutter
- ✓ Chapters 17 and 18 in Flutter Apprentice

Different Ways to Build an App

Coding

Tools and Technologies

Low Code or No Code Builders

FlutterFlow

Released in 2020

MIT APP INVENTOR

AppGyver

Completely free!

Node-RED

BUILDBOX

2D and 3D games

.bubble

Softr

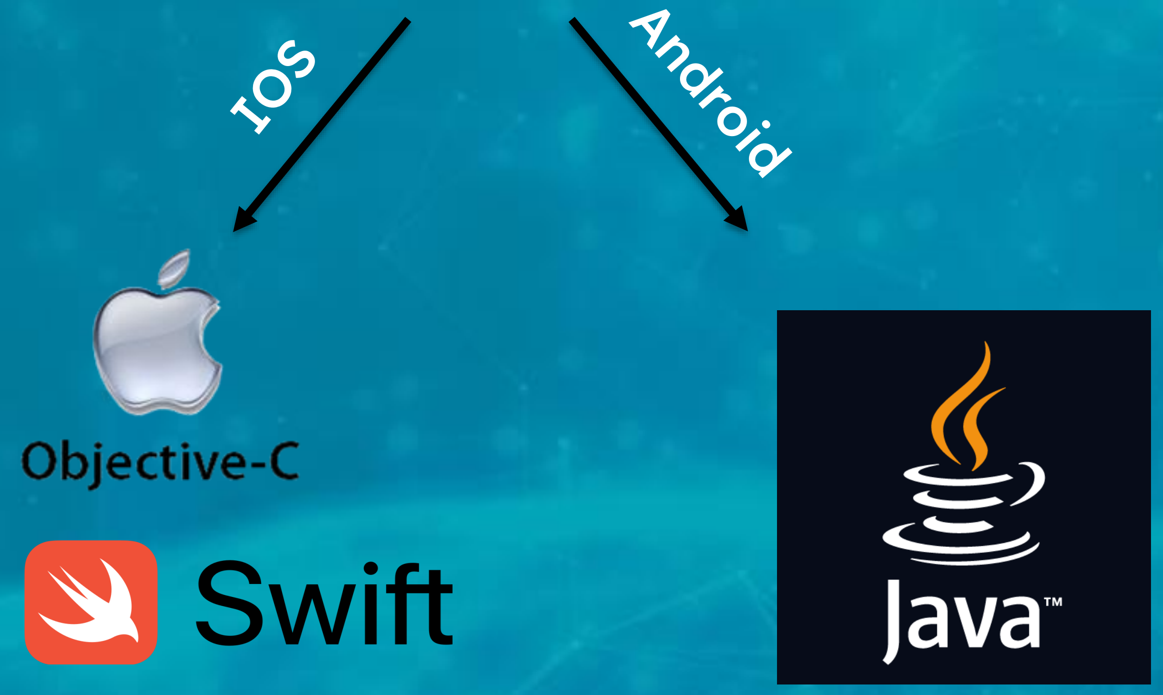
Uses programming by blocks

Tools and Technologies

Xamarin
ionic
React Native
Objective-C
Kotlin
Swift
android studio
Java™
NativeScript
Flutter

Tools and Technologies

Native



IOS

Android

Objective-C

Swift

Java™

Cross-Platform

- React Native
- NativeScript
- ionic
- Kotlin
- Xamarin
- Flutter

Different Ways to Build an App

Coding

Tools and Technologies

Xamarin
Objective-C
ionic
React Native
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Swift
android studio
Java
NativeScript
Flutter

Low Code or No Code Builders

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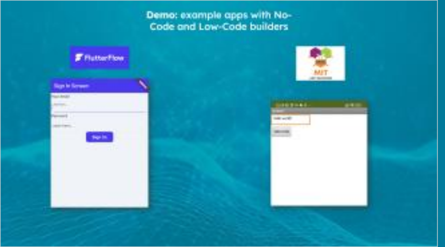

Demo: example apps with No-Code and Low-Code builders

MIT APP INVENTOR

Completely free!

AppGyver

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BUILDBOX

2D and 3D games

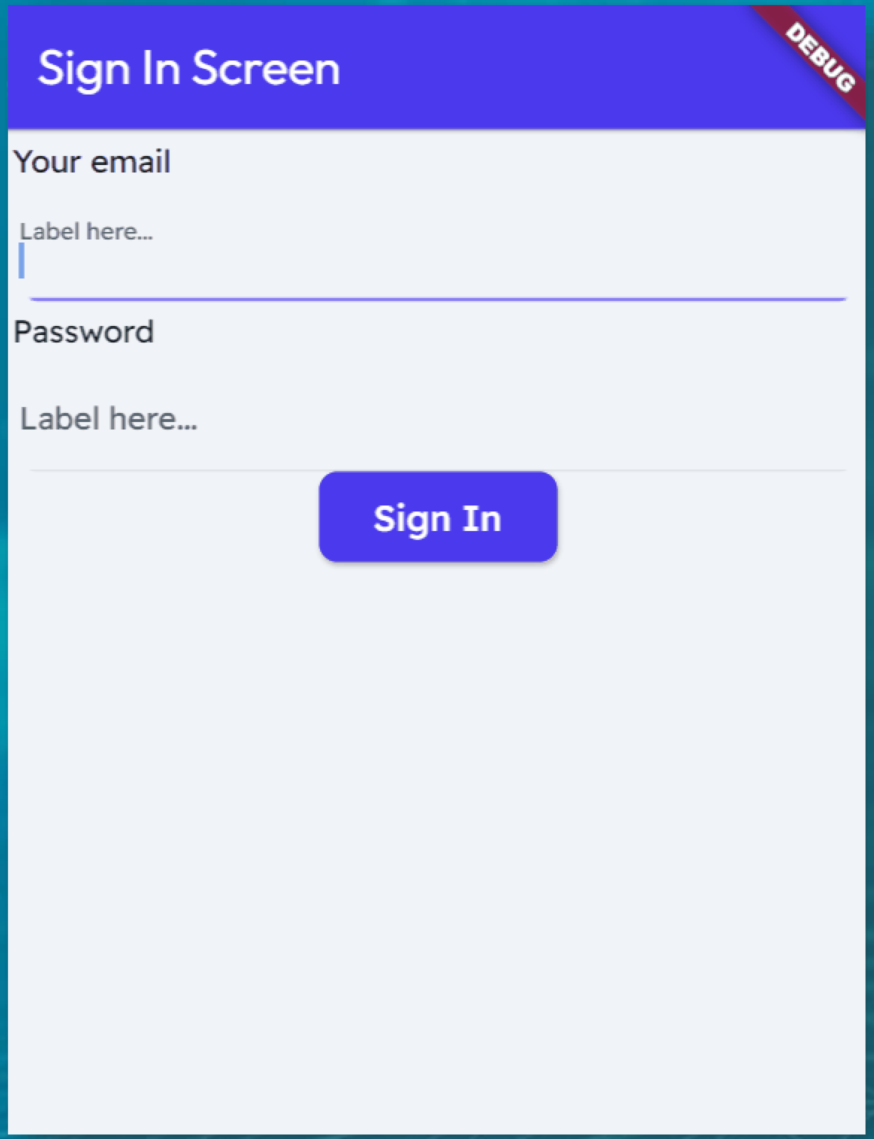
.bubble

Softr

Uses programming by blocks

Demo: example apps with No-Code and Low-Code builders

FlutterFlow



Sign In Screen

DEBUG

Your email

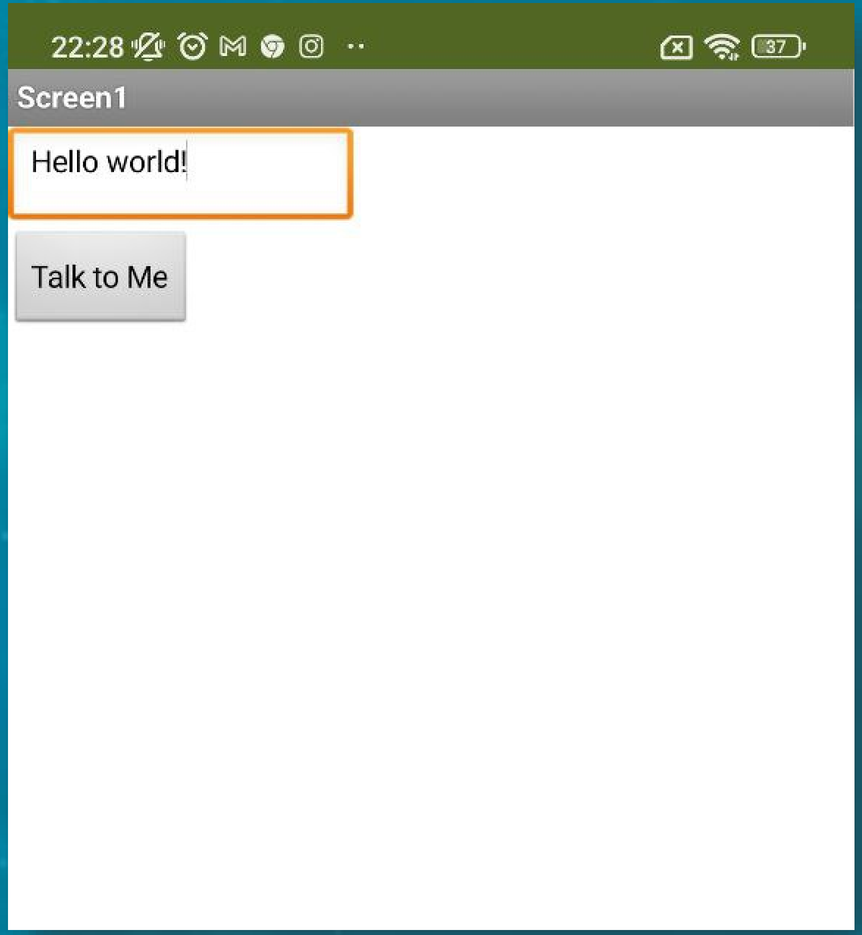
Label here...

Password

Label here...

Sign In

MIT APP INVENTOR



22:28

Screen1

Hello world!

Talk to Me

Tools and Technologies

Pros and Cons

Native

+ Compiles directly into the target device's machine code
+ Fastest performance
+ Direct access to hardware device features
+ Consistent and familiar UX

- Hard to maintain multiple codebases for different platforms.
- Costly.
- Limited code reusability

Cross-Platform

+ Performance difference from native apps is mostly negligible
+ More efficient: create multiple apps from one codebase
+ Lower cost
+ Easier development and maintenance
+ Provides access to most device features

- Implementing platform-specific customization may require additional effort or workarounds

Hybrid

+ Uses a WebView component as a container which is built from a native language.
+ Uses familiar tech (HTML5 and JS)
+ Single codebase for both platforms
+ Code reusability
+ Fast development and easy maintenance

- Does not have direct access to device native features
- Slower performance than native and cross-platform apps
- Some platform-specific functionalities may require workarounds

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PWA
(progressive web app)

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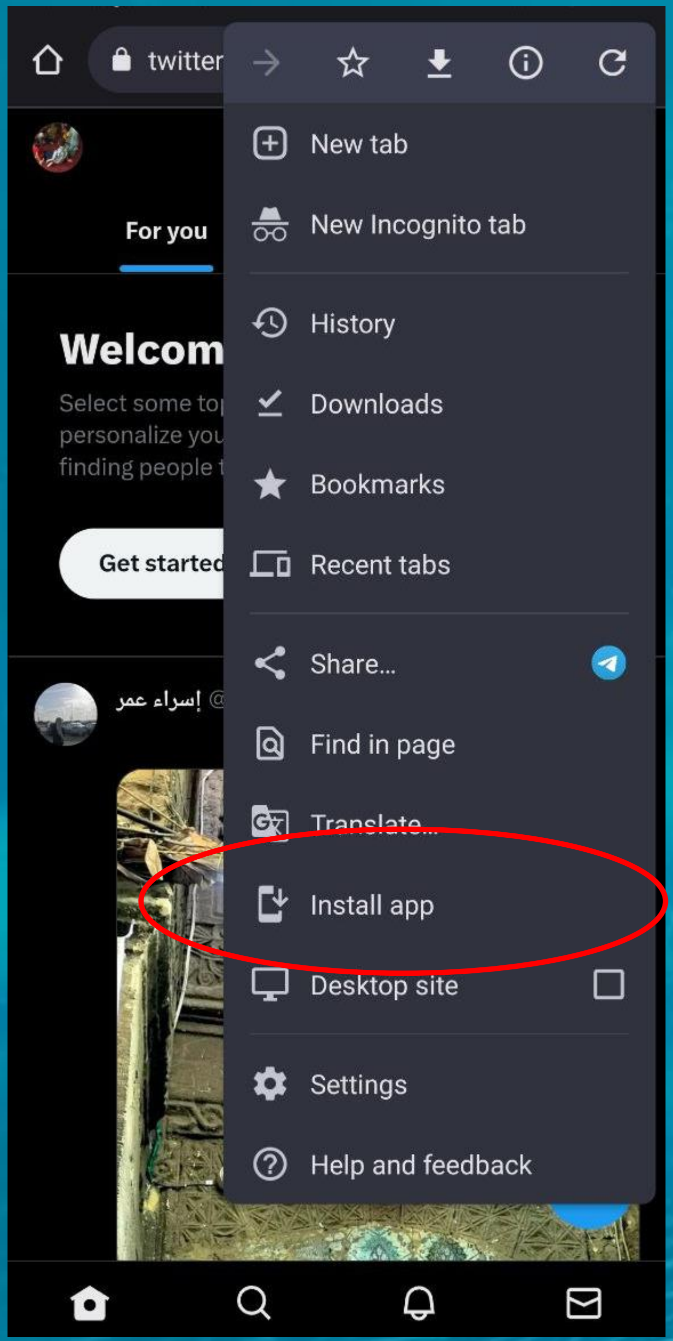
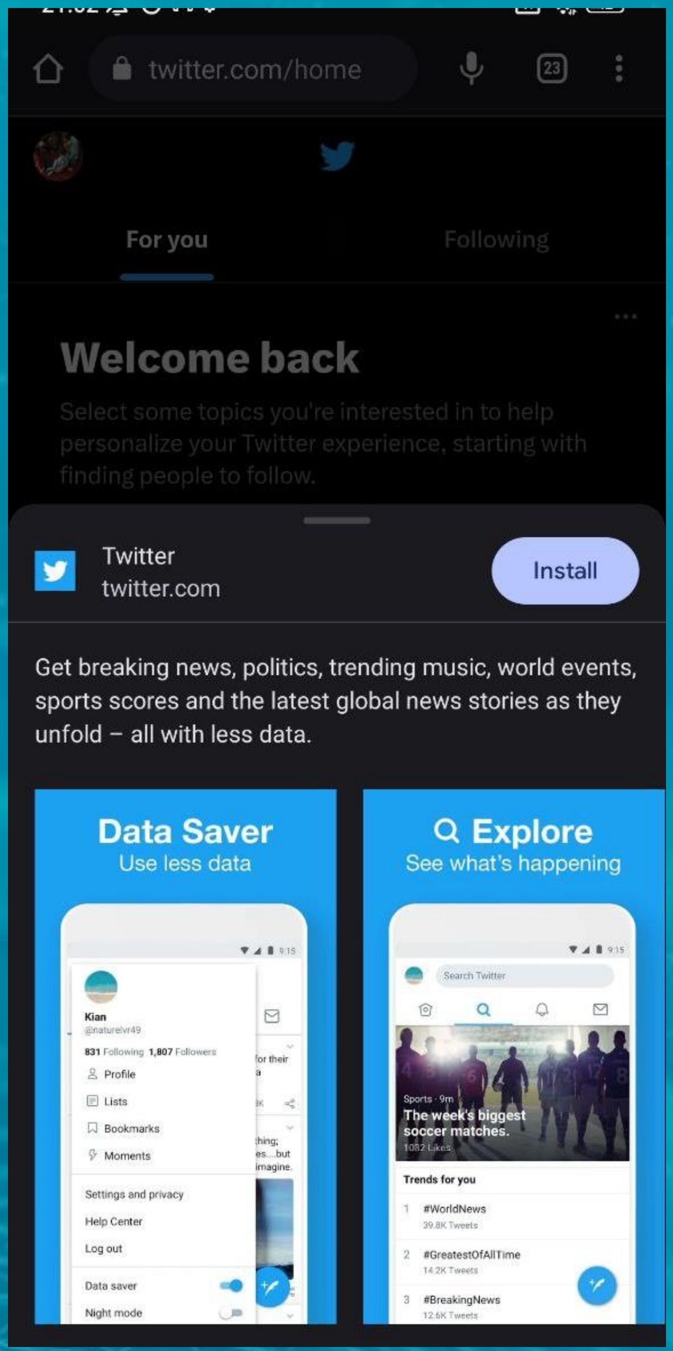
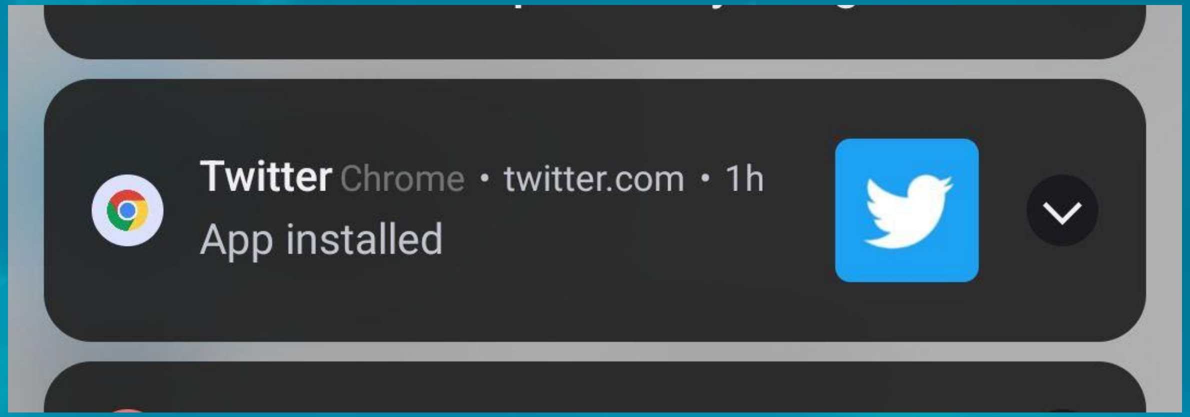



twitter.com/home
For you
Following
Welcome back
Select some topics you're interested in to help personalize your Twitter experience, starting with finding people to follow.
Data Saver
Use less data
Explore
See what's happening

Twitter
twitter.com
Install

Get breaking news, politics, trending music, world events, sports scores and the latest global news stories as they unfold – all with less data.



Twitter Chrome • twitter.com • 1h
App installed

PWAs
(progressive web apps)

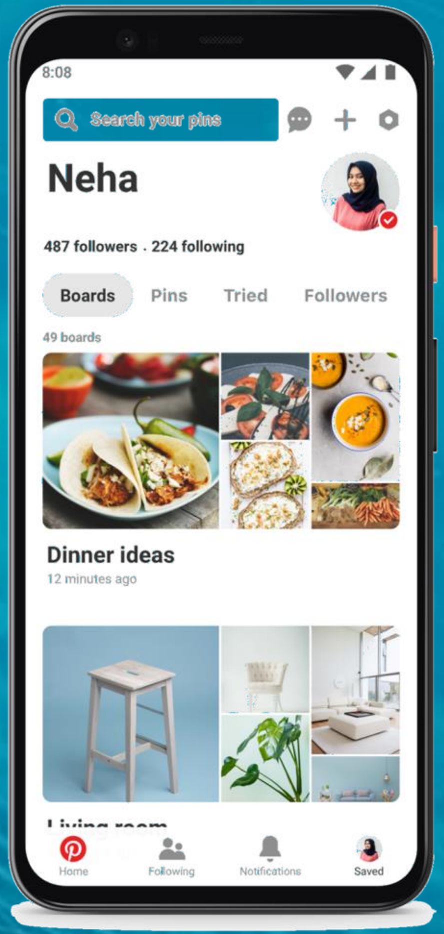
- A *web* app that offers an app-like experience
- Accessible through a URL not app stores
- Uses web development tech stack (html, css, js)

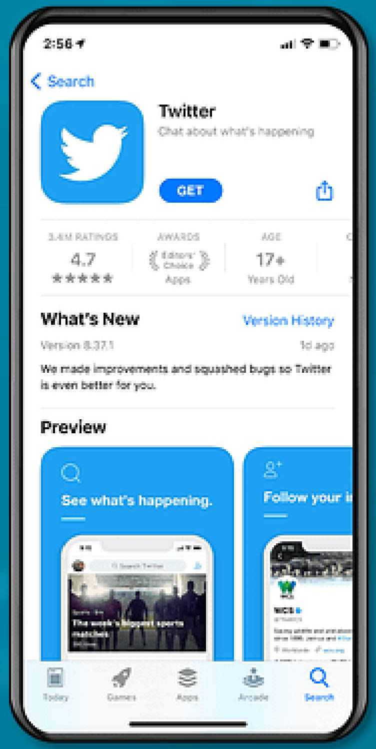
Pros:

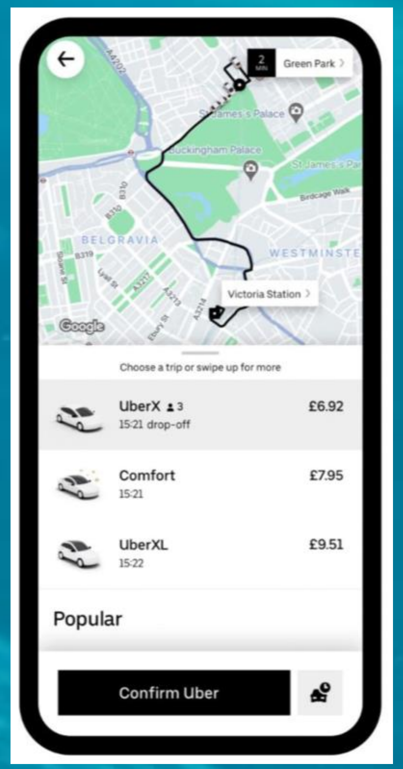
- Has benefits of a web app (SEO-friendly, lower cost, does not require a lot of storage)
- Gives access to native features (like accessing the camera) through APIs
- Offers offline mode

Cons:

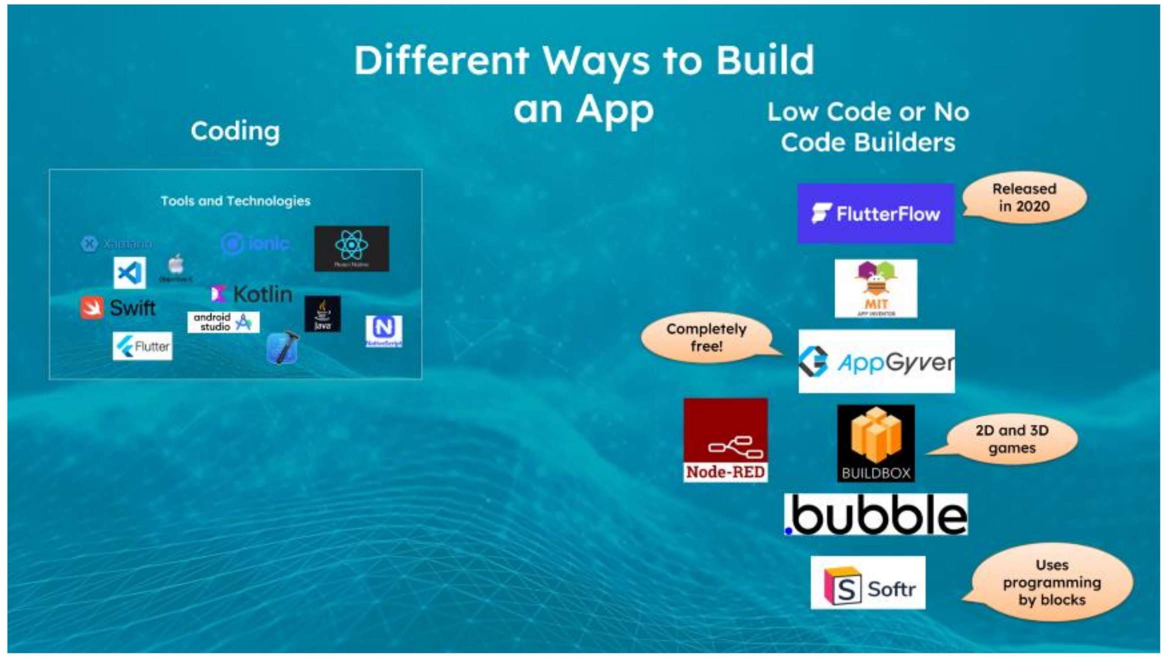
- Build everything from scratch (No ready-made components)
- Depends on browser. If the browser installed on the phone does not support certain features (like accessing the camera) then it won't work on that phone







Review



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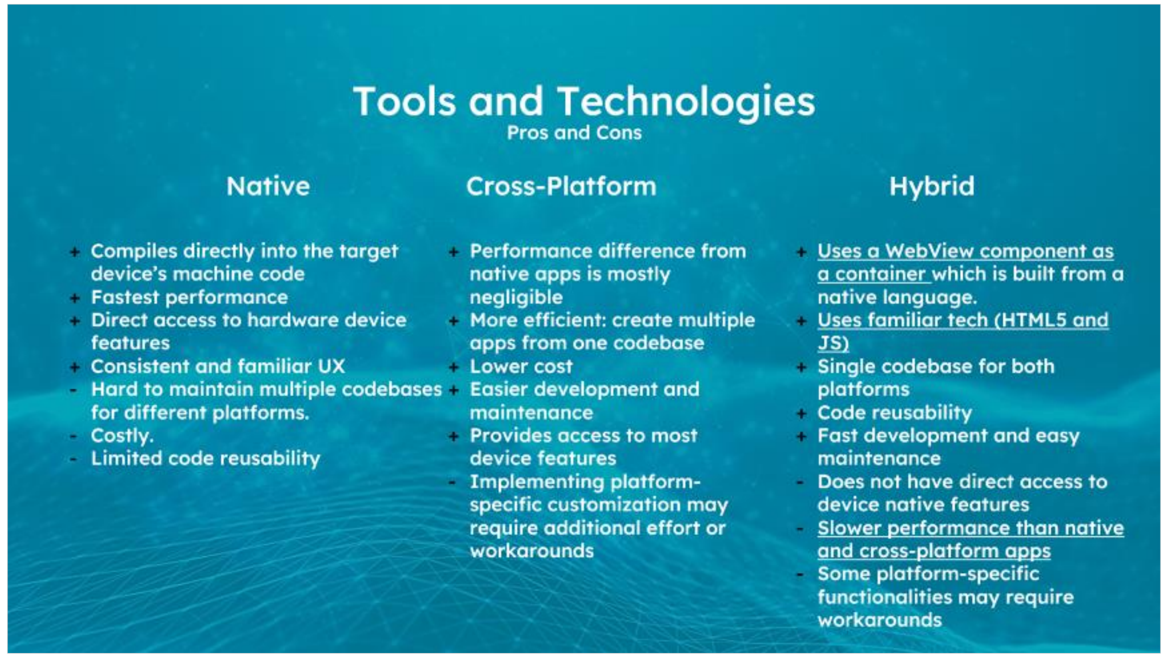

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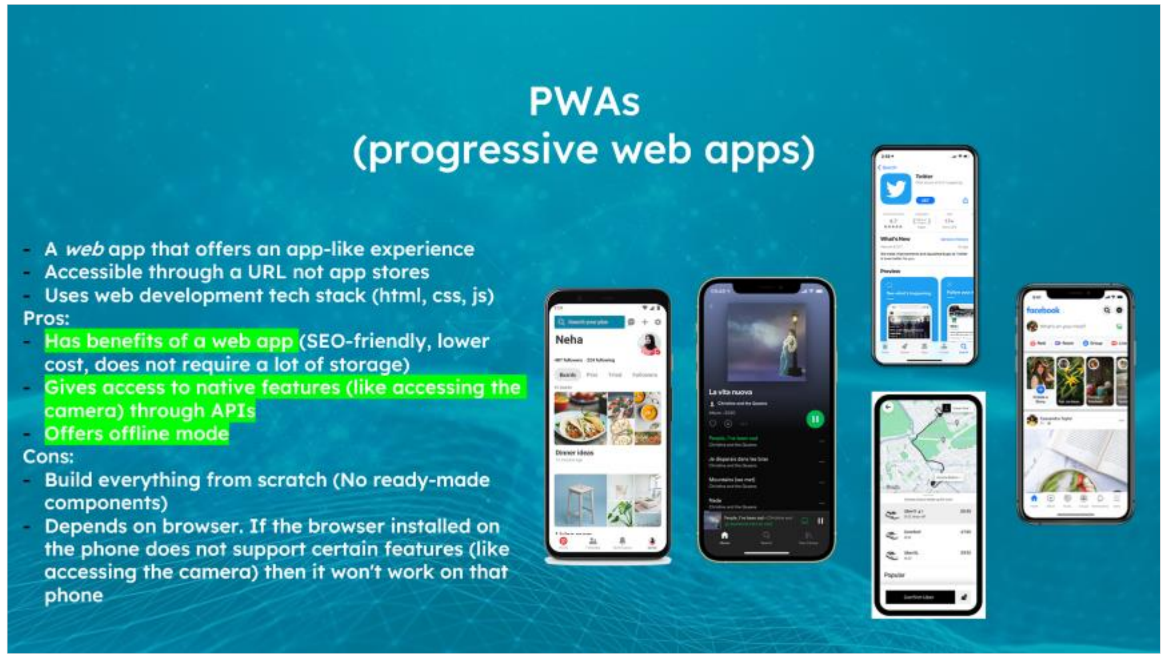

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Session 2 Attendance

Scan Here

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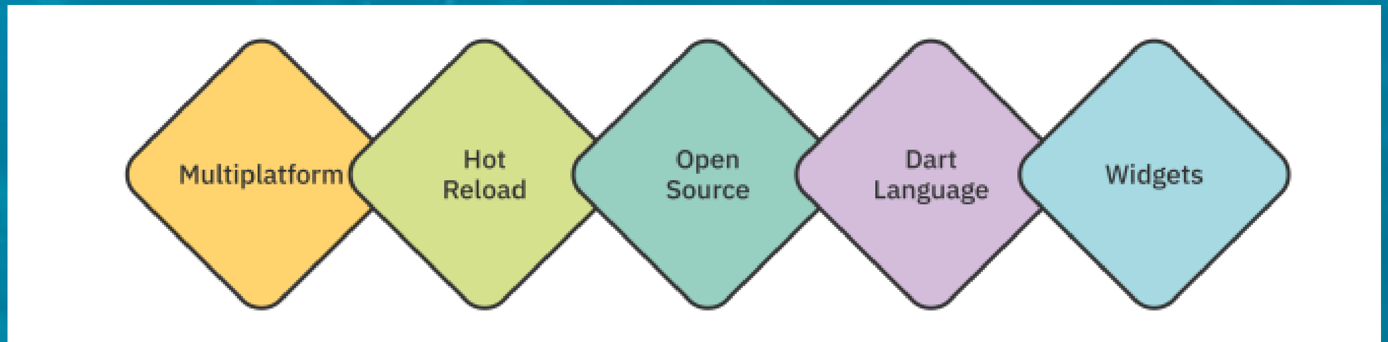


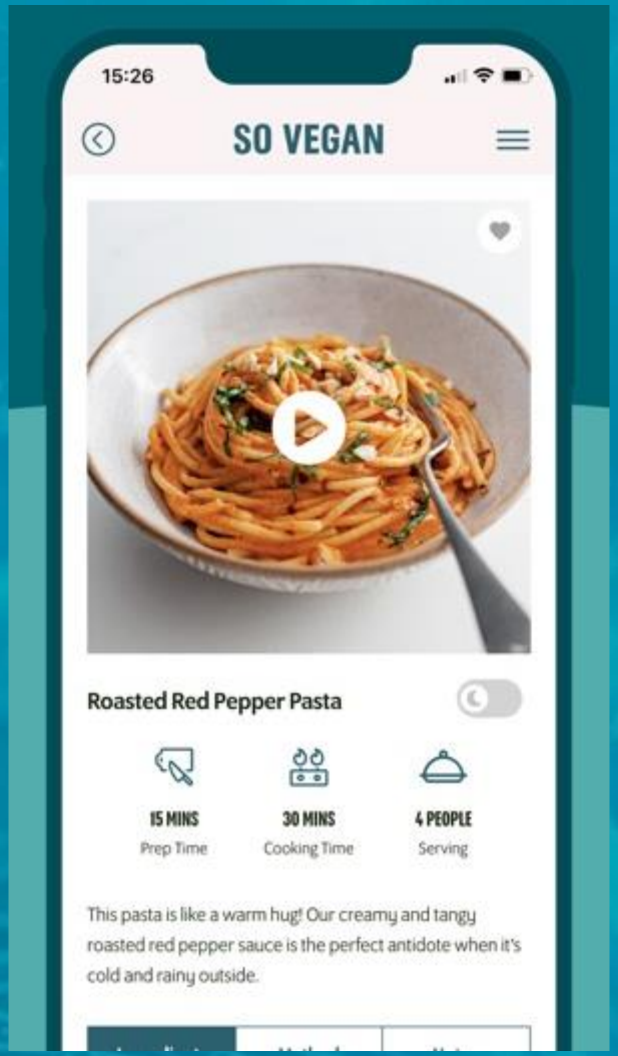
Source: The Flutter Apprentice by Michael Katz, David Moore

Example Flutter Apps

Alibaba.com

Google Pay

Google Classroom


15:26

SO VEGAN

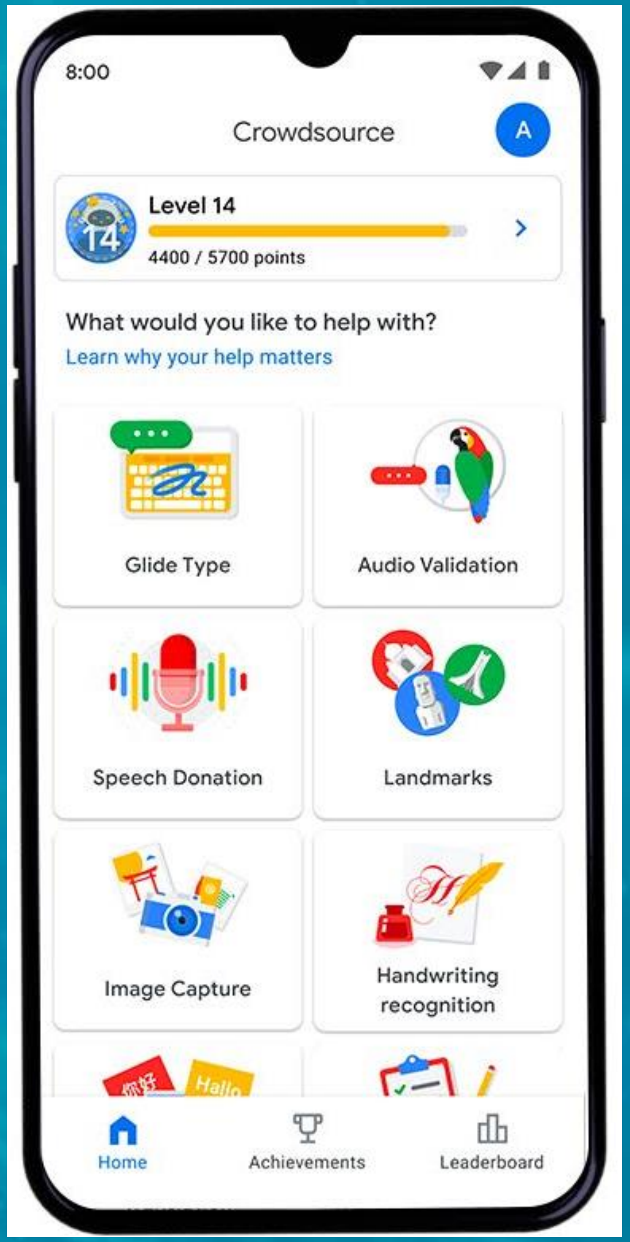
Roasted Red Pepper Pasta

15 MINS Prep Time

30 MINS Cooking Time

4 PEOPLE Serving

This pasta is like a warm hug! Our creamy and tangy roasted red pepper sauce is the perfect antidote when it's cold and rainy outside.


8:00

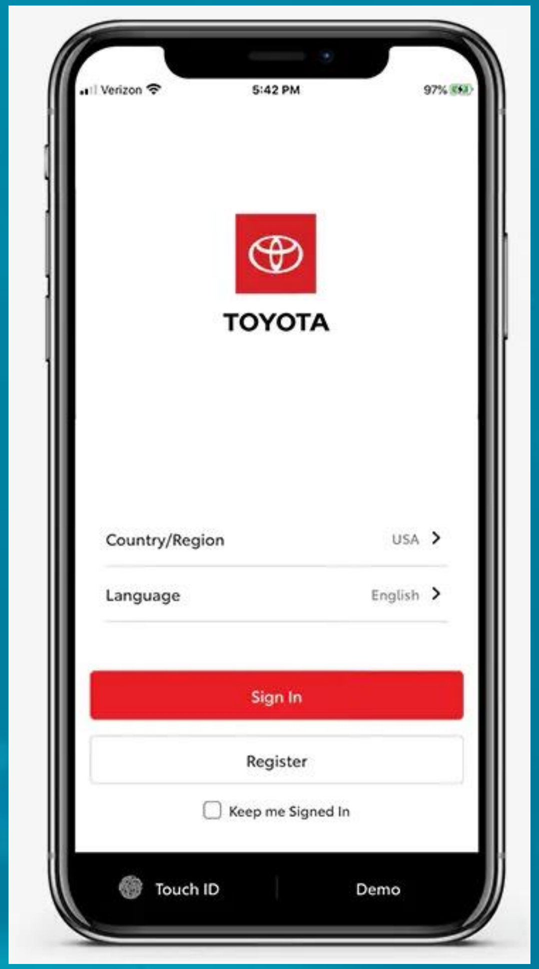
Crowdsource

Level 14

4400 / 5700 points

What would you like to help with?

Learn why your help matters


Verizon 5:42 PM 97%

TOYOTA

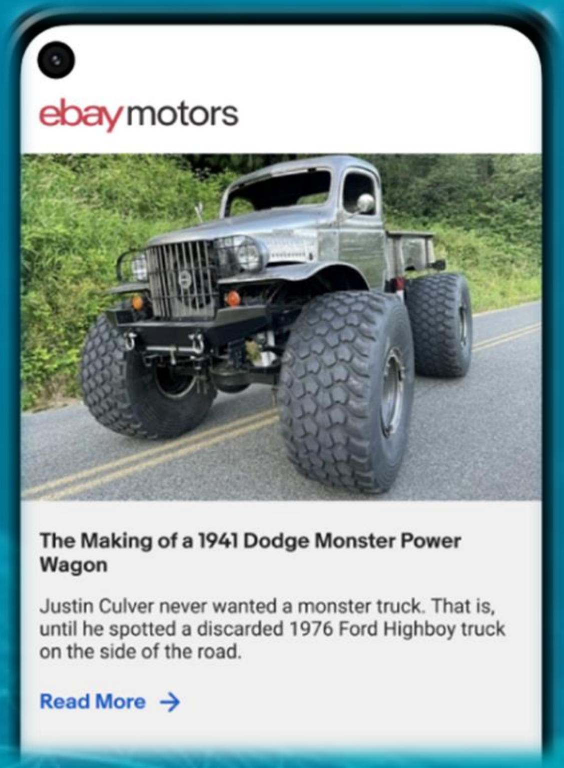
Country/Region USA

Language English

Sign In

Register

□ Keep me Signed In


ebay motors

The Making of a 1941 Dodge Monster Power Wagon

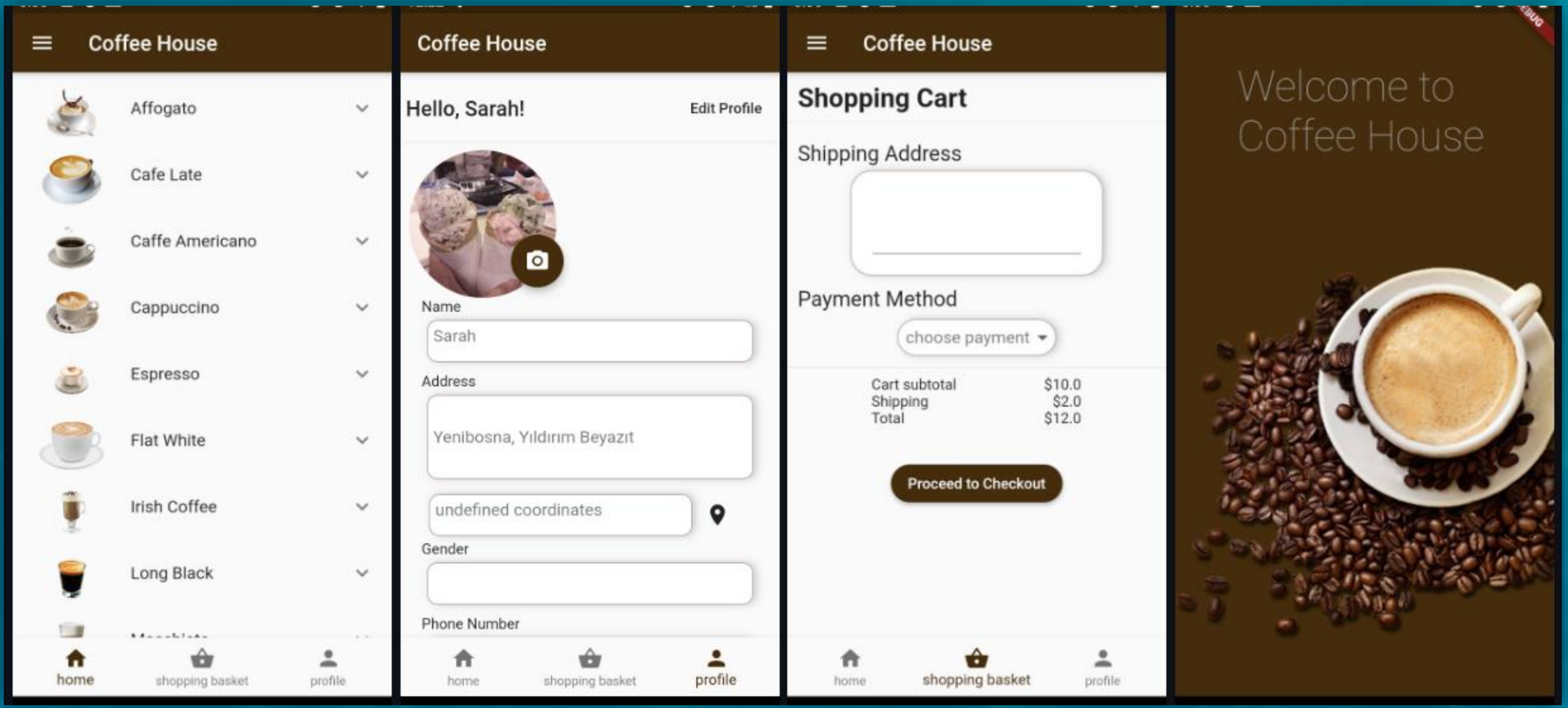
Justin Culver never wanted a monster truck. That is, until he spotted a discarded 1976 Ford Highboy truck on the side of the road.

Read More →

https://flutter.dev/showcase

Example Flutter Apps

CoffeeHouse



Coffee House

Affogato

Cafe Late

Caffe Americano

Cappuccino

Espresso

Flat White

Irish Coffee

Long Black

home | shopping basket | profile

Coffee House

Hello, Sarah! Edit Profile

Name: Sarah

Address: Yenibosna, Yıldırım Beyazıt

undefined coordinates

Gender

Phone Number

home | shopping basket | profile

Coffee House

Shopping Cart

Shipping Address

Payment Method: choose payment

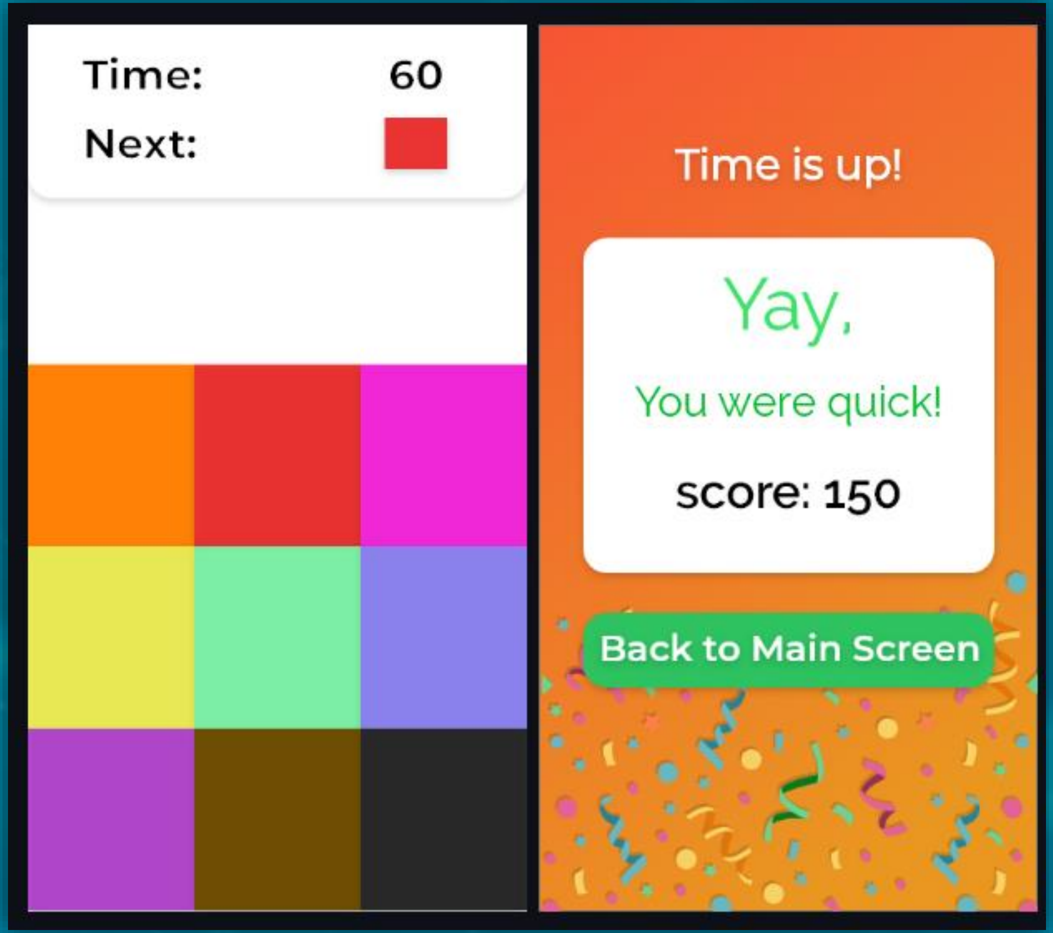
Cart subtotal	$10.0
Shipping	$2.0
Total	$12.0

Proceed to Checkout

home | shopping basket | profile

Welcome to Coffee House

ColorGame



Time: 60

Next: 🟥

Time is up!

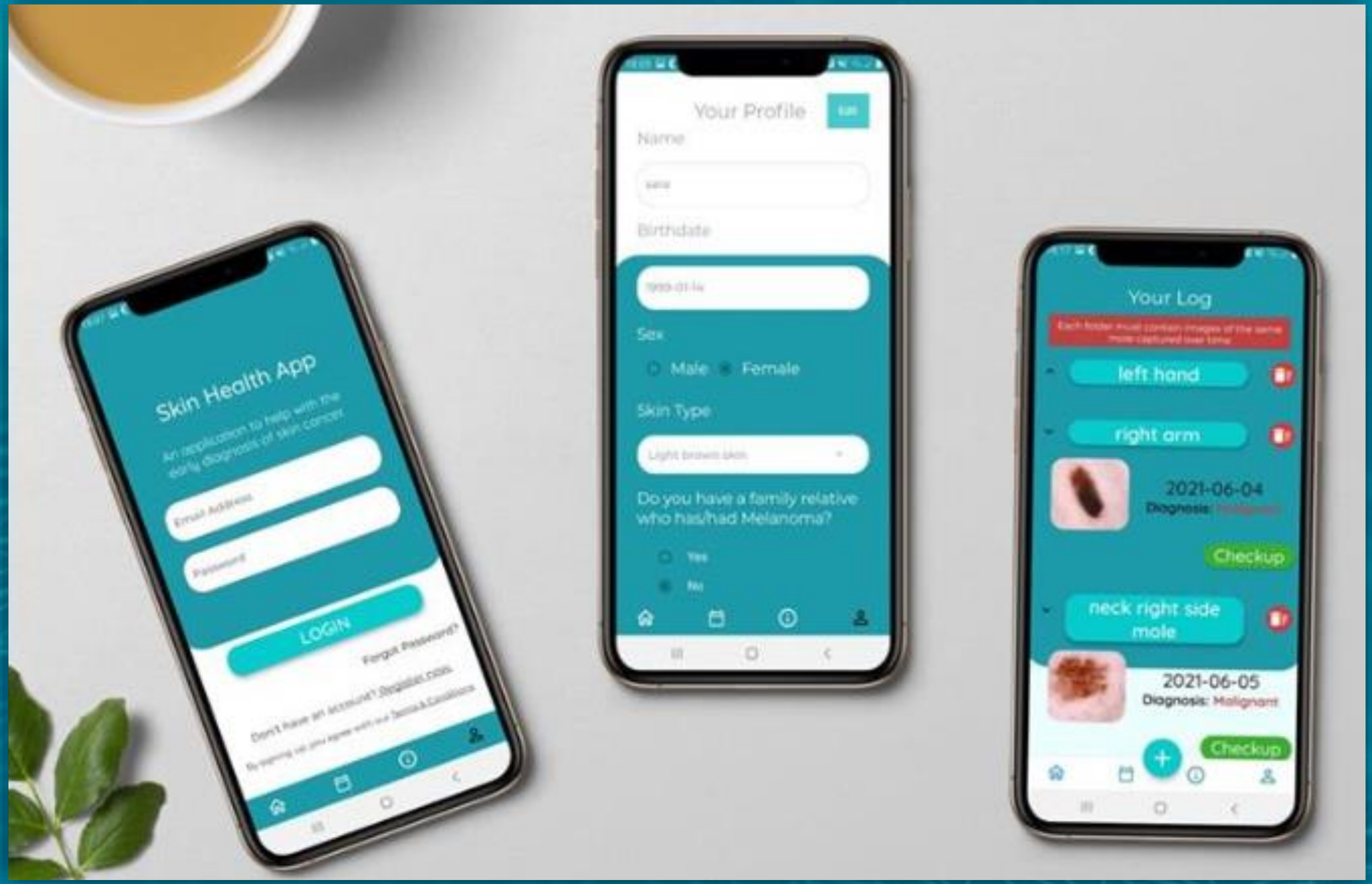
Yay,

You were quick!

score: 150

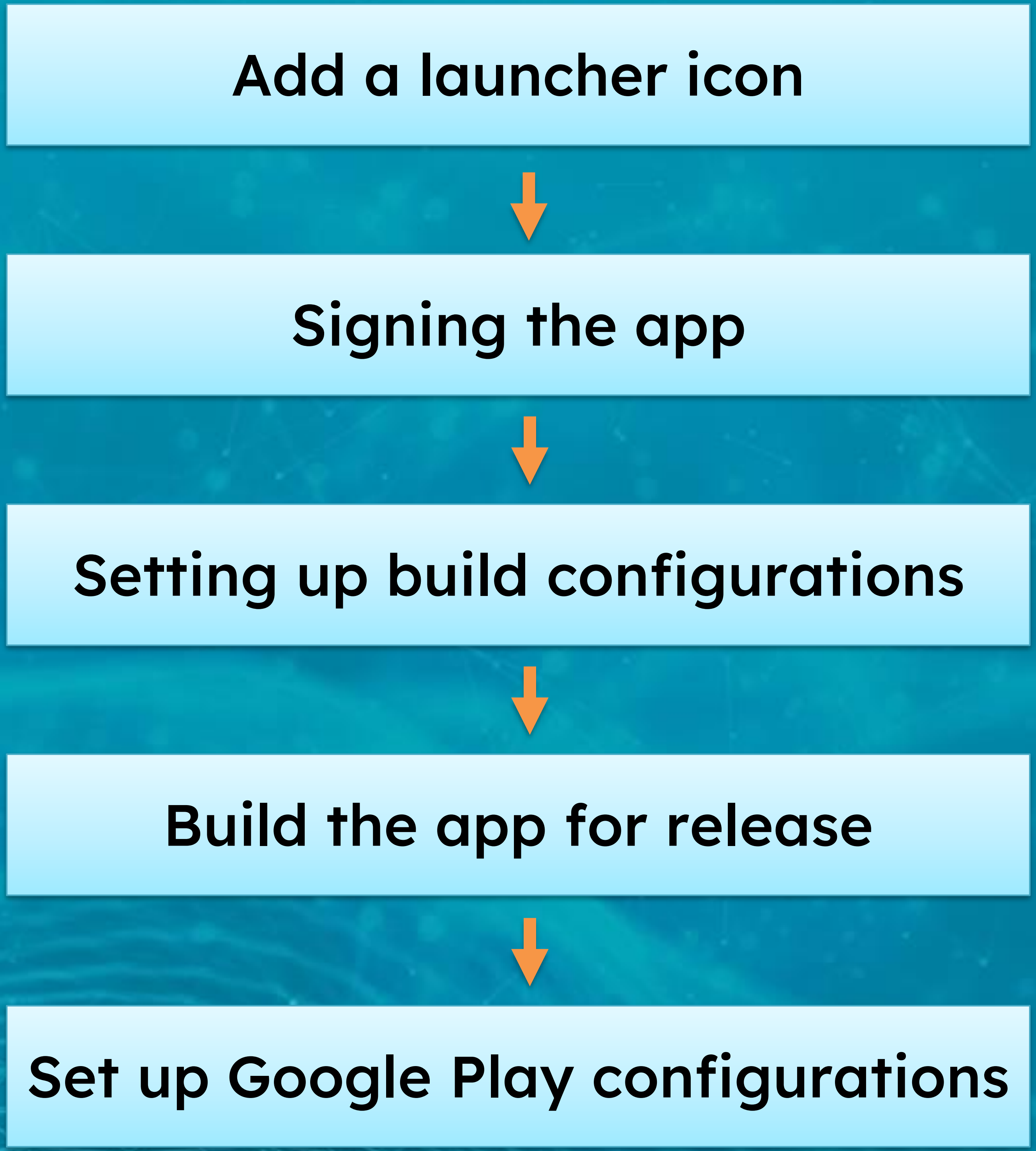
Back to Main Screen

SkinHealthApp



Creating a Flutter Project

Building and Deploying our app



Add a launcher icon

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- ✓ Chapters 17 and 18 in Flutter Apprentice

Get in touch!

Email t-sarahahmed@zewailcity.edu.eg

Linkedin www.Linkedin.com/in/sarah-ahmed-desouky

Thank You

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مدينة زويل
ZEWAIL CITY