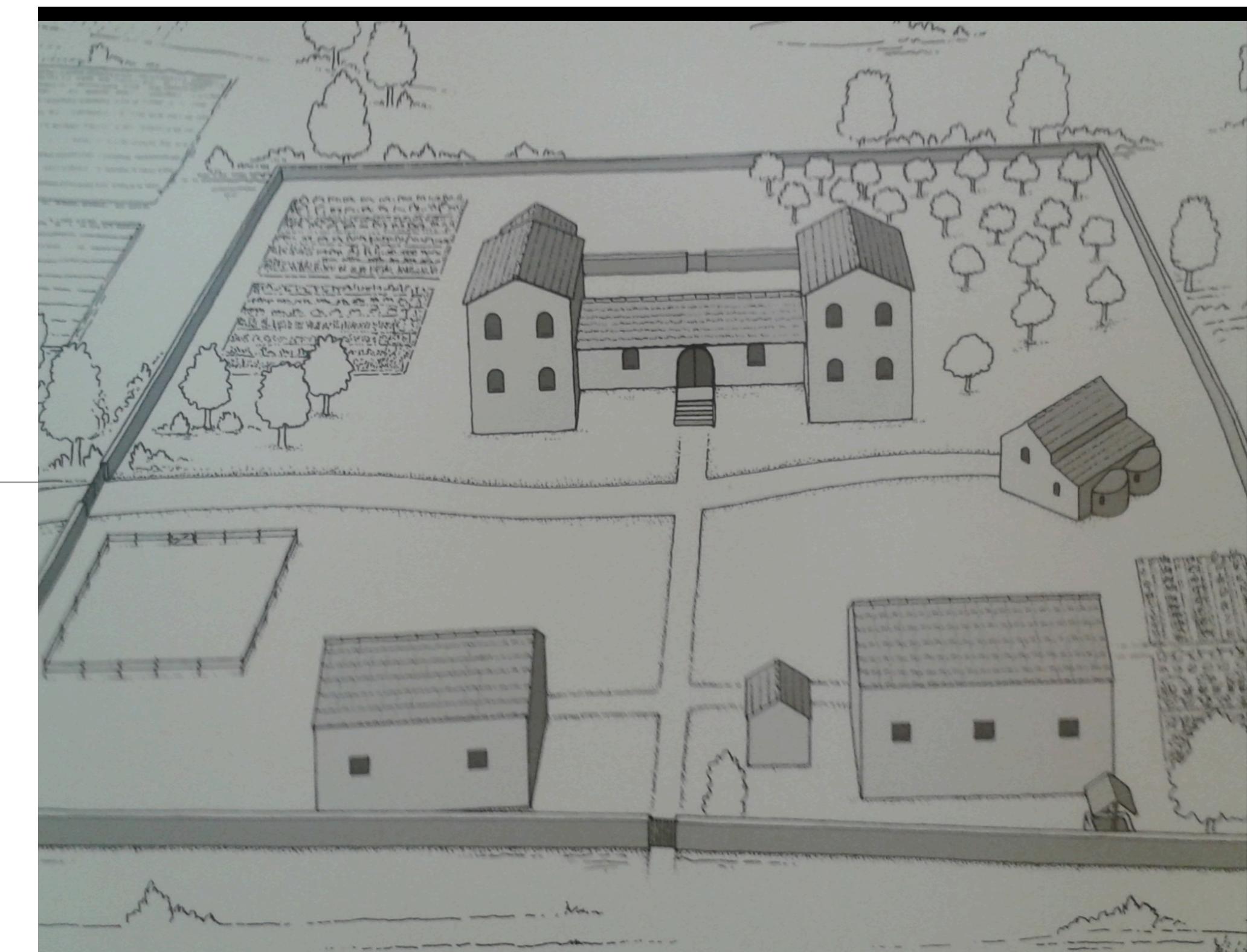


# Project: Archaeological Fieldwork V2



# Inspiration

## Atlas of Hillforts of Britain and Ireland

From Wikipedia, the free encyclopedia

The **Atlas of Hillforts of Britain and Ireland** is an online database of [hillforts](#)—fortified settlements built in the [Bronze Age](#) and [Iron Age](#)—in the British Isles. It was compiled by researchers from the [University of Edinburgh](#), the [University of Oxford](#) and [University College Cork](#), led by [Ian Ralston](#) and [Gary Lock](#).<sup>[1][2]</sup> As of 2017, the atlas has 4,147 entries, which the researchers believe to be all of the extant hillforts in Britain and Ireland.<sup>[1][3]</sup> A printed [atlas](#) is also planned.<sup>[4]</sup>

The data was collated from existing catalogues of archaeological sites such as the [National Monuments Records](#) and county [historic environment records](#).<sup>[4]</sup> Around 100 volunteers, described as "citizen scientists", also visited sites and contributed information and photographs to the atlas.<sup>[5][6]</sup> The researchers noted that despite the conventional name "hillforts", under their definition, many are "not on hills and are not really forts".<sup>[7]</sup> They included sites that are now only visible through [cropmarks](#).<sup>[4]</sup>

The online atlas is hosted by the [Arts and Humanities Research Council](#), which funded the project,<sup>[8]</sup> and makes use of [Esri's ArcGIS web map application](#) platform.<sup>[9]</sup> The project also collaborated with [Wikimedia UK](#) to make the information in the atlas available to [Wikipedia](#).<sup>[1]</sup>

<https://hillforts.arch.ox.ac.uk/>



Atlas of Hillforts

https://hillforts.arch.ox.ac.uk

Atlas of Hillforts | Find hillfort or place

IR1040 Knockmahon, Waterford

HER: Archaeological Survey of Ireland SMR Database WA025-065  
NMR: WA 025  
SM:  
NGR:  
Status: Confirmed  
[View Full Record](#)  
[View on WikiData](#)

**Summary:** This coastal promontory is located immediately SE of Bunmahon town in Co. Waterford. Known as C'Gullys Islands, this triangular grass-covered headland projects SW from the mainland into the Atlantic at an altitude of 5m OD. The landmass is cut off on the landward side by an eroded earthen bank which runs in an E-W direction for c. 35m. It is 6m in width and has an external height of 1.2m. An external ditch measures 8m in width and has a depth of 0.35m. An Ogham stone was recovered from the ditch in the 1980s while another was found in the 1990s (Manning 1989). There is no recorded entrance through the defences. In addition to the area on the mainland, it is likely that the interior once incorporated two off-shore sea stacks that have been separated by the erosion of collapsed sea arches; if so the interior of the fort may have measured in the order of 90m in length and may have extended to 0.18ha. There are no recorded internal features.

Related tables:

References >  
Investigations >  
Entrances >  
Dating Evidence >

Zoom to ...

-7.134 52.106 Degrees

0 1 2km

POWERED BY esri

Earthstar Geographics | The online version of the Atlas of Hillforts of Britain and Ireland...

## Application Concept

Develop an application supporting an exploration of  
Archaeological Sites of Interest

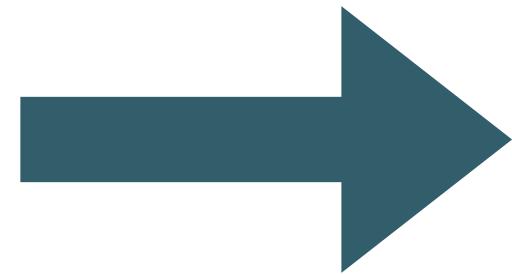
Users are archaeology students.

App should contain a list of sites they have been  
assigned to visit.

Users visit site, take photos + notes which augment the  
information on the site provided by the app.

Students can add additional sites - which may be  
uncharted

2 Versions



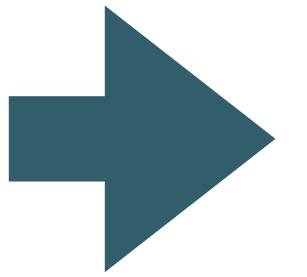
Version 1: Foundation

Version 2: Enhanced

# Version 1: Foundation

## App Components

1 Opening Screen / Splash Screen:



Suitable Image or Logo  
Appears for limited period

2 Signup / Login

3 Toolbar

4 List of Sites

5 Create/Edit Site

6 Settings

## App Components

1 Opening Screen / Splash Screen:

---

2 Signup / Login

---

3 Toolbar

---

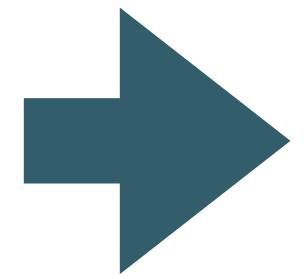
4 List of Site

---

5 Create/Edit Site

---

6 Settings



Standard signup / login screen  
2 Fields: Email Address + Password

## App Components

1 Opening Screen / Splash Screen:

---

2 Signup / Login

---

3 Toolbar

---

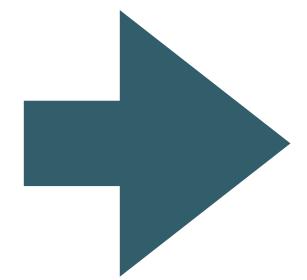
4 List of Sites

---

5 Create/Edit Site

---

6 Settings



Context Sensitive Menu  
options:

- Up
- Logout
- Add
- Cancel
- Delete
- Settings

# App Components

1 Opening Screen / Splash Screen:

---

2 Signup / Login

---

3 Toolbar

---

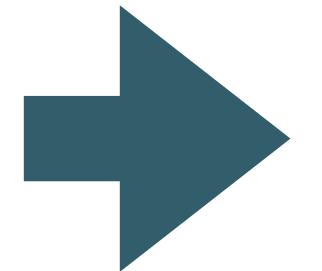
4 List of Sites

---

5 Create/Edit Site

---

6 Settings



All Site, each Site:

- Name
- Single image
- Location (lat/lng)
- Visited (checked/unchecked)

# App Components

1 Opening Screen / Splash Screen:

---

2 Signup / Login

---

3 Toolbar

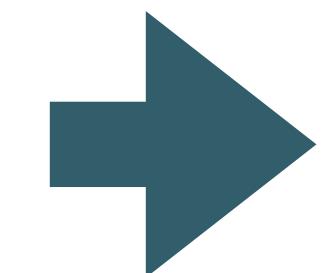
---

4 List of Sites

---

5 Create/Edit Site

---



6 Settings

Individual Site:

- Name
- Description
- Up to 4 Images
- Edit Location (select from map)
- Visited (checked/unchecked)
- Date Visited
- Additional Notes

# App Components

1 Opening Screen / Splash Screen:

---

2 Signup / Login

---

3 Toolbar

---

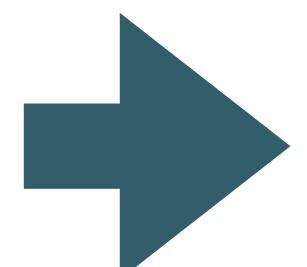
4 List of Site

---

5 Create/Edit Site

---

6 Settings



Logged in user details

- Email
- Password
- Summary Statistics:
  - Total number of Sites
  - Number visited

Version 2: Enhanced

1 Opening Screen / Splash Screen:

2 Signup / Login

3 Toolbar

4 List of Hillforts

5 Create/Edit Hillfort

6 Settings

7 Search

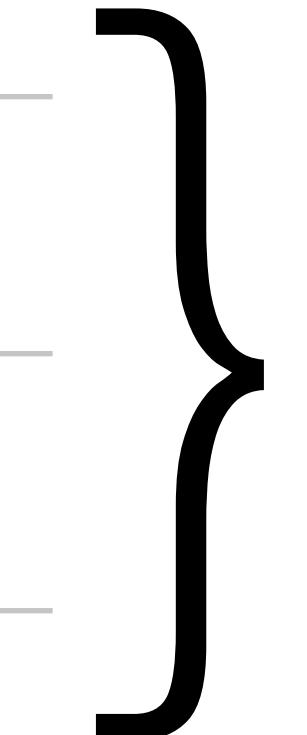
8 Map

9 Track

10 Favourites



Enhance Existing Views  
from Version 1



New to Version 2

1 Opening Screen / Splash Screen: Enhancements

---

2 Signup / Login + • *Register/Authenticate with Cloud Service (Firebase)*

---

3 Toolbar + • *Access to new views (7-10 below)*

---

4 List of Hillforts + • *Retrieve/Store list from Cloud Service (Firebase)*

---

5 Create/Edit Hillfort + • *Set Location of Site from current phone location*

---

6 Settings + • *Rate Hillfort (1-5 stars)*

---

+ • *Share Hillfort Details (email or other)*

---

+ • *Mark Hillfort as Favourite*

## New to Version 2

7 Search

- *Find site(s) based on some search criteria*

8 Map

- *Map of all Hillforts*

9 Navigator

- *Special view to show current lat/lng + map to guide student to precise location*

10 Favourites

- *Quick access to hillforts marked as favourite*

Features

Architecture

UX

Persistence

Git

	Features	Architecture	UX	Persistence	Git
Baseline	<ul style="list-style-type: none"><li>- Map of all hillforts</li><li>- Rate Hillfort</li></ul>	<ul style="list-style-type: none"><li>- AndroidX + KTX</li></ul>	<ul style="list-style-type: none"><li>- Landscape</li></ul>	<ul style="list-style-type: none"><li>- Local Database (Room/Sqlite)</li></ul>	<ul style="list-style-type: none"><li>- develop branch</li></ul>

	Features	Architecture	UX	Persistence	Git
Baseline	<ul style="list-style-type: none"> <li>- Map of all hillforts</li> <li>- Rate Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- AndroidX + KTX</li> </ul>	<ul style="list-style-type: none"> <li>- Landscape</li> </ul>	<ul style="list-style-type: none"> <li>- Local Database (Room/Sqlite)</li> </ul>	<ul style="list-style-type: none"> <li>- develop branch</li> </ul>
Good	<ul style="list-style-type: none"> <li>- Mark as Favourite</li> <li>- Favourites View</li> </ul>	<ul style="list-style-type: none"> <li>- Model View Presenter</li> </ul>	<ul style="list-style-type: none"> <li>- Bottom navigation</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase authentication</li> </ul>	<ul style="list-style-type: none"> <li>- feature branch</li> </ul>

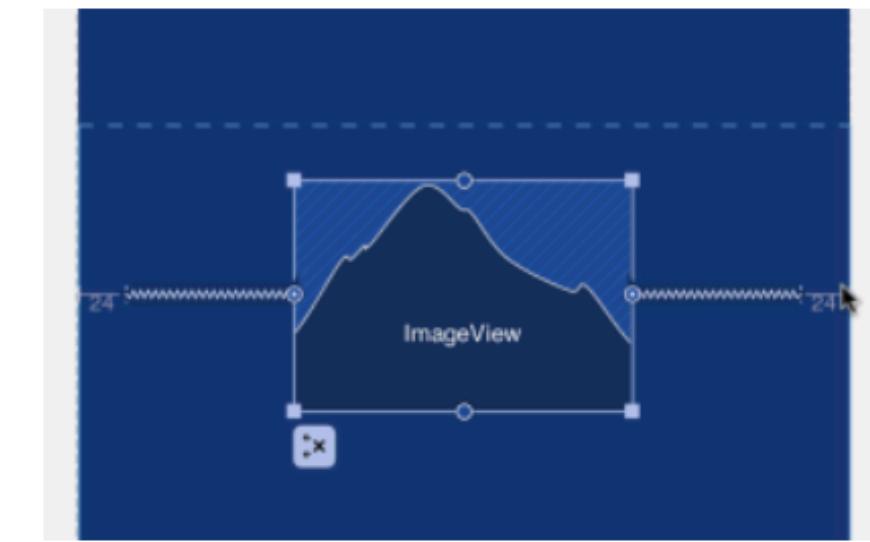
	Features	Architecture	UX	Persistence	Git
Baseline	<ul style="list-style-type: none"> <li>- Map of all hillforts</li> <li>- Rate Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- AndroidX + KTX</li> </ul>	<ul style="list-style-type: none"> <li>- Landscape</li> </ul>	<ul style="list-style-type: none"> <li>- Local Database (Room/Sqlite)</li> </ul>	<ul style="list-style-type: none"> <li>- develop branch</li> </ul>
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Excellent	<ul style="list-style-type: none"> <li>- Search</li> <li>- Current Location Detection</li> </ul>	<ul style="list-style-type: none"> <li>- Navigation Architecture Component</li> </ul>	<ul style="list-style-type: none"> <li>- Swipe Support</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase db (images locally)</li> </ul>	<ul style="list-style-type: none"> <li>- release branch</li> </ul>

	Features	Architecture	UX	Persistence	Git
Baseline	<ul style="list-style-type: none"> <li>- Map of all hillforts</li> <li>- Rate Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- AndroidX + KTX</li> </ul>	<ul style="list-style-type: none"> <li>- Landscape</li> </ul>	<ul style="list-style-type: none"> <li>- Local Database (Room/Sqlite)</li> </ul>	<ul style="list-style-type: none"> <li>- develop branch</li> </ul>
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Outstanding	<ul style="list-style-type: none"> <li>- Navigator</li> <li>- Share Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- Lifecycles/ Databinding/ Livedata</li> </ul>	<ul style="list-style-type: none"> <li>- Images direct from Camera</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase db + images</li> </ul>	<ul style="list-style-type: none"> <li>- hotfix branch</li> </ul>

# Remaining Topics

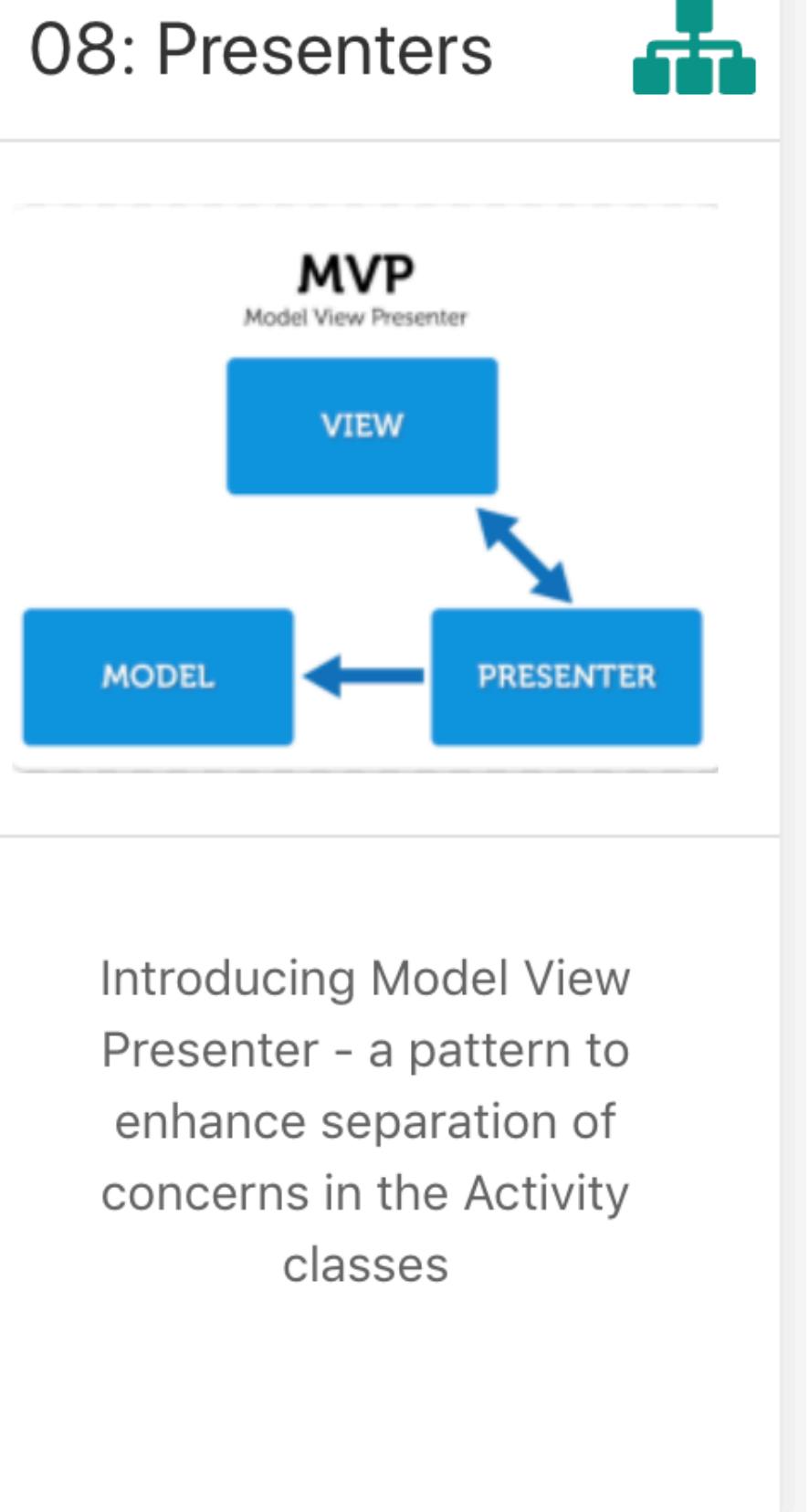
	Features	Architecture	UX	Persistence	Git
Baseline	<ul style="list-style-type: none"> <li>- Map of all hillforts</li> <li>- Rate Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- AndroidX + KTX</li> </ul>	Landscape	<ul style="list-style-type: none"> <li>- Local Database (Room/Sqlite)</li> </ul>	<ul style="list-style-type: none"> <li>- develop branch</li> </ul>
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## 07: Layouts



Kotlin properties, fields, & interfaces. Constraint Layout. Introduce activity to display all placemark locations + details.

	Features	Architecture	UX	Persistence	Git
Baseline	<ul style="list-style-type: none"> <li>- Map of all hillforts</li> <li>- Rate Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- AndroidX + KTX</li> </ul>	- Landscape	<ul style="list-style-type: none"> <li>- Local Database (Room/Sqlite)</li> </ul>	- develop branch
Good	<ul style="list-style-type: none"> <li>- Mark as Favourite</li> <li>- Favourites View</li> </ul>	<ul style="list-style-type: none"> <li>- Model View Presenter</li> </ul>	- Bottom navigation	<ul style="list-style-type: none"> <li>- Firebase authentication</li> </ul>	- feature branch
Excellent	<ul style="list-style-type: none"> <li>- Search</li> <li>- Current Location Detection</li> </ul>	<ul style="list-style-type: none"> <li>- Navigation Architecture Component</li> </ul>	- Swipe Support	<ul style="list-style-type: none"> <li>- Firebase db (images locally)</li> </ul>	- release branch
Outstanding	<ul style="list-style-type: none"> <li>- Navigator</li> <li>- Share Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- Lifecycles/ Databinding/ Livedata</li> </ul>	- Images direct from Camera	<ul style="list-style-type: none"> <li>- Firebase db + images</li> </ul>	- hotfix branch



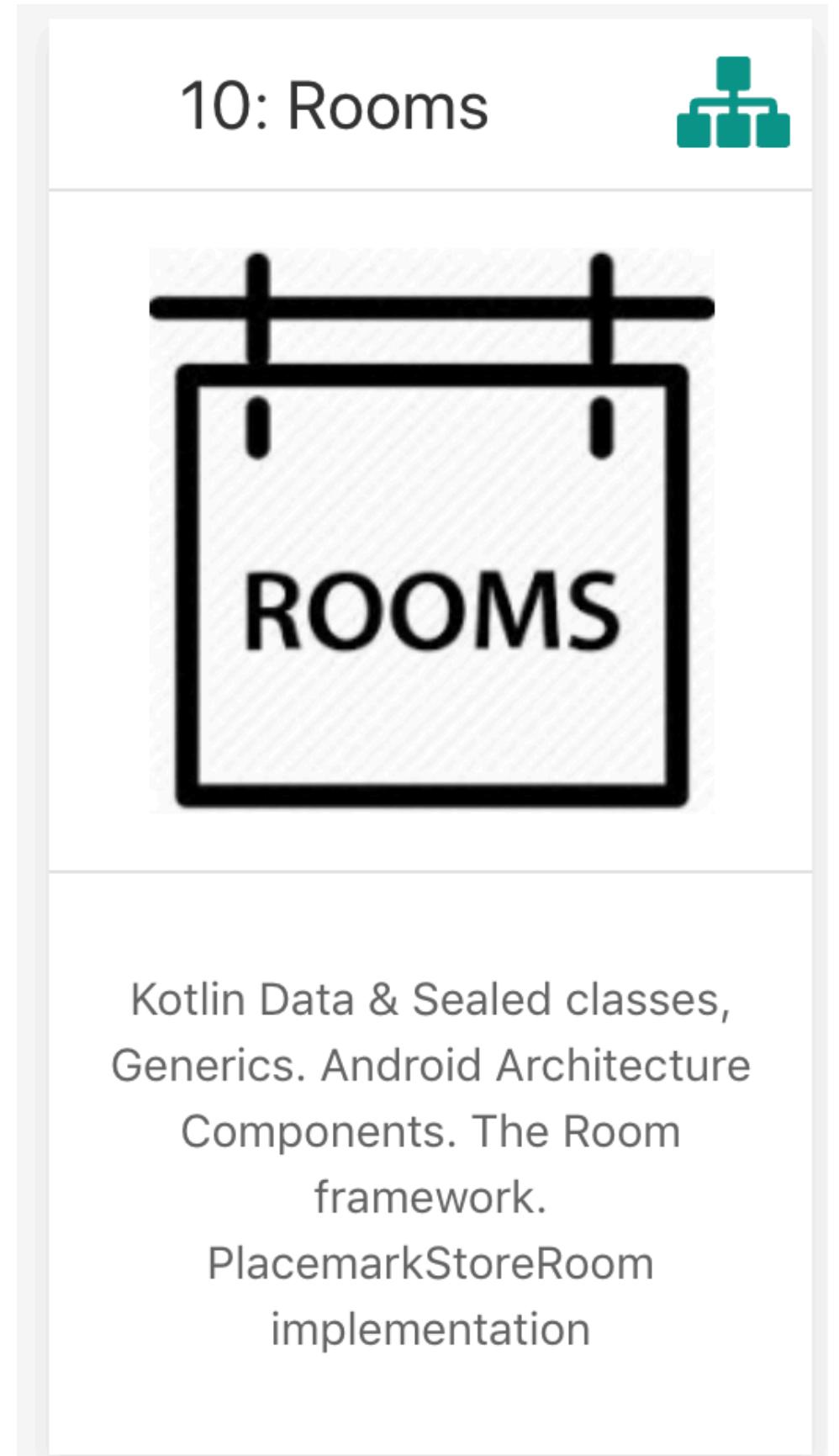
	Features	Architecture	UX	Persistence	Git
Baseline	<ul style="list-style-type: none"> <li>- Map of all hillforts</li> <li>- Rate Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- AndroidX + KTX</li> </ul>	<ul style="list-style-type: none"> <li>- Landscape</li> </ul>	<ul style="list-style-type: none"> <li>- Local Database (Room/Sqlite)</li> </ul>	<ul style="list-style-type: none"> <li>- develop branch</li> </ul>
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Outstanding	<ul style="list-style-type: none"> <li>- Navigator</li> <li>- Share Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- Lifecycles/ Databinding/ Livedata</li> </ul>	<ul style="list-style-type: none"> <li>- Images direct from Camera</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase db + images</li> </ul>	<ul style="list-style-type: none"> <li>- hotfix branch</li> </ul>

## 09: Location

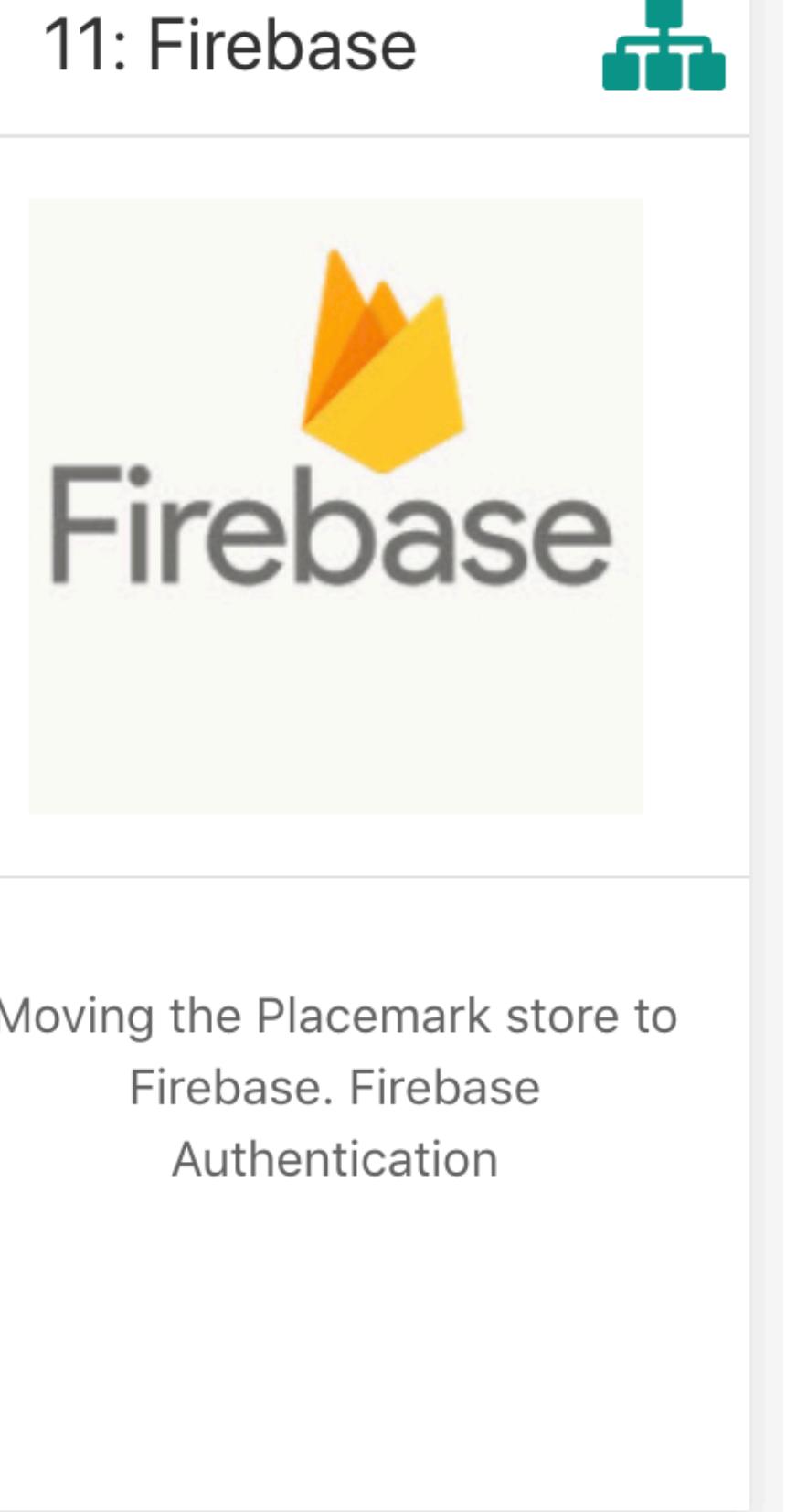


**Kotlin visibility & extensions.**  
Determine the devices current location & resolve in a map.

	Features	Architecture	UX	Persistence	Git
Baseline	<ul style="list-style-type: none"> <li>- Map of all hillforts</li> <li>- Rate Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- AndroidX + KTX</li> </ul>	<ul style="list-style-type: none"> <li>- Landscape</li> </ul>	<ul style="list-style-type: none"> <li>- Local Database (Room/Sqlite)</li> </ul>	develop branch
Good	<ul style="list-style-type: none"> <li>- Mark as Favourite</li> <li>- Favourites View</li> </ul>	<ul style="list-style-type: none"> <li>- Model View Presenter</li> </ul>	<ul style="list-style-type: none"> <li>- Bottom navigation</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase authentication</li> </ul>	- feature branch
Excellent	<ul style="list-style-type: none"> <li>- Search</li> <li>- Current Location Detection</li> </ul>	<ul style="list-style-type: none"> <li>- Navigation Architecture Component</li> </ul>	<ul style="list-style-type: none"> <li>- Swipe Support</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase db (images locally)</li> </ul>	- release branch
Outstanding	<ul style="list-style-type: none"> <li>- Navigator</li> <li>- Share Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- Lifecycles/ Databinding/ Livedata</li> </ul>	<ul style="list-style-type: none"> <li>- Images direct from Camera</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase db + images</li> </ul>	- hotfix branch



	Features	Architecture	UX	Persistence	Git
Baseline	<ul style="list-style-type: none"> <li>- Map of all hillforts</li> <li>- Rate Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- AndroidX + KTX</li> </ul>	<ul style="list-style-type: none"> <li>- Landscape</li> </ul>	<ul style="list-style-type: none"> <li>- Local Database (Room/Sqlite)</li> </ul>	<ul style="list-style-type: none"> <li>- develop branch</li> </ul>
Good	<ul style="list-style-type: none"> <li>- Mark as Favourite</li> <li>- Favourites View</li> </ul>	<ul style="list-style-type: none"> <li>- Model View Presenter</li> </ul>	<ul style="list-style-type: none"> <li>- Bottom navigation</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase authentication</li> </ul>	<ul style="list-style-type: none"> <li>- feature branch</li> </ul>
Excellent	<ul style="list-style-type: none"> <li>- Search</li> <li>- Current Location Detection</li> </ul>	<ul style="list-style-type: none"> <li>- Navigation Architecture Component</li> </ul>	<ul style="list-style-type: none"> <li>- Swipe Support</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase db (images locally)</li> </ul>	<ul style="list-style-type: none"> <li>- release branch</li> </ul>
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	Features	Architecture	UX	Persistence	Git
Baseline	<ul style="list-style-type: none"> <li>- Map of all hillforts</li> <li>- Rate Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- AndroidX + KTX</li> </ul>	<ul style="list-style-type: none"> <li>- Landscape</li> </ul>	<ul style="list-style-type: none"> <li>- Local Database (Room/Sqlite)</li> </ul>	develop branch
Good	<ul style="list-style-type: none"> <li>- Mark as Favourite</li> <li>- Favourites View</li> </ul>	<ul style="list-style-type: none"> <li>- Model View Presenter</li> </ul>	<ul style="list-style-type: none"> <li>- Bottom navigation</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase authentication</li> </ul>	feature branch
Excellent	<ul style="list-style-type: none"> <li>- Search</li> <li>- Current Location Detection</li> </ul>	<ul style="list-style-type: none"> <li>- Navigation Architecture Component</li> </ul>	<ul style="list-style-type: none"> <li>- Swipe Support</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase db (images locally)</li> </ul>	release branch
Outstanding	<ul style="list-style-type: none"> <li>- Navigator</li> <li>- Share Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- Lifecycles/ Databinding/ Livedata</li> </ul>	<ul style="list-style-type: none"> <li>- Images direct from Camera</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase db + images</li> </ul>	hotfix branch

07: Layouts



## 08: Presenters



09: Location



10: Rooms



11: Firebase



The Firebase logo consists of three interlocking chevrons in orange and yellow.

## Moving the Placemark store to Firebase. Firebase Authentication

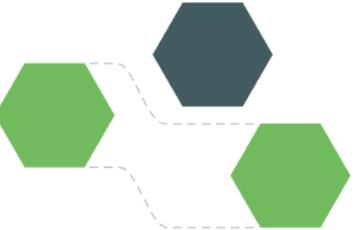
	Features	Architecture	UX	Persistence	Git
Baseline	<ul style="list-style-type: none"> <li>- Map of all hillforts</li> <li>- Rate Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- AndroidX + KTX</li> </ul>	Landscape	Local Database (Room/Sqlite)	develop branch
Good	<ul style="list-style-type: none"> <li>- Mark as Favourite</li> <li>- Favourites View</li> </ul>	<ul style="list-style-type: none"> <li>- Model View Presenter</li> </ul>	Bottom navigation	Firebase authentication	feature branch
Excellent	<ul style="list-style-type: none"> <li>- Search</li> <li>- Current Location Detection</li> </ul>	<ul style="list-style-type: none"> <li>- Navigation Architecture Component</li> </ul>	Swipe Support	Firebase db (images locally)	release branch
Outstanding	<ul style="list-style-type: none"> <li>- Navigator</li> <li>- Share Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- Clean Architecture</li> </ul>	Images direct from Camera	Firebase db + images	hotfix branch

	Features	Architecture	UX	Persistence	Git
Baseline	<ul style="list-style-type: none"> <li>- Map of all hillforts</li> <li>- Rate Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- AndroidX + KTX</li> </ul>	<ul style="list-style-type: none"> <li>- Landscape</li> </ul>	<ul style="list-style-type: none"> <li>- Local Database (Room/Sqlite)</li> </ul>	<ul style="list-style-type: none"> <li>- develop branch</li> </ul>
Good	<ul style="list-style-type: none"> <li>- Mark as Favourite</li> <li>- Favourites View</li> </ul>	<ul style="list-style-type: none"> <li>- Model View Presenter</li> </ul>	<ul style="list-style-type: none"> <li>- Bottom navigation</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase authentication</li> </ul>	<ul style="list-style-type: none"> <li>- feature branch</li> </ul>
Excellent	<ul style="list-style-type: none"> <li>- Search</li> <li>- Current Location Detection</li> </ul>	<ul style="list-style-type: none"> <li>- Navigation Architecture Component</li> </ul>	<ul style="list-style-type: none"> <li>- Swipe Support</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase db (images locally)</li> </ul>	<ul style="list-style-type: none"> <li>- release branch</li> </ul>
Outstanding	<ul style="list-style-type: none"> <li>- Navigator</li> <li>- Share Hillfort</li> </ul>	<ul style="list-style-type: none"> <li>- Clean Architecture</li> </ul>	<ul style="list-style-type: none"> <li>- Images direct from Camera</li> </ul>	<ul style="list-style-type: none"> <li>- Firebase db + images</li> </ul>	<ul style="list-style-type: none"> <li>- hotfix branch</li> </ul>

# Android Jetpack

Jetpack is a collection of Android software components to make it easier for you to develop great Android apps. These components help you follow best practices, free you from writing boilerplate code, and simplify complex tasks, so you can focus on the code you care about.

Jetpack comprises the [androidx.\\*](#) package libraries, unbundled from the platform APIs. This means that it offers backward compatibility and is updated more frequently than the Android platform, making sure you always have access to the latest and greatest versions of the Jetpack components.



## Foundation

Foundation components provide cross-cutting functionality like backwards compatibility, testing and Kotlin language support.

### AppCompat

Degrade gracefully on older versions of Android

### Android KTX

Write more concise, idiomatic Kotlin code

### Multidex

Provide support for apps with multiple DEX files

### Test

An Android testing framework for unit and runtime UI tests



## Architecture

[Architecture components](#) help you design robust, testable and maintainable apps.

### Data Binding

Declaratively bind observable data to UI elements

### Lifecycles

Manage your activity and fragment lifecycles

### LiveData

Notify views when underlying database changes

### Navigation

Handle everything needed for in-app navigation

### Paging

Gradually load information on demand from your data source

### Room

Fluent SQLite database access

### ViewModel

Manage UI-related data in a lifecycle-conscious way

### WorkManager

Manage your Android background jobs



## Behavior

Behavior components help your app integrate with standard Android services like notifications, permissions, sharing and the Assistant.

### Download manager

Schedule and manage large downloads

### Media & playback

Backwards compatible APIs for media playback and routing (including Google Cast)

### Notifications

Provides a backwards-compatible notification API with support for Wear and Auto

### Permissions

Compatibility APIs for checking and requesting app permissions

### Sharing

Provides a share action suitable for an app's action bar

### Slices

Create flexible UI elements that can display app data outside the app



## UI

UI components provide widgets and helpers to make your app not only easy, but delightful to use.

### Animation & transitions

Move widgets and transition between screens

### Auto

Components to help develop apps for Android Auto

### Emoji

Enable an up-to-date emoji font on older platforms

### Fragment

A basic unit of composable UI

### Layout

Lay out widgets using different algorithms

### Palette

Pull useful information out of color palettes

### TV

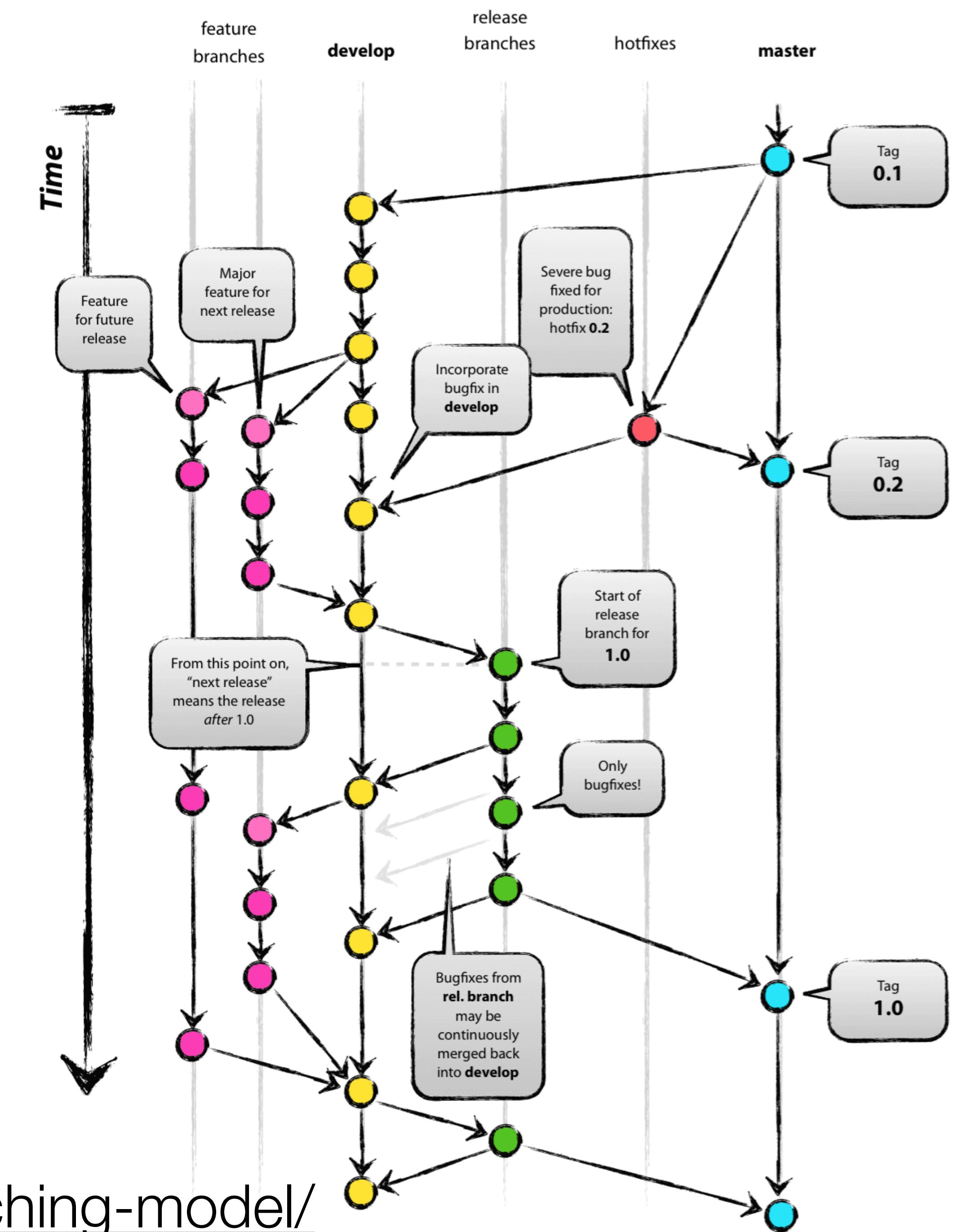
Components to help develop apps for Android TV

### Wear OS by Google

Components to help develop apps for Wear

<https://developer.android.com/jetpack/>

## Git Branching Model



<https://nvie.com/posts/a-successful-git-branching-model/>

2018		S	M	T	W	T	F	S
Semester 2								
September		2	3	4	5	6	7	8
1		9	10	11	12	13	14	15
2		16	17	18	19	20	21	22
3		23	24	25	26	27	28	29
October		4	30	1	2	3	4	5
5		7	8	9	10	11	12	13
6		14	15	16	17	18	19	20
7		21	22	23	24	25	26	27
November	Reading-week	28	29	30	31	1	2	3
	8	4	5	6	7	8	9	10
December	9	11	12	13	14	15	16	17
	10	18	19	20	21	22	23	24
11		25	26	27	28	29	30	1
12		2	3	4	5	6	7	8
9		10	11	12	13	14	15	
16		17	18	19	20	21	22	
2019		23	24	25	26	27	28	29
January		30	31	1	2	3	4	5

## Assessment Schedule

Assignment 2  
Specification

Assignment 2  
Submission