

Description

Intended User

Features

User Interface Mocks

Screen 1

Screen 2

Key Considerations

How will your app handle data persistence?

Describe any corner cases in the UX.

Describe any libraries you'll be using and share your reasoning for including them.

Describe how you will implement Google Play Services.

Next Steps: Required Tasks

Task 1: Project Setup

Task 2: Implement UI for Each Activity and Fragment

Task 3: Your Next Task

Task 4: Your Next Task

Task 5: Your Next Task

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## Reader for Reddit

### Description

'Reader for Reddit' keeps you up-to-date with a collection of your favourite subreddits. Select up to 15 favourite subreddits to track, and 'Reader for Reddit' will update and store posts for you to browse through the day, including when offline.

The app widget shows the most and least active of your selected subreddits, allowing you to stay up-to-date with all your selected subreddits.

### Intended User

Intended users are casual reddit readers, who occasionally read over a couple favourite subreddits. Intended users would spend maybe 5 to 10 minutes at a time reading over a few posts in their selected subreddits while waiting for a bus, train, or in downtime between other tasks. App will cater for English speakers only.

## Features

### App features:

- Store user-configurable list of up to 5 favourite subreddits
- Periodically poll reddit for top posts on subreddit list
- Display card for all subreddits on main screen with basic info
  - Subreddit name
  - Current highest rated post -> title, poster, score, image thumbnail
- View activity with top 5 posts in selected subreddit, with more detail per post
- View activity with full info for selected post, and comments
- App periodically polls reddit for updated info on selected subreddit

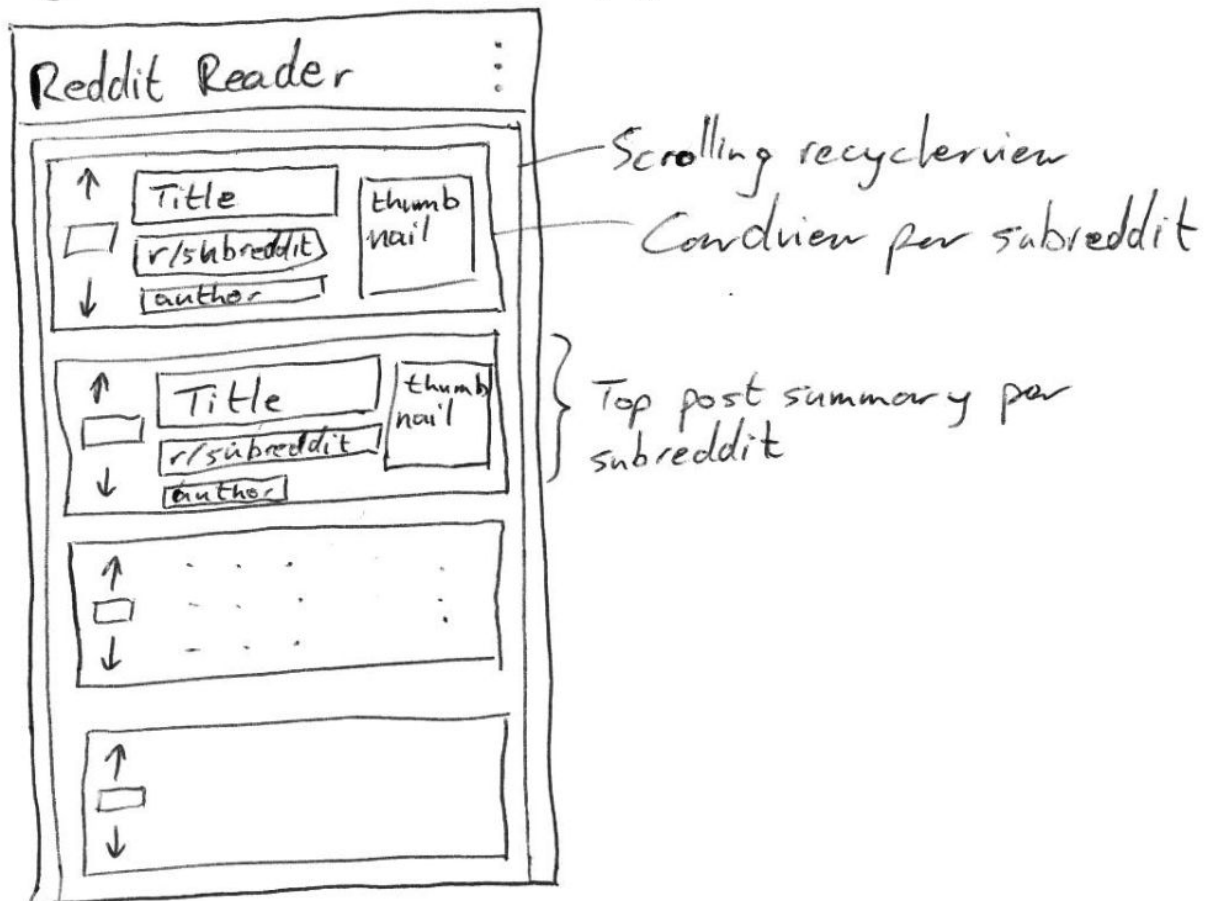
### Widget features:

- Displays two most viewed subreddits, and 2 least viewed subreddits (from within the app), and top rated post for each subreddit.

## User Interface Mocks

### Screen 1 - Front page / Overview

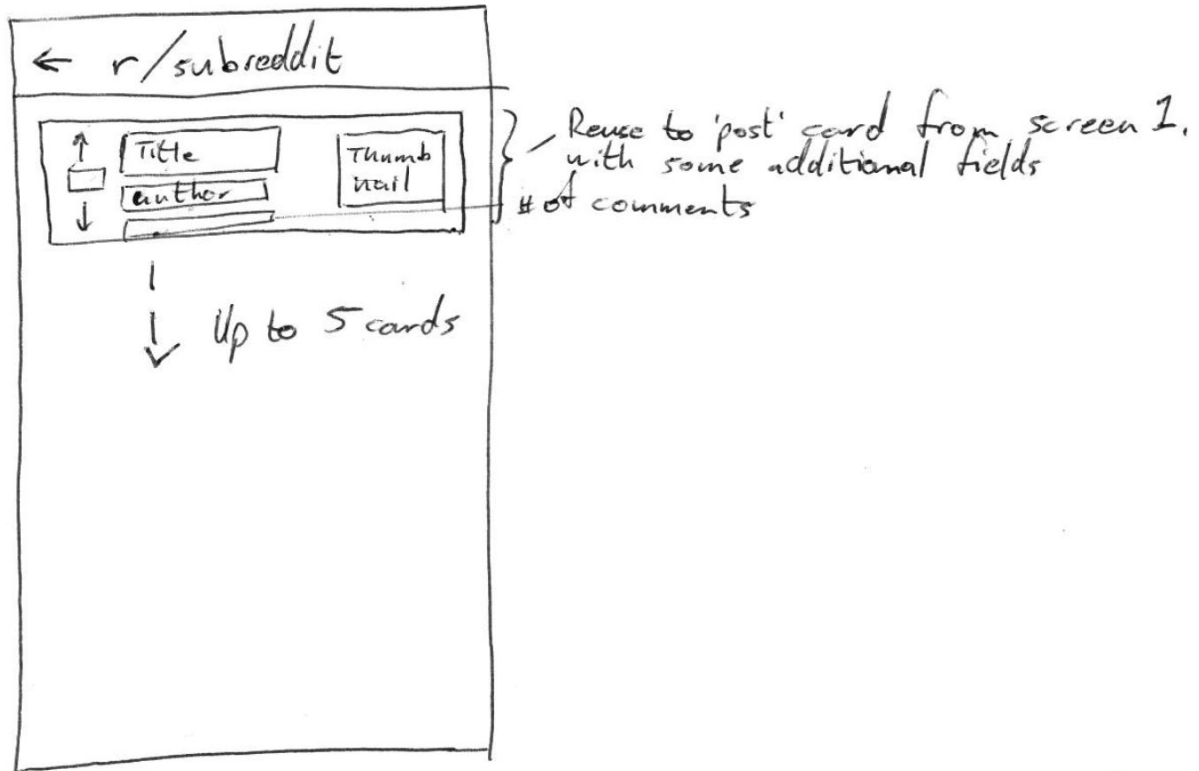
① Screen 1 → "Front page"



The first screen on entering the app - top post from selected subreddits are displayed as cards in a scrolling recyclerView. Pertinent information about each post is displayed.

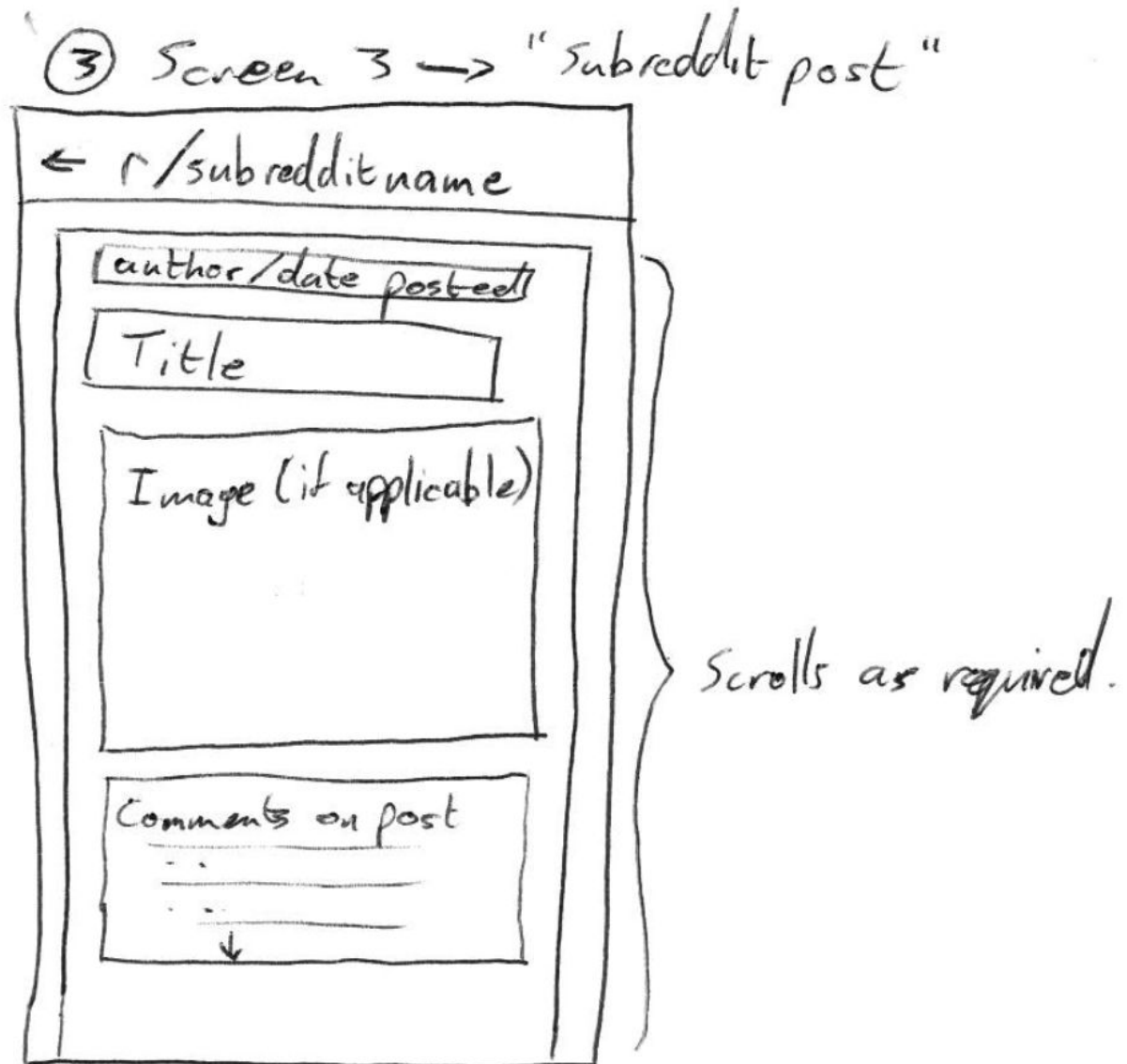
## Screen 2 - Selected subreddit page

② Screen 2 → "Subreddit page"



If a user taps on any subreddit card in screen 1, the subreddit is loaded with additional posts, in a similar card-based format. Only a few cards displayed, with possibility to scroll up/down list. Return to screen 1 when selecting Back button.

### Screen 3 - Selected subreddit post



If a user clicks on a specific post in the subreddit view, the post is displayed in much greater detail, with the comments available to read as well. Returns to screen 2 when Back selected.

## Screen 4 - User selects subreddits

④ Screen 4 → "Select Subreddits"

← Select Subreddits

Search bar (magnifying glass icon)

r/sub 1 ⊗

r/sub 2 ⊗

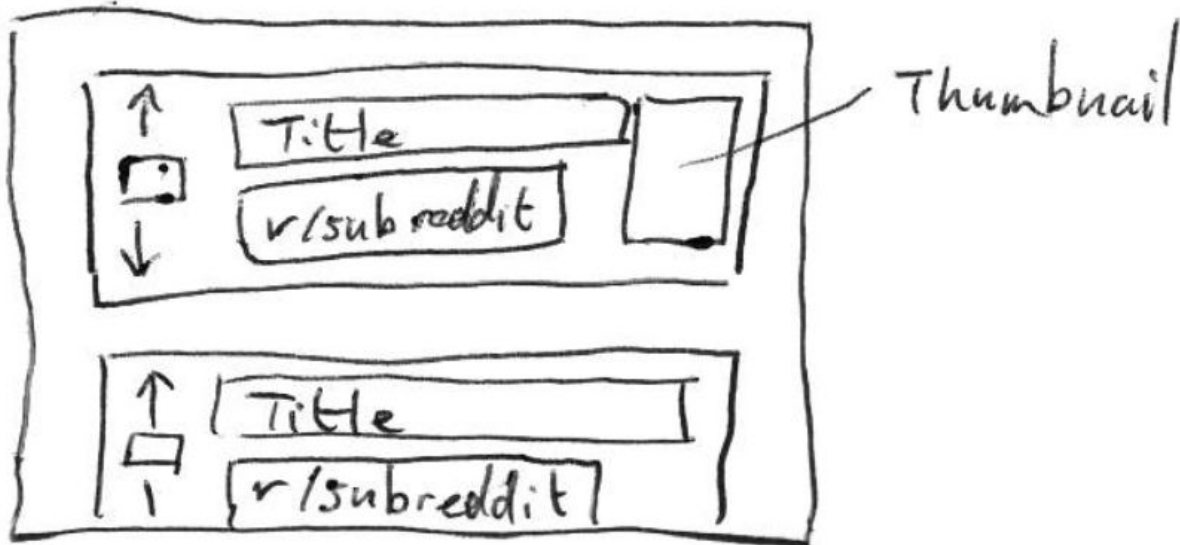
⋮

r/sub-n ⊗

Accessed from the main screen, the user is able to select subreddits for the app, using the text input search bar. The current selection of subreddits are displayed, and it is possible to remove a subreddit from the list.

## Screen 5 - Widget Layout

⑤ Widget



The widget will display a pared-down view of the cards in the main screen. The list of cards can be scrolled up/down.

## Key Considerations

### How will your app handle data persistence?

The Room persistence library will be used to persist top posts from selected subreddits from polling until viewed by user.

Selected subreddits will be stored in SharedPreferences

### Describe any edge or corner cases in the UX.

Orientation:

Changes from portrait to landscape and the reverse should be seamless with regard to display. Since video playback isn't going to be supported in the app, not necessary to store and restore video playback state.

Network Connection:

There are two identified edge-cases here: 1) no network when using the app for the first time, and 2) no network at some point after first using the app

- 1) The app will have no stored subreddit data, and cannot access the reddit API. Display a message to the user indicating the app requires a network connection to contact Reddit for the first time, in a textView rather than a transitory toast or snackbar.
- 2) Data for display is retrieved from the database, so a lack of network connection doesn't affect the basic operation of the app. If there's no network connection, indicate that using a toast the user initiates an operation requiring a network call.

**Describe any libraries you'll be using and share your reasoning for including them.**

**JRAW-Android v1.1.0**

Java reddit API wrapper (<https://github.com/mattbdean/JRAW>) - Library provides a wrapper for the Reddit API, offering a simple and convenient tool for authenticating and accessing/presenting data, with some Android-specific classes.

**Room Persistence Library, v1.1.1**

Persistence library wrapping sqlite, providing persistence with an interface I'm far more comfortable using (DAO interface). Store subreddit data from each periodic polling until the point it is used, including when offline

**Picasso v2.71828**

Image downloading and caching library. While json data will be retrieved from reddit, images will only be fetched as required, to minimise data charges and resource utilisation.

**GSON v2.8.5**

Library (from Google) for converting JSON objects to Java object equivalents

**Android Studio v3.1.4**

Primary IDE for Android dev, based on IntelliJ IDEA, an IDE I'm very familiar with.

**Firestore v16.0.4, FirebaseAuth v16.0.4**

Library for including Firestore analytics and authentication in app

**Android Support version: 27.1.1**

buildToolsVersion: 27.0.3

compileSdkVersion: 27

minSdkVersion: 21

targetSdkVersion: 27

Gradle version: 3.1.4

All code to be written in Java. All specified library versions to best of my knowledge considered stable at time of writing. Dependencies managed by Gradle.



## **Describe how you will implement Google Play Services or other external services.**

Firebase Analytics implemented to get app feedback on:

- Usage of each page
- Crash / error reports

Implementation described in Task 3.

Firebase Authentication to authenticate users to the app.

## **Next Steps: Required Tasks**

### **Task 1: Project Setup**

- Create new project in Android Studio
- Configure basic libraries required to get an app running.

### **Task 2: Implement basic data structures, reddit API query**

- Get initial authentication and subreddit query working (with hardcoded credentials, subreddits)
- Implement required domain objects and Room methods to store retrieved subreddit info.
- Implement classes and methods to query Room
- Manage data retrieved from Room and updating of UI with ViewModel class, wrapping a LiveData data structure.
- Iterate reddit API query to reduce number of network calls made, potentially to the point of only a single query being made each time  
(<https://mattbdean.gitbooks.io/jraw/pagination.html>)

### **Task 3: Add Firebase Analytics, Authentication to app**

- Add compile dependencies in Gradle
- Link app to Google Analytics for collating reporting data, authentication
- Create single FirebaseAnalytics instance
- Log relevant events in app (described below)
- Implement FirebaseUI sign in flow for app
- Users' subreddits to be stored in Firebase for cross-device synchronization

### **Task 4: Implement UI for Main Activity, UI for a selected subreddit post**

- Build UI for MainActivity

- Activity and fragment
  - CardView with info for each subreddit selected
  - Images for headline posts loaded via picasso, stored on device
  - Log errors to firebase
- Build UI for viewing a selected subreddit
  - Activity and fragment
  - Returns to MainActivity
  - There's a lot of information on this page to display, so ensure it conveys info without getting 'too busy'
- Build UI for viewing a selected post in subreddit
  - Activity and fragment
  - Returns to 'Selected subreddit'
  - Outsource things like playing video/audio to youtube / media player / browser via broadcast intent
  - Log errors to firebase
- Build in RTL switching capability when creating layouts, rather than afterwards
  - Use \*Start/\*End rather than \*Left/\*Right layout properties
  - Ensure 'android:supportsRtl="true"' present in <application> in manifest
  - minSdkVersion: 21 > 17 (minimum required SDK)
- General guidelines for all layouts:
  - Back button will always return to previous page (ie unmodified)
  - Include nextFocus\* directives for interactive elements like buttons, text inputs for keyboard / directional pad users
  - Label images with contentDescription tags as far as possible
    - Static images labelled in xml
    - Dynamic images labelled by setContentDescription in code
  - Use json 'title' attribute to label images from subreddit posts
  - Group sets of elements comprising a logical or single unit of information into 'focusable' containers where possible (subreddit post score for example)

## Task 5: User preferences - select the subreddits to follow

- Build UI for selecting subreddits user wants to follow.
  - Accessible through options in MainActivity
  - Returns to MainActivity, triggering a poll if new subreddits added
  - Selected subreddits stored in sharedPreferences
    - Stored in sharedPrefs to avoid issues if network not available (vs stored in firebase exclusively)
  - Ensure selected subreddits are 'SFW' before adding to list (inform user of reason for rejecting)
  - User input is sanitised and validated before use, exceptions handled gracefully
- To check if subreddit exists, use AsyncTask to query

- [https://www.reddit.com/subreddits/search.json?q=subreddit\\_to\\_query](https://www.reddit.com/subreddits/search.json?q=subreddit_to_query)
- 'Dist' value of 0 and empty 'children' set in returned json indicates no match

## **Task 6: Material Design considerations**

- With the majority of UI functionally implemented, apply material design considerations:
  - Displayed strings declared in res/values/strings.xml and referenced by name
  - Colors and dimensions declared in res/values/\*.xml and referenced by name
  - Styles declared in res/values/styles.xml, referencing declared values in applicable res/values/\*.xml files

## **Task 7: Error cases**

- Handle issues like no network connection
- Rotation from portrait to landscape and back
- No subreddit by specified name exists - firebase

## **Task 8: Tablet layout**

- Implement master-detail layout for tablet devices (in landscape only)

## **Task 9: Implement widget**

- Implement widget to display title(s) of subreddit posts

## **Task 10: App Signing**

- Configure a signing configuration for the app
- Keystore and passwords to be included in repo.