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GitHub Username: josephx86

MemeFactory

Description

MemeFactory allows a user to quickly make memes using pictures from a mobile device or the camera. Memes can be shared on platforms like Twitter and Facebook.

Intended User

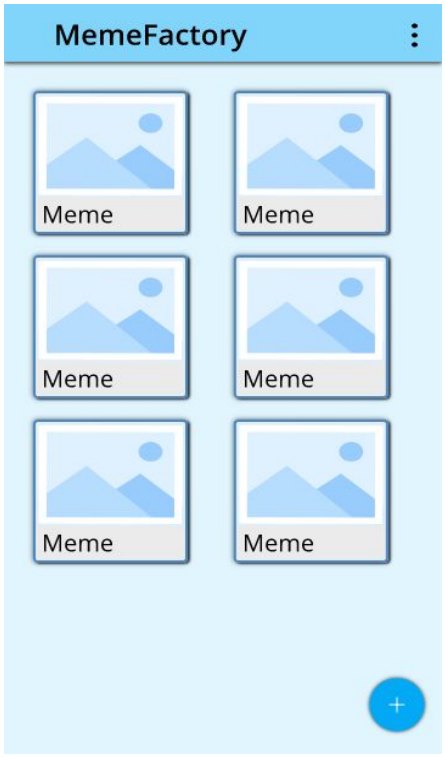
Anyone who enjoys jokes and memes.

Features

- Creates memes from pictures saved in device or from camera
- Saved pictures to local storage
- Shares memes to social networks

User Interface Mocks

Screen 1



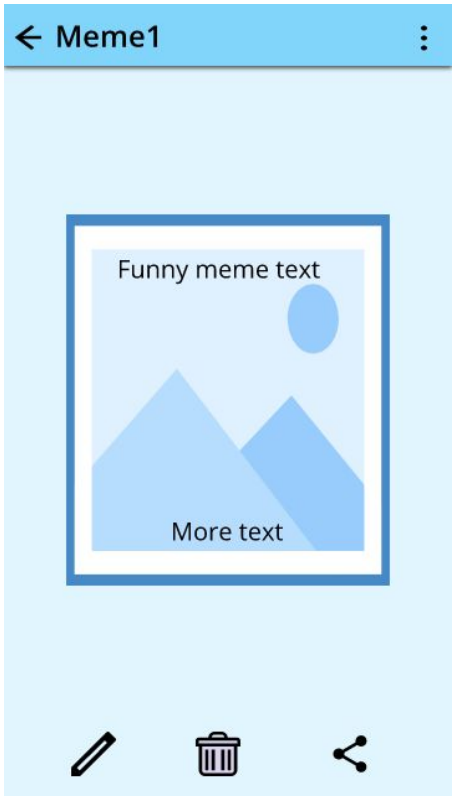
App home/library screen: Shows all the memes created in the app. From this screen, the user can also create a new meme.

Meme Widget

Meme will be displayed on the home screen as widgets in a recyclerview. The meme widget will be made from a CardView found in the Android Support Library. The Cardview will have the following child views:

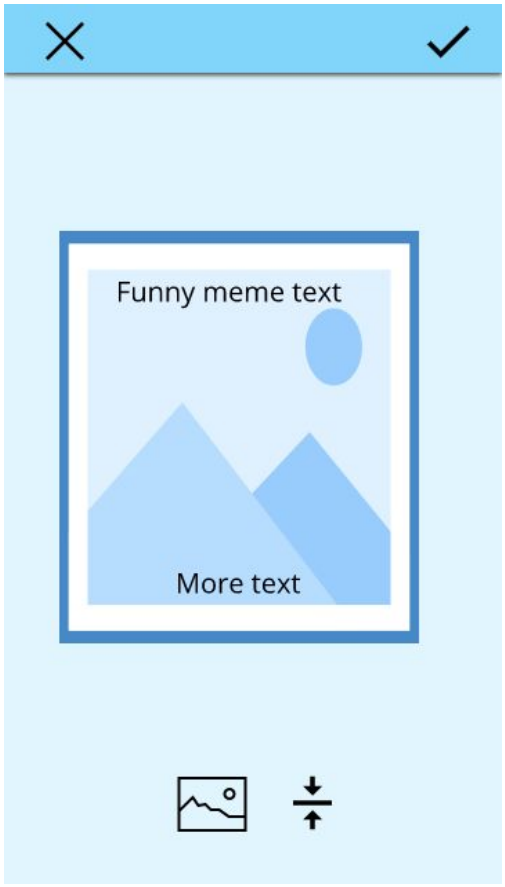
- ImageView - will show meme preview
- TextView - will show name of meme

Screen 2



When a meme is selected, the app will allow the user to edit, delete, or share the meme.

Screen 3



When adding or editing a meme, the user can set the background using a picture saved on the device or from a picture taken by the camera. The user can also toggle between 1 and 2 lines of text.

Key Considerations

How will your app handle data persistence?

The app will use a local SQLite database that will be accessed through a content provider. The app will also use Firebase Realtime Database for data persistence so that a user's meme data will be available on different devices after sign in.

Describe any edge or corner cases in the UX.

If a user uses the camera to take a picture, the resulting image might be very large in size such that it slows the app's performance. It is also the case that in memes, users do not really need a

high resolution image. To take care of this issue, the app will resize the image to a default of 320px x 320px.

On a tablet, the app will take advantage of the screen space and use master detail view to manage memes.

For accessibility support, the app will use content descriptions where possible.

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

Library versions are shown in Task 1 below:
Picasso - Loading images in ImageViews
Butterknife - Loading views from xml into Java objects
Schematic - Content provider and SQLite database
Android Support Library - Provides CardView and RecyclerView
Google Mobile Ads - Provides ads for the ad-version of the app
Firebase Authentication - Will be used to implement user accounts
Firebase Realtime Database - Used for data persistence in addition to SQLite

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

The app will use Firebase Realtime Database and Firebase Authentication to save a user's meme data. Google Mobile Ads library will be used in the ad-version of the app to display banner ads at the bottom of the screen. Please refer to Task 1 below for the versions used for each of the libraries.

Next Steps: Required Tasks

Task 1: Project Setup

The versions of plugins and libraries used will be updated if newer versions become available. The project will be setup as follows:

- Development environment will be:
    - Android Studio - v 3.1.4
    - Gradle plugin - v 4.10
    - App will be written solely in the Java programming language
- Configure libraries:
    - Picasso - v 2.71828
    - Butterknife - v 8.8.1
    - Schematic - v 0.7.0

    - Android Support Library - v 27.1.1
    - Google Mobile Ads - v 15.0.1
    - Firebase Authentication - v 16.0.3
    - Firebase Realtime Database - v 16.0.1
- Create vector graphics/images used by app
- Create color scheme
    - save colors in colors.xml
    - set colors in default theme/style
- App keeps all strings in a strings.xml file and enables RTL layout switching on all layouts.
- Configure app flavors - ad-version and ad-free version

Task 2: Implement UI for Each Activity and Fragment

- Build UI for
    - home/library screen
    - new/edit meme screen
    - manage meme screen
- Build UI for login/signup and implement Firebase Authentication
- Create menu xml file. Menu will have: 1. About app, 2. Get ad-free version

Task 3: Meme widget implementation

The app will load memes into a recyclerview on the home screen. The recyclerview will use widgets which are created using a CardView widget. The CardView will have

- An image view that shows a preview of the meme
- A TextView with the name of the meme

Task 4: Database configuration and access

Use Schematic to setup access to SQLite database through a content provider.
Database will have the following columns:

- ID - int, auto_increment
- BackgroundImage - blob/image
- TextLine1 - string
- TextLine2 - string
- Meme - blob/image
- UserId - ID of user who created meme. It will be possible for different users to sign-in (one user at a time) on a single device. App will only manage memes for the currently signed in user.

Task 5: Load memes on home screen

Now that the database has been configured, app will load memes on home screen

- Using IntentService, sync meme data between local SQLite database and remote Firebase Realtime Database
- Use content provider to load memes from database into a recyclerview
- Use floating action button to open activity that creates a new meme

Task 6: New meme

When creating a new meme

- allow setting background using image from local storage or camera
    - resize image if it is too big (a side is larger than 720 pixels)
- allow use to toggle between 1 and 2 lines of text for the meme
- the user can type text
- if user cancels creating meme, go back to home screen
- if user saves meme
    - generate meme by combining image and text into a new image.
    - save meme data to both SQLite and Firebase databases using IntentService
    - go to manage meme screen

Task 7: Manage meme

When a meme is selected on the home screen, open an activity that to either edit, delete or share a meme.

- Edit - open new meme screen. It can also be used to edit a meme.
- Delete
    - delete database records - from both SQLite and Firebase
    - go back to home screen
- Share
    - Meme is an image. It will be shareable by any app that can handle/accept posting images.

Task 8: Implement Firebase Realtime Database

To allow a user's data to be available across different devices/re-installs, when home screen is loaded and user is signed in, check if all data in Firebase Realtime Database is available in the

local SQLite database and vice-versa. A timestamp field in the user profile will be used to determine last sync time. When a new meme is created and saved to the local database, also save it in the Firebase Realtime Database.

Task 9: Implement Google Mobile Ads

- App will display banner ads at the bottom of the screen in the ad-version of the app.

Submission Instructions

- After you've completed all the sections, download this document as a PDF [File → Download as PDF]
    - Make sure the PDF is named "**Capstone_Stage1.pdf**"
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