

The Reddit Reader

EASECENTRAL

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Introduction

This section gives a scope description and overview of everything included in this report document. Also, the purpose for this document is described and a list of abbreviations and definitions is provided.

PURPOSE

The purpose of this document is to give a detailed description of the requirements for the “The Reddit Reader” application. It will illustrate the purpose and complete declaration for the development of system. It will also explain system constraints, interface and interactions with other external applications.

SCOPE

The Reddit is an American social news aggregation, web content rating, and discussion website. Reddit's registered community members can submit content such as text posts or direct links. They can also give comments and upvote and downvote a content. The “Reddit Reader” is a simple application running on Android platform. Users can create an account with a username and password. They will register with this app only, not with official Reddit application. Once they have an account, users will go to a page and view Reddit posts and be able to favorite links/posts they like.

For sake of keeping the simplicity of the project, only links, titles , number of comments and images of the posts are taken into consideration for the Reddit Reader. This has been done by taking the JSON endpoints from <http://www.reddit.com/hot.json>. Also the user has the ability to save their favorite post for viewing later on. Then the user can navigate to another page to see his/her favorite posts.

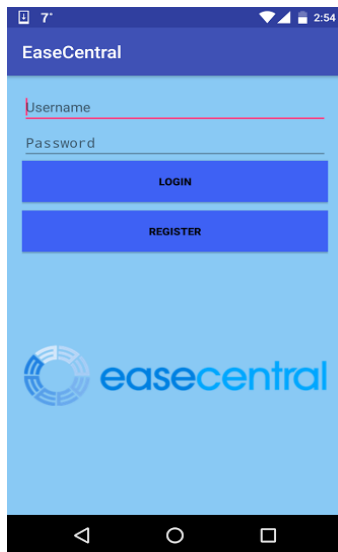
Overall description

This section will give an overview of the whole system. The system will be explained in its context to show how the system interacts with itself and introduce the basic functionality of it.

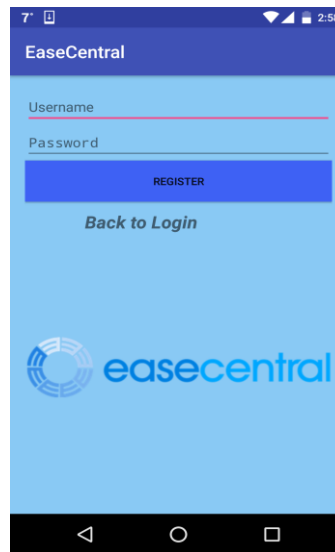
WORKFLOW

There are 5 screens to the app:

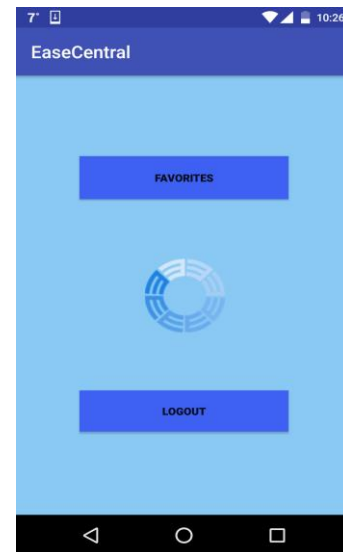
- The Login Page
- The Registration Page
- The Main Page
- The Reader Page
- The Favorites Page



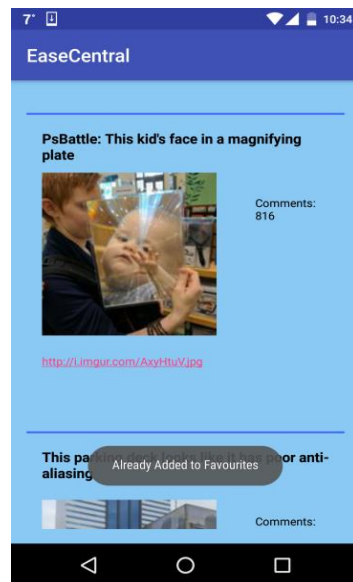
The Login Page



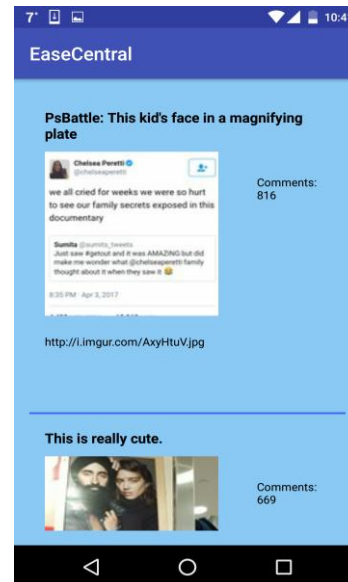
The Registration Page



The Main Page



The Reader Page



The Favorites Page

The workflow of the app is as follows:

1. The User first registers himself/herself with the app if he/she is not registered by going to the *Registration Screen* by clicking on the “Register” button on the *Login Screen*”
2. Once the user is register with his username and password, he navigates back to the *Login Screen* by clicking on the “Back to Login”.
3. Then the user enters the main app by entering his/her username and password and lands of the *Main Screen*.

4. In the *Main Screen* , the user will be shown two button “Favorites” and “Logout” and the **special EaseCentral wheel** which acts as the main driver of the app.
5. Once the user clicks on the **special EaseCentral wheel**, he/she will be routed to the main Reddit Reader where the user can see all the updated post with the title, Image, number of comments and the special link of the jpeg/gif/YouTube of the corresponding post.
6. The User can click on the specific link and it will take the user to the specific jpeg/gif/YouTube page of the specific post.
7. If the user wants to save his/her favorite post , he/she just needs to click on the specific post and it will be automatically added to the “Favorites list” which he /she can visit later by click on the “Favorites” button found in the *Main Screen*.
8. Then the user navigates back to the *Main Screen* and clicks on the “Favorites” button which takes the user to the their favorite posts which they had selected while browsing the Reddit reader previously.
9. If the user wants to end his/her session, they can use the “Logout” button . Hitting the “Logout” will end the current session.

Technical Specification

TECHNOLOGIES AND LIBABRIES USED

The development of this app required various different technologies along with different libraries acting as support.

1. The app is built of Android IntelliJ platform
2. The main technology used is Java 7
3. The app is built on API 21, Android 5.0 Lollipop which approximately runs 40% devices in the market
4. It is targeted only for Phone and Tablet
5. The app is tested on Nexus 5 API 23 emulator which is powered by Google APIs Intel Atom (x86) as well as on Nexus 5 hand-held device running on Android 6.0.1 Marshmallow.
6. SQLite is used as database
7. For providing the JSON parsing functionality and easy networking over HTTP , *Android Volley* library is used.
8. For easier manipulation of image ,Android’s *Picasso* library is used
9. Real time JSON data is gathered from <http://www.reddit.com/hot.json>.

Details of the Classes and Layout

CLASSES

There are 12 Classes used in the project with over 1000 lines of codes written with numerous function. The 12 classes used are:

1. **LoginActivity.java:**
 - a. This class provide the login functionality of the app
 - b. It also checks with the database whether the username and the password entered matches or they exist or not and prompts the user for the same
2. **RegisterActivity.java:**
 - a. This class provides the registration functionality of the app
 - b. It also checks whether the user has correctly entered both the fields or prompts the user for the same
3. **Session.java:**
 - a. This class maintain the session once the user logs in with his/her username and password and maintain the mentioned session until the user logs out.
 - b. It also calls for the destruction of the database to avoid redundancy or wastage or space once particular user logs out
4. **MainActivity.java:**
 - a. This class provides the initiation of the main functionality- it initiates the Reddit reader, contains the gateway to the Favorites page as well as contains the logged out functionality
5. **DisplayListView.java:**
 - a. This is the class where the parsing of the JSON data from the happens and it shoots the data to the other classes and database for visualization purposes
6. **InformationAdapter.java:**
 - a. This is the Adapter class which sets the parsed data which from the Reddit JSON in the listview of the app's screen
7. **Information.java:**
 - a. This class provides the constructor, getter and setter method which are needed for the InformationAdapter.java class
8. **DbHelper.java:**
 - a. This class is the one which handles all the functionalities related to database, SQLite which are needed in the application
9. **DisplayFavourites.java:**
 - a. This class provides all the data (selected by the user as "favorites") and shoots the data to the other classes and database for visualization purposes (listview)

- b. It's work is same as that of the `DisplayListView.java` class. Only difference is the latter one is concerned with the data visualization of the Reddit app whereas, the former one is concerned with the data which is selected by the user as favorites
- 10. `DataProviderToFavAdapter.java`:**
 - a. This is the Adapter class which sets the data which is selected by the user as "favorites" from the Reddit reader ,in the listview of the app's screen
- 11. `DataProviderToFavs.java`:**
 - a. This class provides the constructor, getter and setter method which are needed for the `DataProviderToFavsAdapter.java` class
- 12. `AppController.java`:**
 - a. The driver class which is needed by the *Android Volley* library to perform
 - b. This contains all the methods which are necessary and acted upon by Volley

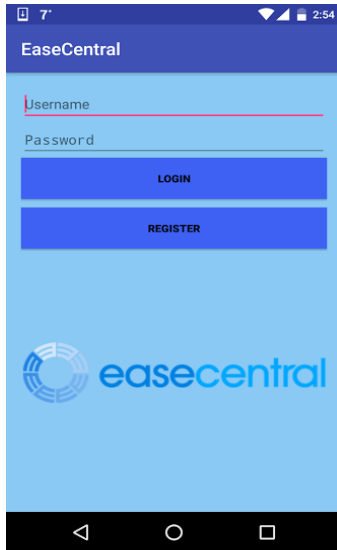
LAYOUTS

There are 7 layout screens:

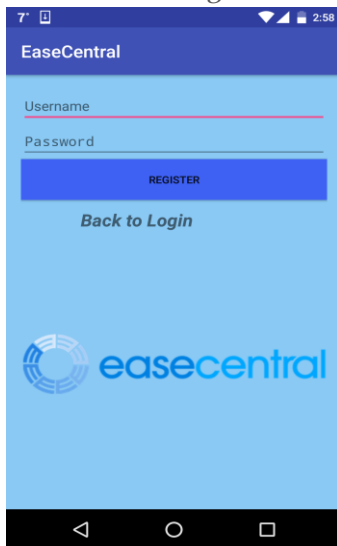
1. `activity_login.xml` : Provides the login screen of the application
2. `activity_main.xml` : Provides the main screen which acts as the initiators of the main functionalities of the application like Reddit reader, Favorites and Logged out
3. `activity_register.xml`: Provides the registration screen of the application
4. `favourites_row_layout.xml`: The single row schema of the listview which holds the "favorite" posts of the user
5. `display_favourites_layout.xml`: The layout of the listview which holds the "favorite" posts of the user
6. `row_layout.xml`: The single row schema of the listview which holds all the Reddit post directly parsed from real time JSON
7. `display_listview_layout.xml`: The layout of the listview which holds all the Reddit post directly parsed from real time JSON

Diagrammatic representation of Workflow

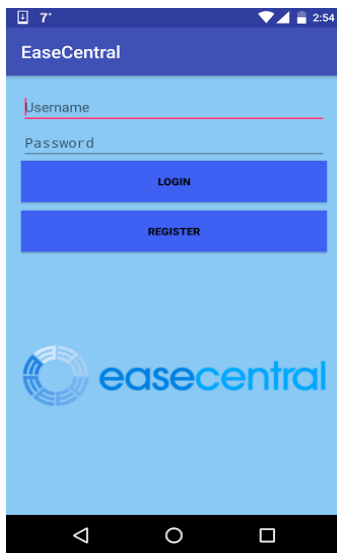
1. The App opens with this screen



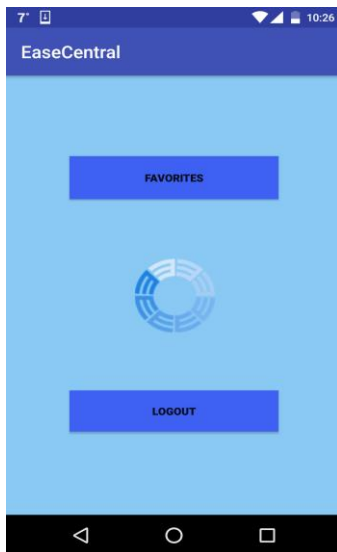
2. The user navigates to the Register screen and Registers by clicking on “Register” button



3. The user then navigates back to the Login Screen and enters the password and username .



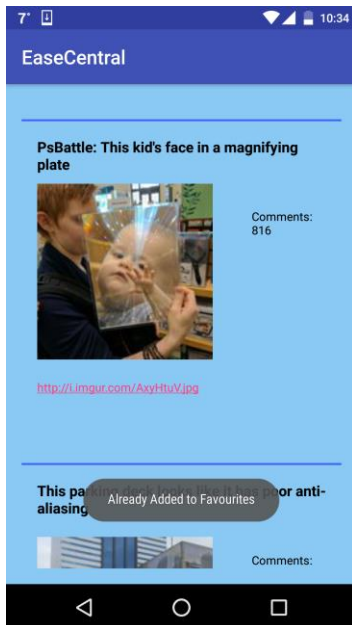
4. The user is routed to the Landing page of the app



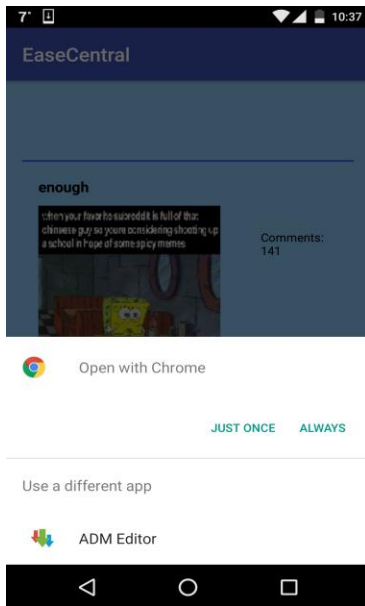
5. The user the click on the *EaseCentral wheel* which takes him to the Reddit Reader where he can see real time Posts which includes Title, Comments, Links to social media and the images



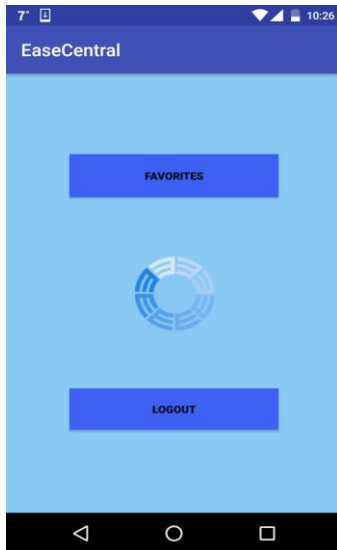
6. The user can click on any grid and it will automatically be added to his/her “Favorites” page. Trying to add the same post the second time, will give a toast message.



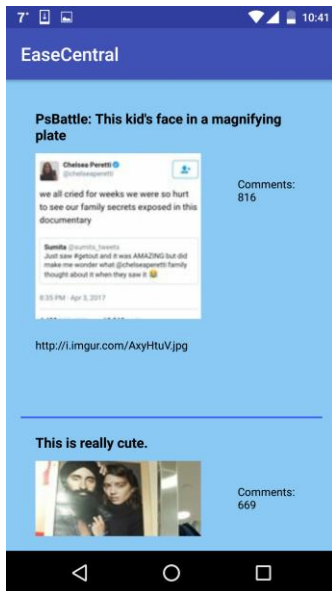
7. If the user clicks on any URL link of any post, he will be routed to the social media page of that post.



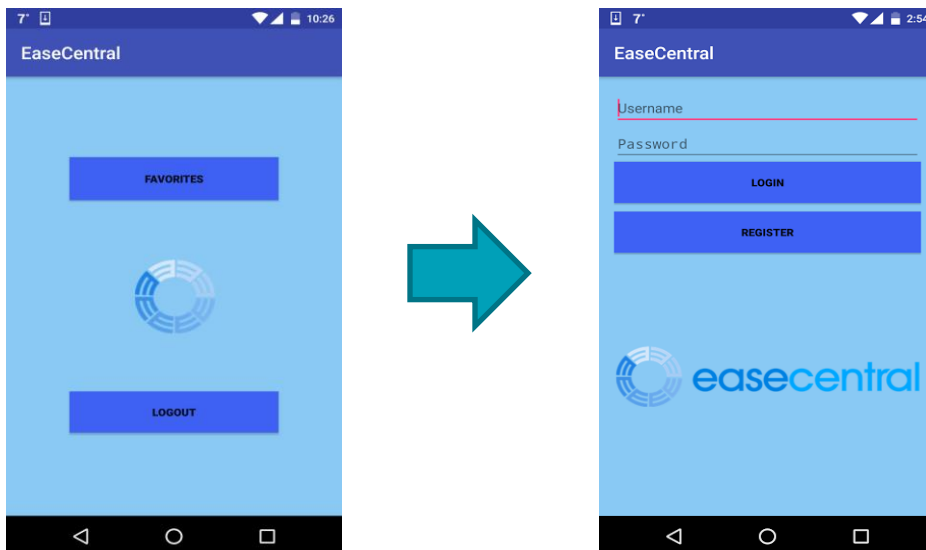
8. User routes back to the landing screen and click on the “Favorites” button to view his/her favorite post which he/she has selected previously.



9. The user can see his favorite posts in separate screen



10.If the user wants to logout of the current session, just navigate back to the landing page and click on the “Logout” button and he will be routed to the login Page



Points to consider

Few points to consider for :

1. It helps the user see the real time trending Reddit posts which the associated titles, comments, links to the social media as well as the picture without logging in to the real Reddit app, but getting the Reddit experience
2. Users can save their favorite posts for later viewing in a different page
3. The username and password gives the power of session to the user . As long as the user is logged in with his/her name, the session is dedicated to him/her. Once he/she logs out, the session gets over.

Challenges

Numerous challenges were faced in course of the development of the app.

1. Started parsing the JSON in a native manner using HTTP request. But the complexity of the JSON arrays and objects was too much, hence had to take the help of the Android Volley library for parsing the data in a lucid manner
2. Was using the general Shared Preferences for storing username and password. But the difficulty was, it was keeping in track with the “session” thing. Hence. Had to switch gears to generic SQLite database for storing the credentials as well as implementing the ‘session’ functionality
3. Was facing a challenge when trying to render the picture in an image-view from a HTTP URL. The native rule is converting the URL in Bitmap and then rendering it. Android Picasso library can in handy while doing this as it converted the URL into the picture with only few lines of code
4. Trying to make the URL Link clickable inside each listview element was blocking the entire UI and the app was crashing
5. The major problem faced was latency in downloading the images when the user scrolls the page. The comments, links and titles were getting downloaded fast, but when it came to the images , that was taking time which result in wrong image being selected by the user (when the user wants to save the image as his/her Favorite)

Example : Let the user selects a Post ‘A’ with ‘A’ comment, ‘A’ title, ‘A’ URL and ‘A’ Image as his “Favorites” . When the user navigates to the “Favorites” page and checks the posts, the posts’ images were getting messed up due to latency in downloading of images from the internet. That is, he was seeing the Post ‘A’ along with ‘A’ comment, ‘A’ title, ‘A’ URL but some other random Images from other post

Scope of Improvement

1. The session of every user ends once he/she logs out. That means, the favorite posts that is selected by the user during that session also gets deleted. Hence, if the user comes back to his/her account again, he/she won't be able to see the posts which he/she selected in the last session. So, this functionality can be extended so that the app can keep track of certain user's favorite post, regardless of the number of times he/she logs in or logs out.
2. The URL link of an associated post doesn't work in the "Favorites" page. It only works in the Reddit Reader page. So, this functionality can be extended to make the URL links active in the "Favorites" page , too.