Project Report on

News App on Android Platform

4th year Industrial Training on

“Commercial Android Application Development”

Trained by

Apsolutio Technologies Pvt. Ltd.

Computer Science and Engineering

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**About the project :**

News apps have taken over the printed newspaper with the changing time in this technology-driven world. The application designed here is a reasonably decent news app for Android. It sources its news from itself along with hundreds of sources both local and nationwide. The UI is serviceable and clean and you can find news on a variety of topics, including sports, entertainment, travel, technology, and more. One can refresh the app every now and then to get updates of the current news from all over the world. The main page contains only the headlines of the news and on clicking a desired news headline the entire news gets loaded in a new page. Users get the option of saving any particular news for future reference. There is also an option for searching news as and when required by the user.

**Technologies Involved :**

The main technologies that have been included in this project are

1. **Android: The** android is a powerful operating system and it supports large number of applications in Smartphones. These applications are more comfortable and advanced for the users. One such application is the news app which has been developed using Android Studio in Java language. The android is an open source operating system means that it’s free and any one can use it.
2. **Retrofit:** Retrofit is type-safe REST client for Android and Java which aims to make it easier to consume RESTful web services. Retrofit automatically serialises the JSON response using a POJO(Plain Old Java Object) which must be defined in advanced for the JSON Structure. To serialise JSON we need a converter to convert it into Gson first. We need to add the following dependencies in our build.grade file.In this project, we createdan app that uses the Retrofit Library to download JSON Objects containing news details from The News API, this news details will now be displayed in a RecyclerView on the Android App.
3. **Realm Database System**: Realm is an open source object database management system. In our application, we have used the realm database for storing the news details which will be saved by the user for future reading.
4. **Search View**: It is a widget that provides a user interface for the user to enter a search query and submit a request to a search provider. Shows a list of query suggestions or results, if available, and allows the user to pick a suggestion or result to launch into. In our app we have used this widget for searching of news.

**Database Schema Used:**

The project has 3 database schemas:

Schema “Articles”

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| Id | Primary key of the schema, unique for each article. |
| Author | Author of the article. |
| Title | Title(headline) of the article. |
| Description | Short description of the article. |
| URL | URL of the article |
| urlToImage | URL of the image associated with the article. |
| PublishedAt | Date and time of publication of the article. |

Schema “News”

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| Status | Status of news articles fetched |
| TotalResults | Total no. Articles fetched. |
| Artilces | A list of the articles fetched. |

Schema “Source”

|  |  |
| --- | --- |
| **Attributes** | **Description** |
| Id | Primary key of the table, unique for each source. |
| Name | Name of the source. |

**Contributions:**

* **Designing the User Interface (ROLL 56)**

The UI of the app has been designed as instructed by the mentors. The main page has got provision of refreshing the news. The SwipeRefreshLayoutis used whenever the user wantsto refresh the contents of a view via a vertical swipe gesture.

The RecyclerView has been used for displaying certain number of news headlines on the main page.

The SearchView widget helps in searching for specific news.

NestedScrollView or simply ScrollView helps in scrolling among several views which are there in the view group.

Several other widgets like AppBarLayout, CollapsingToolbarLayout, cardView and basic widgets like buttons, text views etc have been used to design the UI.

* **Designing the Database and saving articles system(Roll 54) :**

Realm has been used to manage in-device stored articles. Each time an article is intended to be saved, a realm object of the type “Articles” is created. This object stores all the above mentioned attributes of the current article in the database.

The “saved articles” activity displays all the saved articles in the device. This is again done by fetching the stored articles in the form of RealmResults objects and displaying them using display activity xml and adapter class designed for this activity.

* **Working with the Glide Library and pretty time (Roll 55)**

Glide which is an open source image loading and caching library for Android APPs development has been used in our app. It is primarily focused on smooth scrolling. It is the most popular library for image loading and caching and it enables fetching, decoding, and displaying images and GIFs.

Glide will take care of all the high complex backend manipulation for our news app.The library is passed with the image URL and it loads the image from the network efficiently.Images are loaded from the internet and we have given access for the App connect the internet. All the complex work of loading and handling the images are done by the Glide library . In fact, we have written code in the adapter to pass the image url and invoke the Glide API.

PrettyTime is used here which is an OpenSource time formatting library.It creates human readable, relative timestamps .TimeUnits are the units of measure in PrettyTime. They can be as long or as short as desired, and can be formatted into any necessary pattern.Build in - uses prettytime library translations.As the name implied, this library really makes the time format very pretty and friendly .

* **Working with Retrofit (ROLL 53):**

Retrofit is a type safe REST client for Android, Java and Kotlin. The library provides a powerful framework for authenticating and interacting with APIs and sending network requests with OkHttp.

We first create Retrofit instance. To send network request we need to use Retrofit Builder class. We specify the base URL for service.

To do this we need to create APIClient.java under rests package.

In this project the BASE\_URL is basic URL which we will use this for all requests.

The converter dependency provides a GsonConverterFactory class. Then call the create instance of that class. It is done by create() to our retrofit instance with method addConverterFactory().It will automatically take care of mapping JSON data to java object.

**Screenshots of the News app:**

|  |  |
| --- | --- |
|  |  |
|  |  | |

**Implementation(Code) :**

<https://github.com/SharmisthaP/MyNewsApp>

**References:**

1. <https://developer.android.com/guide>
2. [www.stackoverflow.com](http://www.stackoverflow.com)
3. <https://github.com/haerulmuttaqin>