

ABSTRACT

The application that was developed as a part of the Internship programme consists of four components, which are two Android Apps namely *Return Trade* and *Smart News*.

The *Return Trade* has two games. The first game called *Banking* is to release companies' stocks into a game format, so that users can experience stock investment in different situations. The second game called *Smashing Pot* is a broken game, where companies are randomly hidden in a pot and found within a given chance. The project is done as an Android App and the coding is done using Kotlin.

The app *Smart News* makes one easy to subscribe news from Google online or offline. It is available in five languages. The users can subscribe to any category of articles from a total of three categories. Bookmark pages provide convenience to users as they can collect and store articles of interest. Major articles can be pushed by the server and can be subscribed in real time. In this application, Json news API is used to receive Google News and Firebase Notification Center (FNC), which is a cross-platform messaging solution that can reliably transfer messages and is used to get an alarm.

1 INTRODUCTION

The project presented here has two applications that was built for demonstration at the request of clients of a company. It notifies that the project may be changed later after discussion with the clients. The first **Return Trade** application has two games. The first game 'Banking' is to release companies' stocks into a game format so that users can experience stock investment in different situations. It is characterized by colorful and finely decorated UI. The second game 'Smashing Pot' is a broken game, where companies are randomly hidden in a pot and found within a given opportunity.

This second application **Smart News** is designed to make it easy to subscribe to news from Google online or offline. It is available in five languages. The users can subscribe to any category of articles in three categories. Bookmark pages provide convenience to users as they can collect and store articles of interest. Major articles can be pushed by the server and can be subscribed in real time by going to the Details page immediately after clicking the alarm.

1.1 GOAL AND OBJECTIVES

The goals and objectives of the proposed system are listed below:

Goal

To develop two Android applications for stock and News for the benefit of the users of the to understand stocks and interact among themselves.

Objectives

The objectives of the applications developed are listed below.

- To develop an application 'Return Trade' with two games 'Banking and Smashing pot'. The first games aims to kindle interest in users about stocks of each company with view created exactly as required by the client. The break-up game aims to help the users to learn about many companies by encountering them. The goal is to reach users who find

company stocks difficult and boring, to understand them through games.

- To develop an application named ‘Smart News’ that allows users to share news and articles, which can be subscribed, with the following features.
 - Users can subscribe to news from all over the world with the application alone.
 - Users can easily share articles of interest with other friends and store them in bookmarks.
 - Users can manage an article at once with single or full selection.
 - Major articles can receive push alarms from the server and go to the *Details page* when the alarm is clicked.

1.2 NEED FOR THE SYSTEM

doodleblue is a digital strategy company. The application is completely developed as per the needs of its clients. This application is for demonstration purposes, and it is likely to be modified later. The client’s requirement is to make the company's shares into a game, so that users can easily access and measure them.

Application 1

This application helps users to learn the names of different companies and trade their stocks through two types of games.

Game 1: The first game, ‘Banking’ is for users who are familiar with investing in stocks. It takes stocks from several companies and stages them into three stages. The stock trading is done through games. Hence it is done through virtual simulation.

Game 2: In the second game, ‘Smashing Pot’, an animation effect is provided to smash pots using a hammer, thereby making it informative about companies and also enjoyable.

Application 2

This application is named ‘Smart News’. All users who want to subscribe to news can only

subscribe online. Then the users can visit website and read articles. Those who watched the news often needed an application that managed news from various fields around the world. They also required the feature to store interesting articles through *bookmarks*, so they could be easily found next time. It should be possible to easily select and remove articles through full selection and total release rather than a single choice.

This application automatically stores articles in the database each time the user runs the application, enabling it to run offline. The problem has been solved so that people can subscribe to articles even without Internet connection. By collecting articles by a chosen topic, only those that are in the field of interest are read quickly making the application more efficient.

1.3 HARDWARE AND SOFTWARE SPECIFICATION

Hardware Specification

Processor : Intel® Core™ i5-7200U CPU

RAM: 8GB

Processor Speed : 2.71GHz

HDD: 500GB

Software Specification

Programing Language - Kotlin

Database system - SQLite, Room Database

IDE -Android Studio

2 THE PROPOSED SYSTEM

2.1 REQUIRED TOOLS AND TECHNOLOGY

The tools and technology for development of the proposed system are listed below.

Tools

- Android Studio
- Bottom sheet layout
- Grid layout manager
- Custom Tool bar
- Frame animation
- Navigation drawer layout
- JSON news API
- Firebase Notification Center (FNC)
- Retrofit
- Dagger 2
- MVP
- WIFI or Cellular data for working online
- Android Phone - This application is available on the Android operating system. Hence Android phones are needed.

Technology

Database - SQLite, Room Database

Language - Kotlin

Android

- A software platform that combines Linux-based operating system, middleware, user interface, application, and MMS services.
- An operating system or operating system (OS) is a 'system software' that provides a platform for managing system hardware and running application software.

- Mobile operating systems are operating systems that control mobile devices or devices and support the execution and development of apps, such as Google's Android, Apple's iOS, and Nokia's Symbian.

MVP (Model View Presenter)

- View more separated from Model. The Presenter is the mediator between Model and View.
- Easier to create unit tests.
- Generally there is a one to one mapping between View and Presenter, with the possibility to use multiple Presenters for complex Views.
- Listen to user action and model updates.
- Updates model and view as well

2.2 FEATURES OF THE SYSTEM

The features essential for the **Return Trade** are

- A spectacular change of screen:* At the end of each step, the progress changes from red to green to indicate the progress and the progress is displayed on the screen.
- Animated Effects of Images:* It is possible to express dynamic movements by making the pot break and the hammer move.
- Interaction with user:* Users can interact with the application in real-time as they break a pot that they touch and move a hammer to a pot.
- Various companies:* Because various companies are selected at random, they can become active applications.
- Screen compatibility by device:* As many users are provided, all screens are automatically adjusted to fit the screen of the device used by the user.

The features essential for the **Smart News** are

- Language selection:* It supports five languages, and users can choose the language that suits their country.
- Category:* Articles can be grouped into three categories to effectively subscribe to

an article of interest.

- iii. *Share and Bookmark*: Users can share the content of an article with their friends and manage it separately by adding a bookmark.
- iv. *Single selection or multiple selection*: Multiple articles can be managed more conveniently by supporting multiple choices as well as a single choice.
- v. *Push Alarm*: Users can subscribe to key articles from the server as a push alarm.

2.3 STEPS FOR DEVELOPMENT

Application 1 Return Trade

There are two games that are developed in this application namely ‘Banking’ and ‘Smashing Pot’.

The steps for developing ‘Banking’ game are as follows.

1. Choose from several options by theme.
2. The agreement screen appears on the Terms and Conditions.
3. Select *Value* between Rs. 100 and Rs.1000.
4. Select one *Weighting* .
5. If users select all companies from the last step, finalize the *Order*.

The steps for developing ‘Smashing Pots’ game are as follows.

1. Press the Start button to start the game.
2. Companies appear on the screen in random order.
3. Move the hammer to guess the pot containing the company and crush it. The user is given three chances for each company.
4. If the user finds a company within a given opportunity, the game ends with a ‘Success’ sign. On the other hand, if it is not found, the game ends with a ‘Failure’ indication.

Application 2 Smart News

The features and the steps for implementation are listed below.

1. Provide various countries and language choices.
2. Group articles by category, to provide convenience to the user.

3. Allow User to subscribe offline or online, using the database.
4. Create single and multiple choices for easy management of articles.
5. Manage articles of interest through Bookmarks.
6. Provide for news sharing among multiple people.
7. Push notification from server for Major articles.
8. Go to the *Details page* after running the application, after the alarm.

3 SYSTEM DESIGN

The system can be designed using several ways. The design for the proposed system is given using ER Model.

3.1 ER MODEL

3.1.1 Return Trade

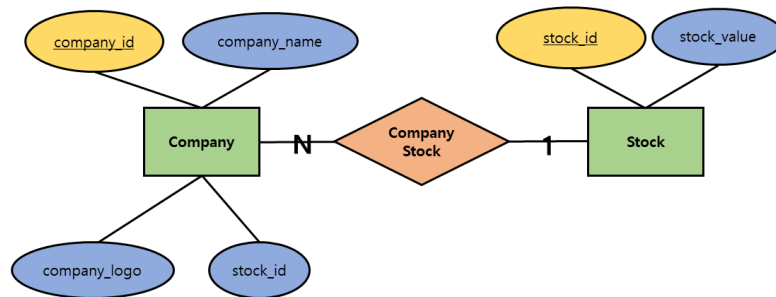


Fig. 3.1 Return Trade ER Model

3.1.2 Smart News

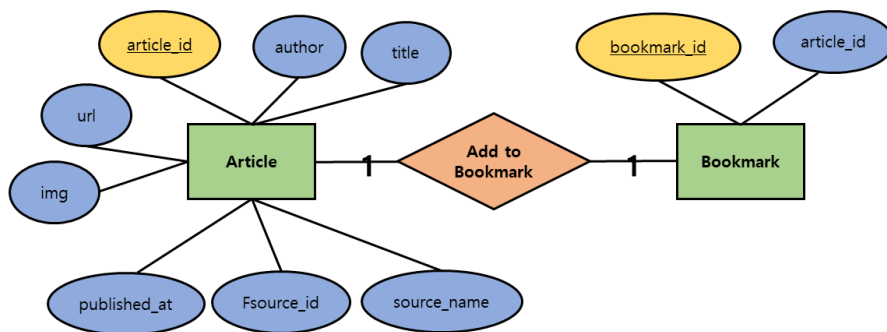


Fig. 3.2 Smart News ER Model

3.2 DATABASE DESIGN

3.2.1 Return Trade

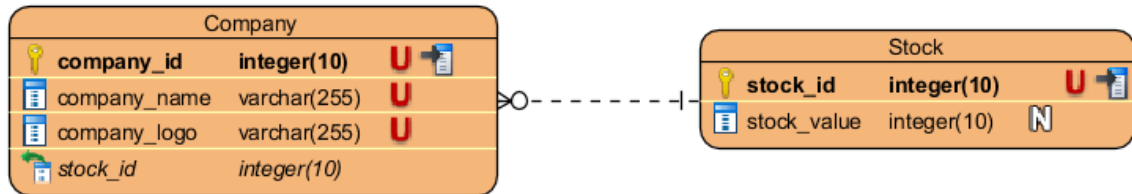


Fig. 3.3 Return Trade Database

3.2.2 Smart News

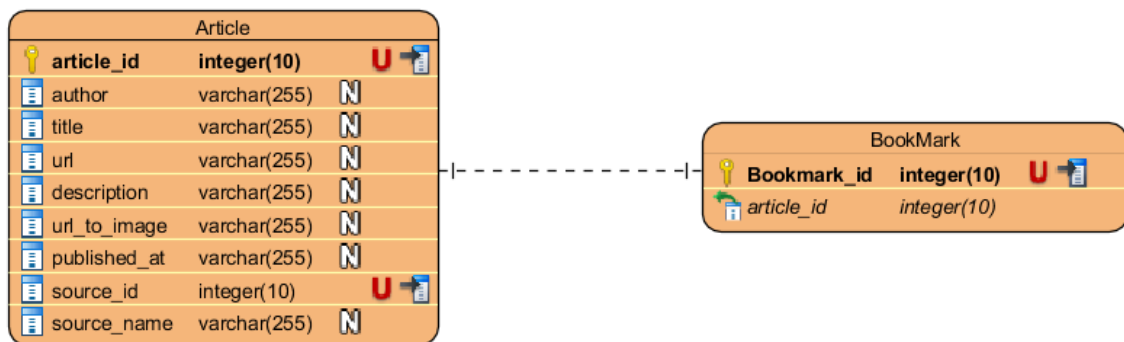


Fig. 3.4 Smart News Database

4 SYSTEM IMPLEMENTATION

4.1 SCREEN DESIGN – BANKING GAME

The Main Page and the Agreement Page of the game are designed as follows.

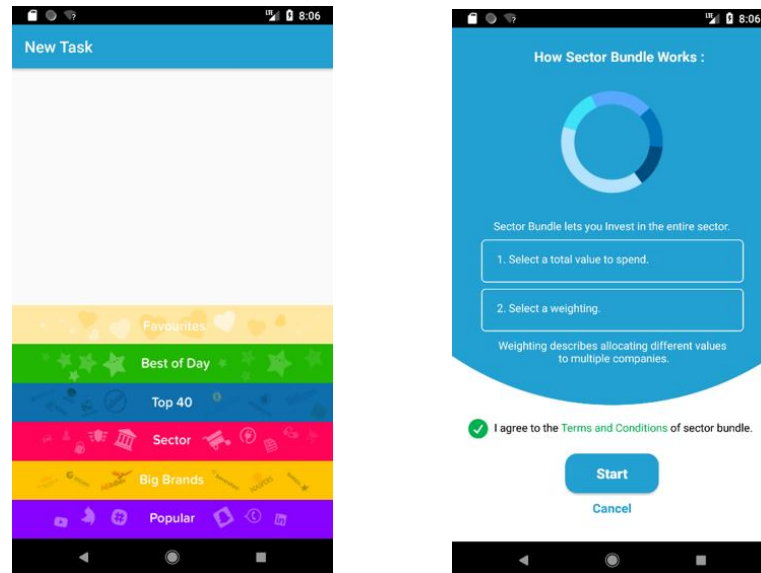


Fig 4.1 The Main Page and the Agreement Page

The Main Page consists of a Bottom Sheet Layout and slides upward to view the entire menu bar. It is standard to see only three menu bars. If users select one of the menus, they must go to the Agreement Page. The users then press *Start* in the Agreement page to start the game.

Once the game begins, the system shows the **Value and Weighting Pages**.

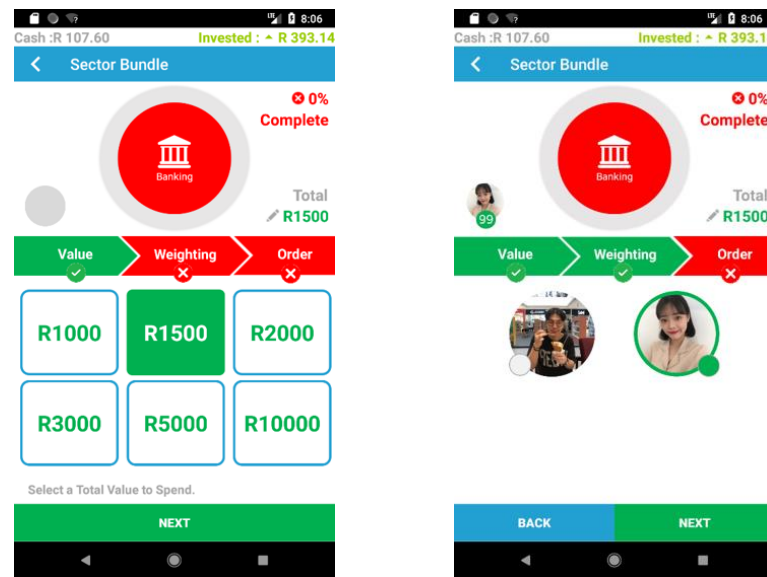


Fig 4.2 Value and Weighting Page

There are three selections to be made – Value, Weighting and Order.

- Value refers to the value of money in Rupees.
- Weighting refers to the selecting user's own weighting per share.
- Order refers to the company.

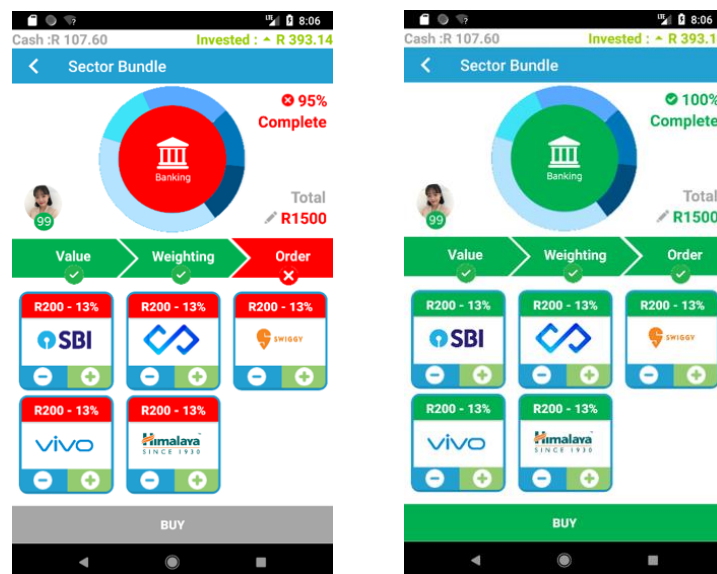


Fig 4.3 Order Page

Each selection can move on to the next stage only if one of the given selection conditions is selected unconditionally. Users cannot select more than one. When each condition is satisfied, the current progress is shown and the button changes from red to green.

For each company, users can select and remove a company through the plus and minus buttons. At this stage, the order is not completed until all companies are selected. When all companies are selected and the order is completed, the middle icon turns green and informs them that it is complete.

4.2 SCREEN DESIGN – SMASHING POT

The Smashing Pot is an animated game that starts with the following page.

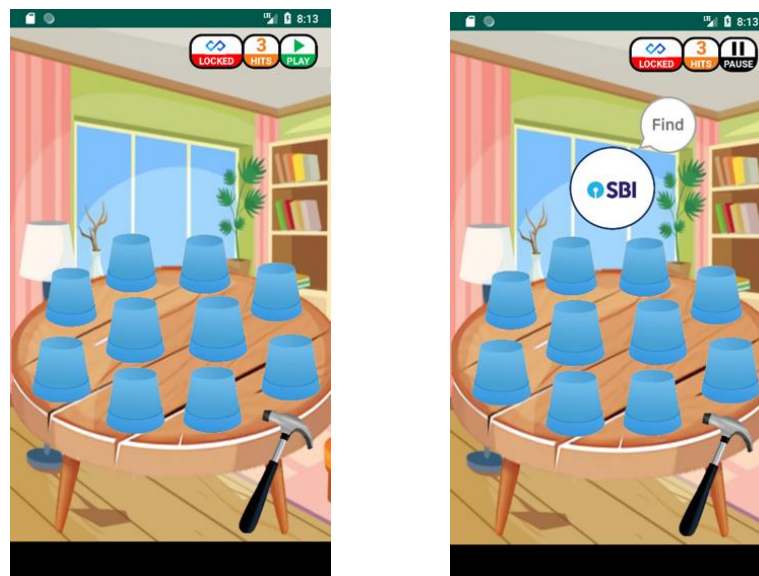


Fig 4.4 Game start screen

The initial screen contains 10 pots. When users press the *Play* button, the ‘Company’ that the users need to find will be on the screen. The company is randomly placed in one of the 10 pots. The users can find the company by searching it among the hidden pots within three opportunities.

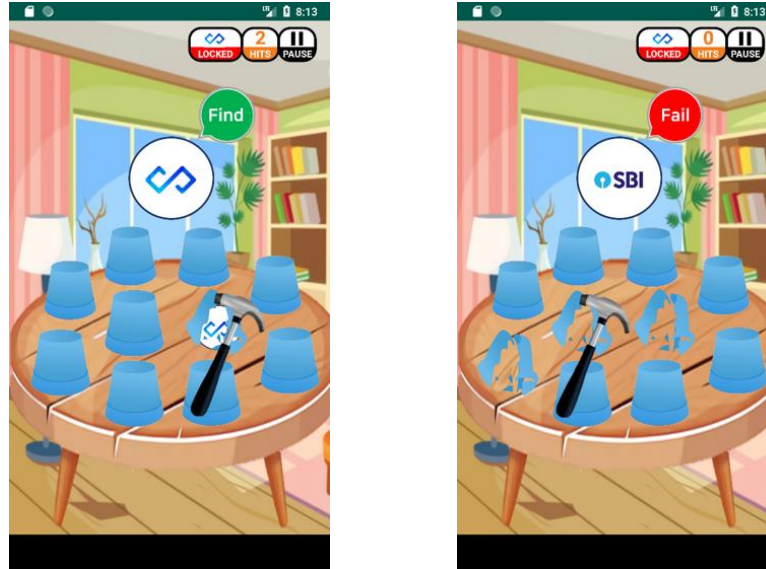


Fig 4.5 Find and Fail screen

The users finding the company logo and smashing the correct pot results in success. If they cannot find the company within three attempts, it results in failure. If users fail, they can start the game again by pressing the play button.

4.3 SCREEN DESIGN – SMART NEWS

The Loading Screen and Main Page of the Smart News application are shown below.

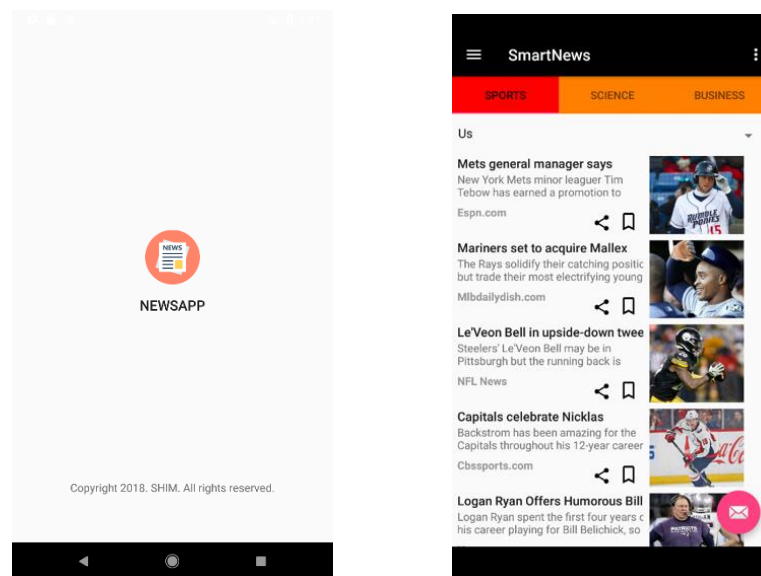


Fig 4.6 Loading Screen and Main Page

As soon as the loading screen is finished, the system displays the main page. Users can select one of three tabs, such as SPORTS, SCIENCE, and BUSINESS, and select one of five languages from within the drop-down box located at the bottom of the tab.

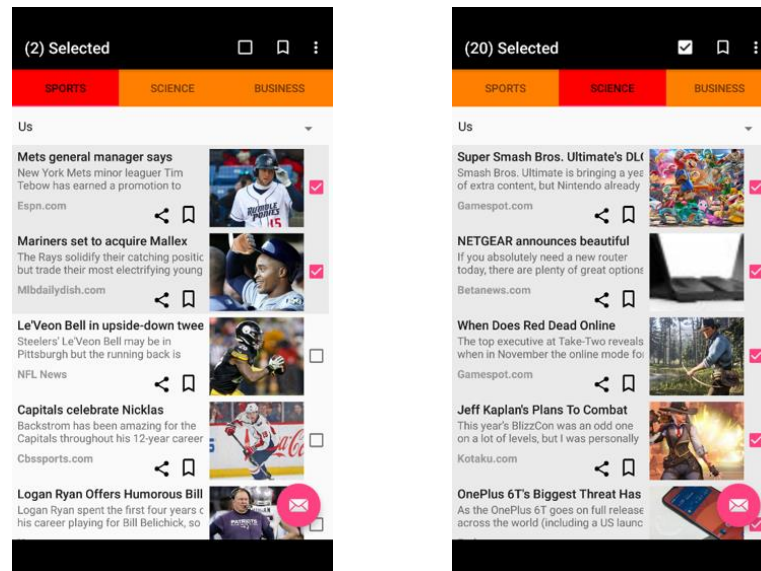


Fig 4.7 Single-select and multi-select

If users select an article through a long touch, they can manage the entire article efficiently by creating various icons in the top bar. The icons have full select/release functions and bookmark add-ons. Each time the user selects an article, he can visually check how many articles are selected.

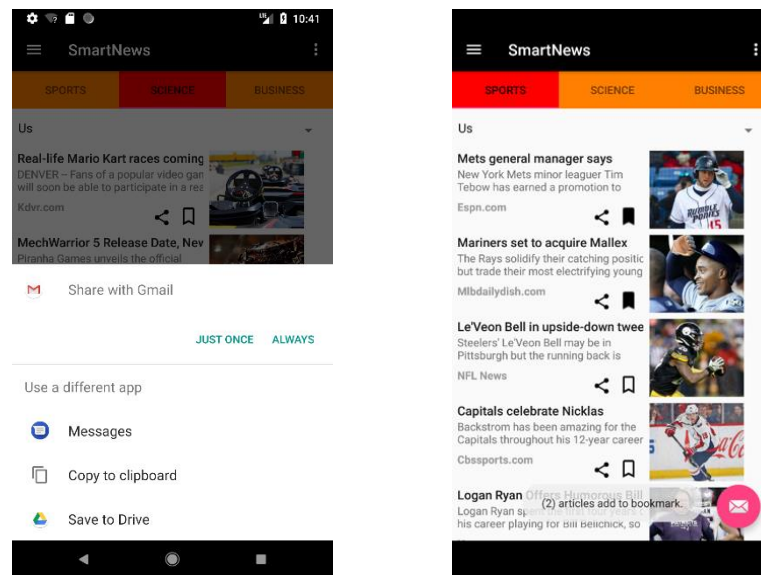


Fig 4.8 Shares and bookmarks

In order to share details with other users, the user can click the *Share* button to share the contents of the article through various media. Bookmark buttons allow users to add or release articles to or from a bookmark page.

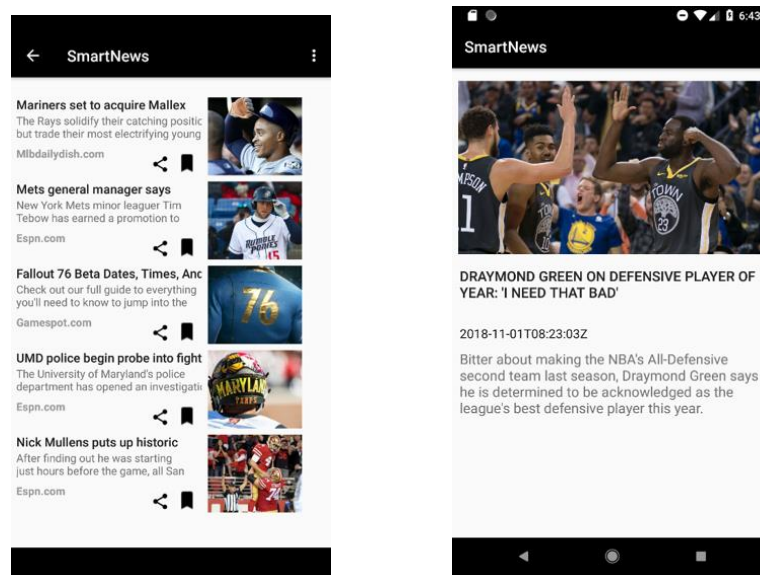


Fig 4.9 Bookmark page and Detail view page

Bookmark pages allow users to view multiple articles added in bookmarks at once, and manage large volumes efficiently by supporting single and multiple choices, just like the Main page. The Details view page lets users subscribe in more detail to the article.

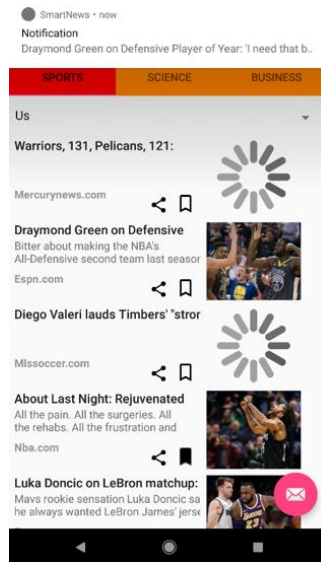


Fig 4.10 Push alarm

If the server sends a push alarm by selecting a major article, the same alarm is sent to the device for all users using this application, which allows users to go directly to the Details page when the alarm is selected.

5 CONCLUSION

The applications, Return Trade and Smart News have been successfully implemented in Kotlin using Android Studio and SQLite. It was tested in-house and was found to be working satisfactorily. This application is not perfect because it can be enhanced with more features. It can be integrated with another module Warren's Picks. The limitation of the system is that as it uses Android Studio and SQLite it cannot be used without the SQLite database system.

REFERENCES

1. <https://stackoverflow.com/questions/4502605/how-to-programmatically-set-drawableleft-on-android-button><http://duzi077.tistory.com/191?category=657555>
2. <http://blog.naver.com/PostView.nhn?blogId=sss6722&logNo=220840892005>
3. <https://stackoverflow.com/questions/42687007/set-animation-rotation-repeat-back-for-layout>
4. <https://stackoverflow.com/questions/14958197/is-it-possible-to-implement-toggle-button-in-action-menu-item-using-actionbar-sh/14958366>
5. <http://duzi077.tistory.com/191?category=657555>
6. <https://stackoverflow.com/questions/35324499/android-callback-from-activity-to-fragment>
7. <https://stackoverflow.com/questions/35324499/android-callback-from-activity-to-fragment>