Gyalpozhing College of Information Technology
Royal University of Bhutan

SOFTWARE REQUIREMENT SPECIFICATIONS
Project Topic: [Linux Command]

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(1) Introduction

The accompanying segment gives an outline of programming prerequisites detail for the Linux commands android application. In any case, reason for the archive is introduced and extent of the task is indicated with the specific spotlight on what the resultant programming will do. The document also include functional, non-functional requirement and system design. The venture centers around Linux commands to adjust with various kinds of command line which was most well known open source operating system that make users life simple in learning, and establishment of programming that was in free. The fundamental objective of this venture is to build up a Linux commands android application in which users can utilized command line to introduce the product with free in limited capacity to focus.

a) Purpose

The purpose of the document is to give detailed description of the requirement for the Linux commands application. It will illustrate the purpose and complete declaration for the development of the system. The purpose for the document is to give itemized depiction of the necessity for the Linux command application. It will delineate the reason and complete assertion for the advancement of the System.

AIM :To develop an android application for updating and accessing the commands line of Linux operating system.

OBJECTIVES : The objective of our project are:

The project proposes to develop a platform for easy accessibility of commands line of Linux operating system. It will help the users get familiar with the type of Linux commands and cope with different operating system .

b) Scope

System Scope

Develop a platform to provide vital materials to users to learn easily, adaptable to different types of commands line of Linux operating system . There are lots of users who are willing to used Linux commands to install their needing things(Software) which was in free yet they didn't have convenient source to refer or allude. The Linux commands mobile application will help the users to access the authentic information or Linux commands regarding the cases which are really in need of learning purpose. As of now in Bhutan, there is no such application like command lines of Linux operating system to explored and adapt with new version of operating system. Therefore, I am strongly motivated to come with such an idea and provide a better platform whereby they can view a commands and explored the version of Linux operating system. To view or glance the command line user have to enrolled to the system .

User scope

The scope of my project is limited to Bhutan.

(2) Requirements

a) Functional Requirements

i. Describe each feature of your application

The functional requirement is classified into two

User:

1.Sign Up: When a new user utilizes the application they should enroll to the system. While registering the system, user need to provide detailed information such as username, email, password. After that, to get access to this application the users have to sign in first.

2. **Commands(View)**: After finishing the sign in the users will be permitted to view the Linux commands line.

3. Search: Users can search the Linux commands as indicated by their prerequisite since command line are presented in scrolling feature that was time consuming. Therefore, user have to scroll until they get their requirement.
4. **About:** In here, user will get the information about Linux command and when it is utilized , how to used , why we used.
5. Exit: After completing their tasks and afterward they can close the application by click on exit .

Admin

1.**Sign in**: the admin will login to make changes and update the application according to its need.
2. **Update:** The command line will be update by admin concurring new version of Linux operating system commands.
3.**Commands(View):** After finishing the sign in the admin will be permitted to view the Linux commands line.
4. **Exit :** it will allow the admin to exit from the application subsequent finishing the task.

b) Non-functional Requirements

1.Performance

i).The database shall be able to accommodate a lot of records.
ii)The software shall support the use of multiple users at same time.
Iii).The app shall be independent of the different versions of android.

2.Security

assures that all data inside the system or its part will be protected against malware attacks or unauthorized access and free error .

3. Portability

A system will be able to co-exist with another system in the same environment. It establishes how well actions performed via one platform are run on another.

c) Software Requirements
The technology used and version

1. Andriod Studio version 4.1.2

Android Studio is a new and fully integrated development environment, which has been recently launched by Google for the Android operating system. It has been designed to provide new tools for app development and to provide an alternative to Eclipse, currently the most widely used IDE. When you begin a new project in Android studio, the project's structure will appear with almost all the files held within the SDK directory, this switch to a Gradle based management system offers an even greater flexibility to the build process.

Also, allows you to see any visual changes you make to your app in real-time, and you can also see how it will look on a number of different Android devices, each with different configurations and resolutions, simultaneously.

2. Java Standard Edition Development kit (JDK)

Java is a popular programming language owned by Oracle and more than 3 billion devices run java. Java works on different platforms like Windows, MAC, Linux, and Raspberry Pi. It is used for many application such as mobile application, desktop application, web application, etc. Java version Java SE jdk 1.8.0_111 permits certain uses such as personal use and development use without any cost being incurred.

3.Andriod SDK version 16

The android SDK is a collection of software development tools and libraries required to develop android application and SDK stand for

software development kit developed by google for the android platform.

The android SDK comprises all the tools necessary to code programs from scratch and even test them. These tools server a smooth flow of the development process from developing and debugging, through to packaging.

4. Gradle Version 6.5

Gradle is a build system, which is responsible for code compilation, testing, deployment and conversion of the code into files and hence running the app on the device.

5. Database: Firebase version 19.2.1

The Firebase Realtime Database is a cloud-hosted database. Data is stored as JSON and synchronized in realtime to every connected client. When you build cross-platform apps with our iOS, Android, and JavaScript SDKs, all of your clients share one Realtime Database instance and automatically receive updates with the newest data.

6. Operating System: Microsoft windows 10/8 (64 bit) or Ubuntu 20.

(3) Hardware Requirements

1. Developer Requirements

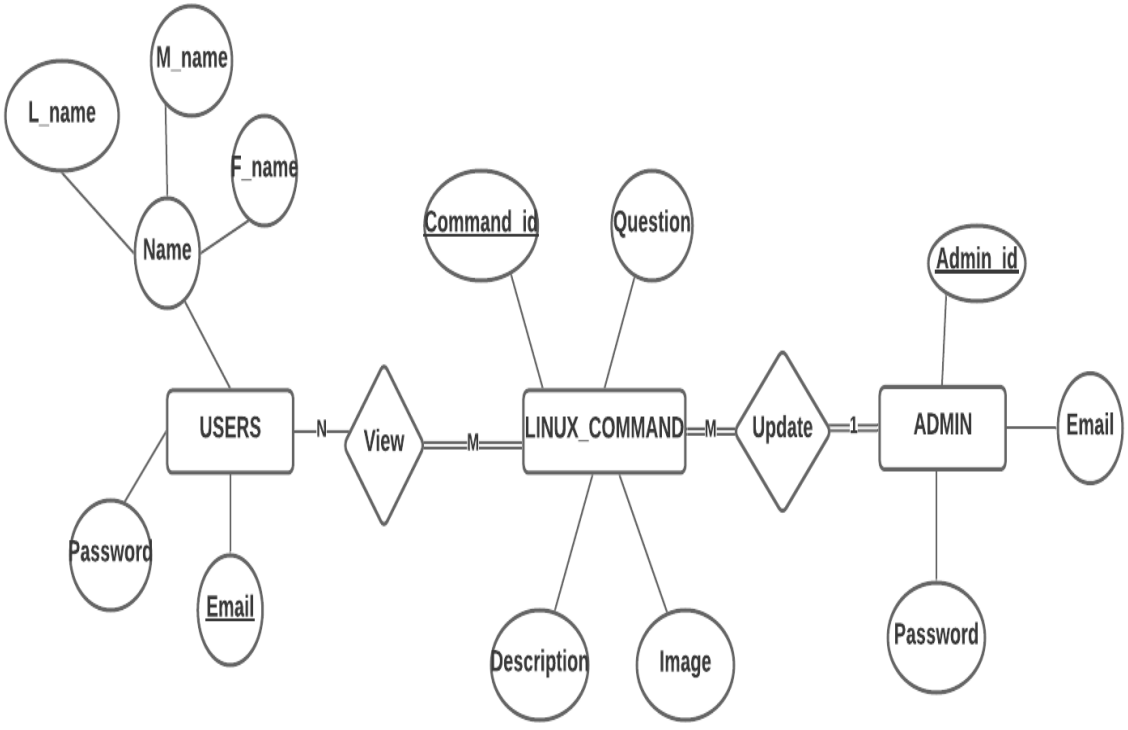
1. RAM: 4GB and above
2. Processors: 2.00GHz*4
3. Screen Resolution: 120*800
4. Disk space: 2GB and above.

2. User Requirements

1. Android Smartphone.

(4) System Design

a) ERD(Entity Relationship Diagram)



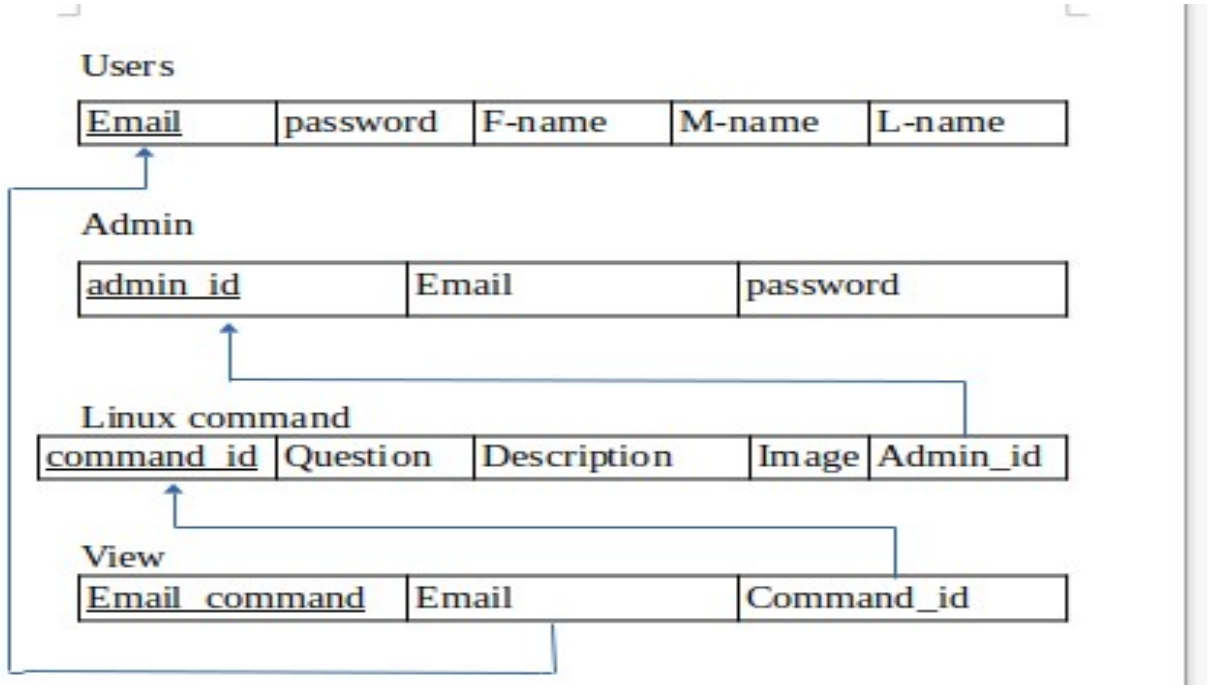
Description
Strong Entity: Users, admin, Linux_command
Relationship: Update, and View.

1**. Users:** User entity has attributes such as Email, name(F-name, M-name, L-name), and password where primary key is email. The cardinality ratio between users entity and Linux_command is Many to many(N:M) since many users can view the many command line at same time. One users can view many Linux _commands and users can either view or not whereas Linux _commands must be view by users. Therefore, participation constraint is total from Linux-commands to users.

2. **Admin:** Admin entity has attribute like admin_id, email, and password where admin_ id is primary attributes. The one admin can update many Linux_commands and the cardinality ratio between Linux_commands and admin is one to many(1:M). The participation constraint between Linux_command and admin is total from both side since one Linux_command must be update by admin and admin must update the Linux_command.

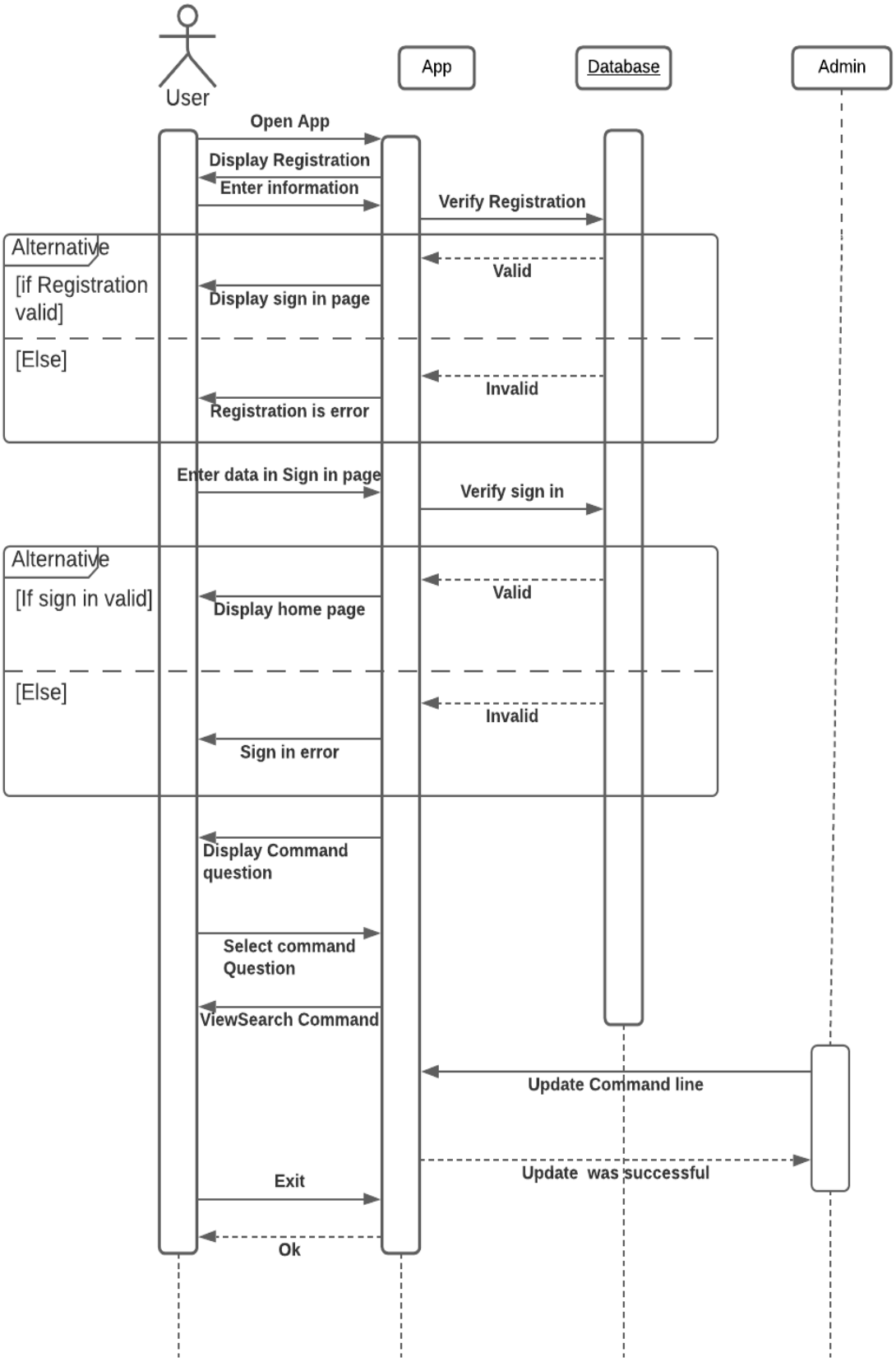
3. **Linux_commands:** Linux_commands has attribute such as question, image, description and command_id where Command_id is primary key.

b) Relational Schema



Description
Table name: Users, Admin, Linux command, and View
Primary key: Email, Admin_id, command_id, and Email_command
Foreign Key: email, command_id, and Admin_id
This relation schema is derived from the ERD. Here, the cardinality ratio between Admin and Linux_commands is one admin can update many commands(one to many or 1:M) so, Primary key of one cardinality ratio must kept in many cardinality ratio as a foreign key of that table(Admin_id is foreign key in Linux_commands entity).The cardinality ratio between users and Linux_command entity is Many to many so, we must draw another table by kept table name as relationships. In here, view is table where attribute are Email, command_Id that become foreign key in relationships table. The arrows show that the particular is a foreign key in that schema which is brought from the other entity which is pointed by arrow

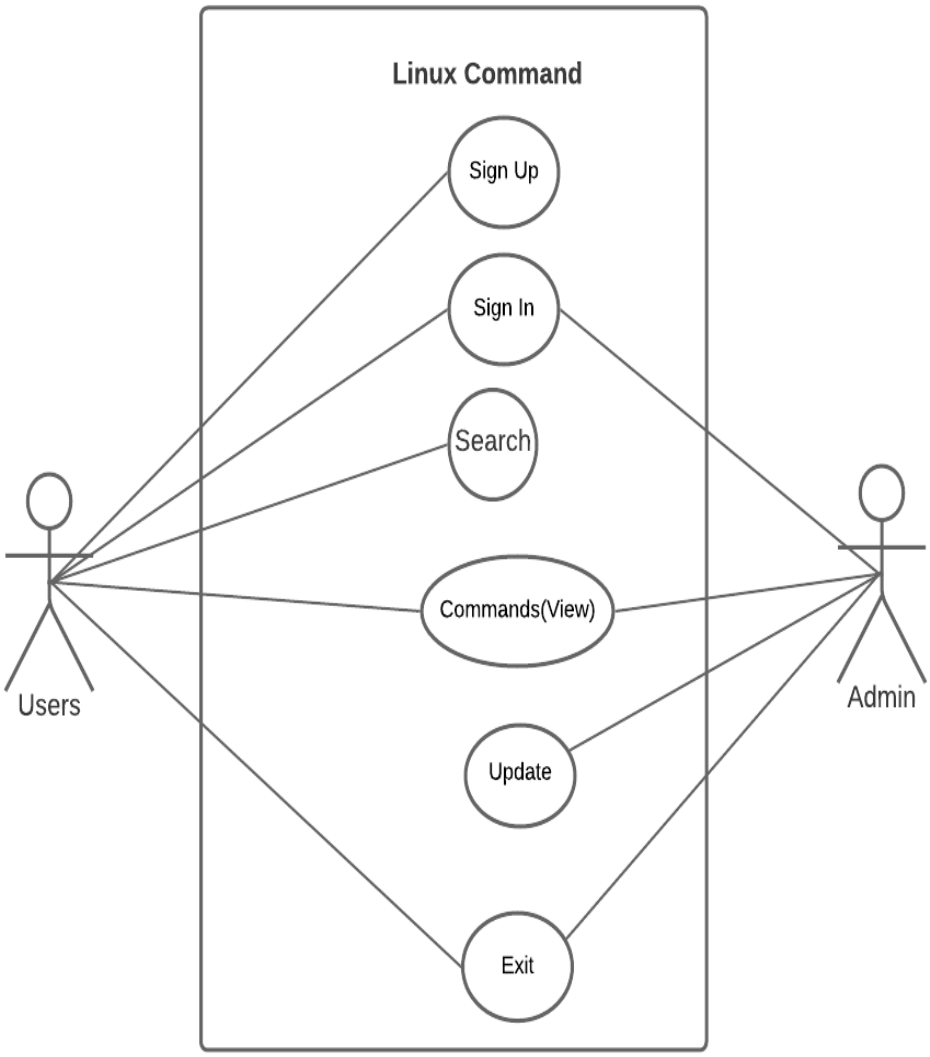
c) Sequence Diagram



Description

Firstly, user have to register the application entering their information such as name, email, and password and database will verify registration process. If the information entered by the user are verify then sign in page will display whereas if the registration is invalid then user have to do once more registration process. After the registration being verified then user will sign in and database will verify sign in. If the sign in is error, then user have to re-enter their information, however if user sing in is successful then home page will be displayed. After display home page user are allowed to select command question and they view the Linux_command . Also, users can search for their respective desired commands since commands are presented in scrolling function. When user select their desired command question, if the desired command is stored in the database, then it will display the commands, description and image. Lastly, user can exit the application.

d)Use case Diagram



Description

The usecase diagram shows some basic function that the system haves it.There are two actors in Linux commands application and users as primary actor who initiates the work and admin as the secondary actors. Firstly, Users need to enroll to access the application by provide the information such as name, email, and password. After registration, user have to sign in and user are permitted to view the Linux command line with description and image that cause users more to comprehend

about commands and users will get the direction how to do utilizing that specific command. The Linux command line are presented in scrolling feature and user have search platform to get their requirement in short period. After completing their tasks, at that point users can tap on exit feature to close the application.
Admin have to sign in to post new command line and view or look the Linux command line. An admin will updating the command line frequently with new version of commands in Linux operating System. The Admin can press on exit feature after completing the post of new command lines.

Prototype

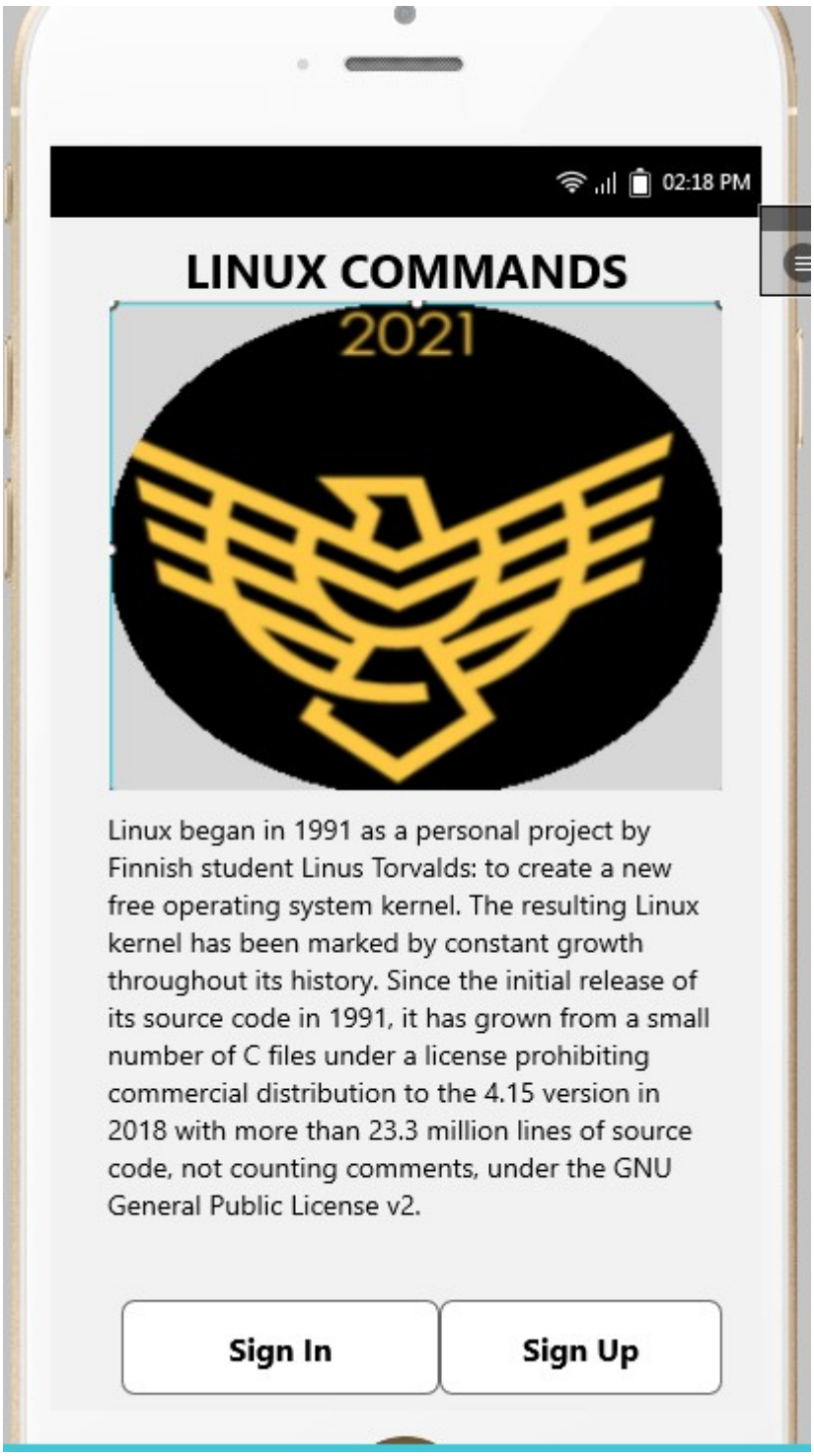


Figure 1.0: Home page

This is a first page of Linux commands app and it pass on brief history about Linux operating system to the user. In case users want to view the command line at that point user have to enrolled to system .

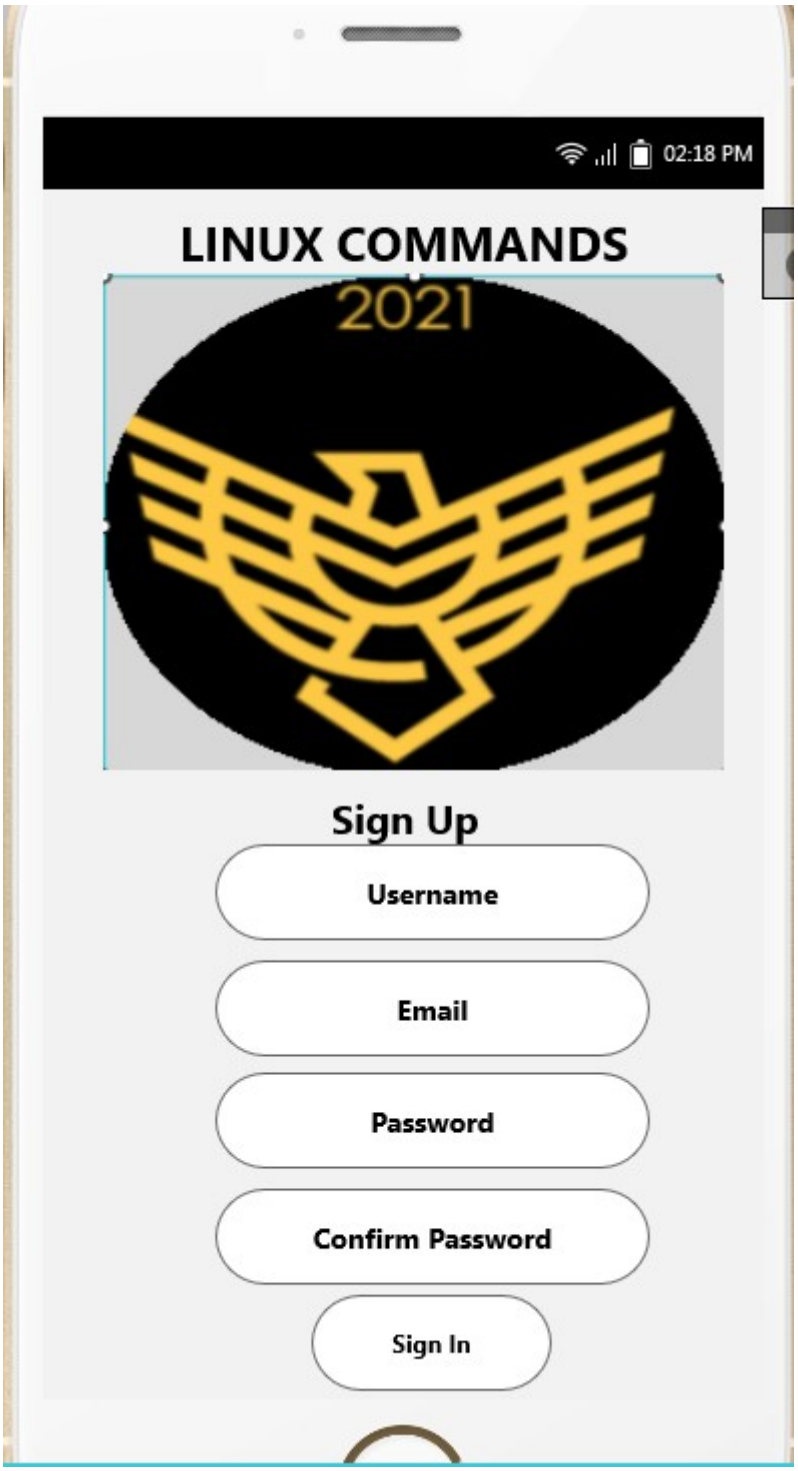


Figure 1.1: Sign Up page

If the user is to begin with in app at that point user must select sign up button from first page of app and user got to give the information such as username, email , and password to enrolled to the system.

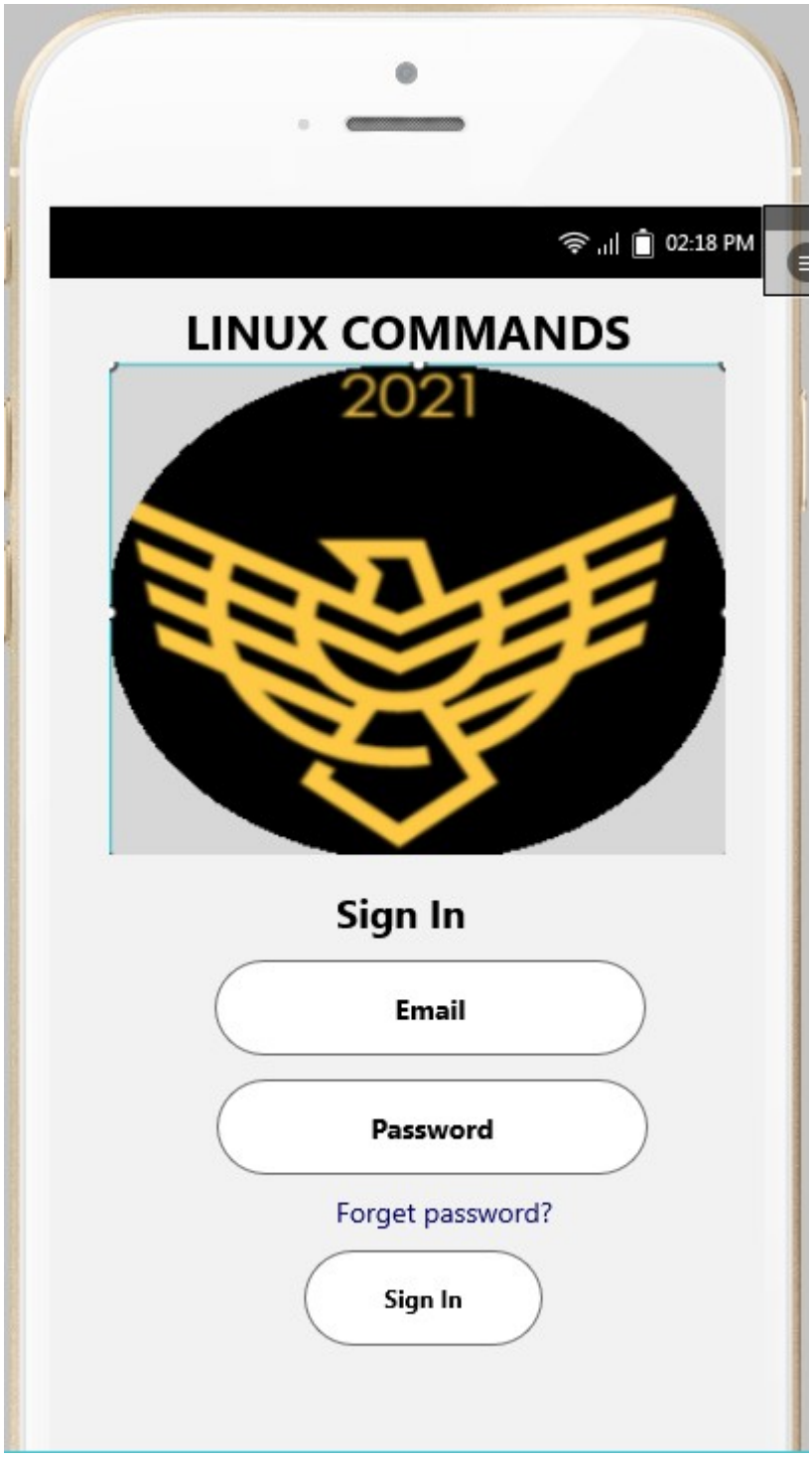


Figure 1.2: Sign in page

After registration, users will need to be sign in first where by giving the information once more (email and password) and after that users can view the Linux command line with image and description. In the event that user isn't to begin with in application at that point specifically user select sign in button to get to the app.

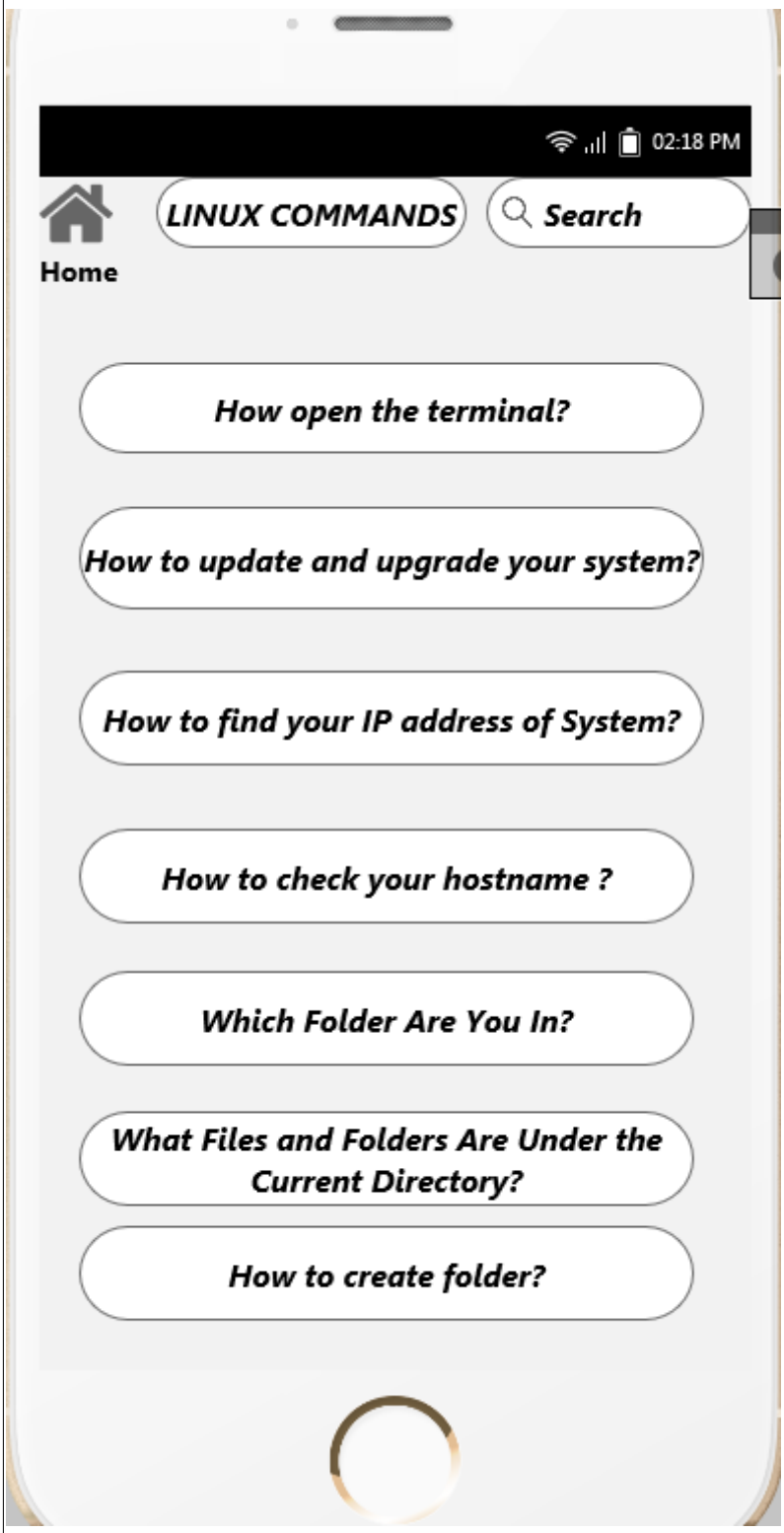


Figure 1.3:Linux_command question

This is the main page of app and user can view the commands line by tap on question button. Here there's menu bar called commands in home bar whereas tap on commands and after that it remain on same page. Also,if users think that scrolling feature take time then users can used search button for commands line.

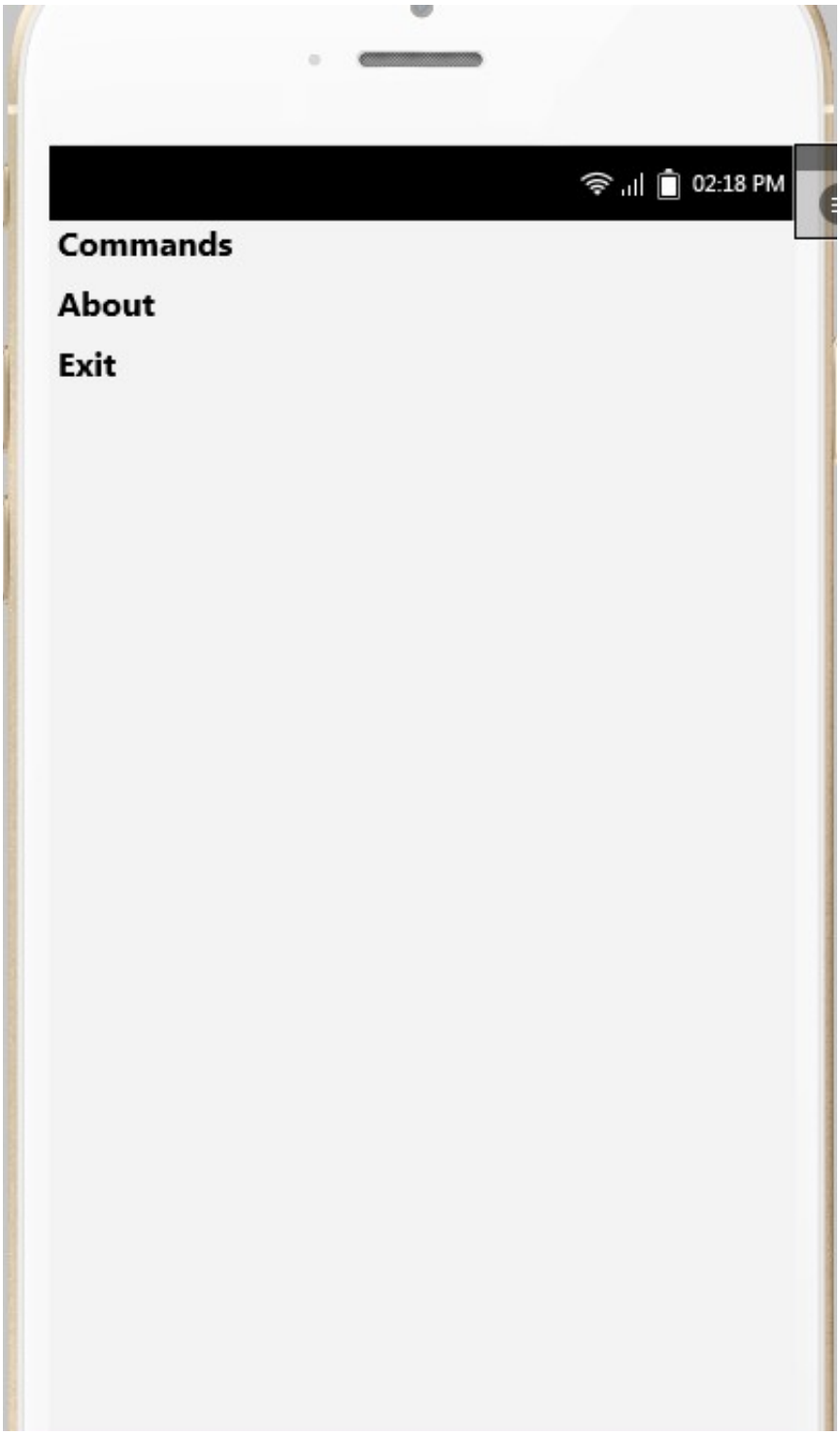


Figure 1.4 It show Feature of app

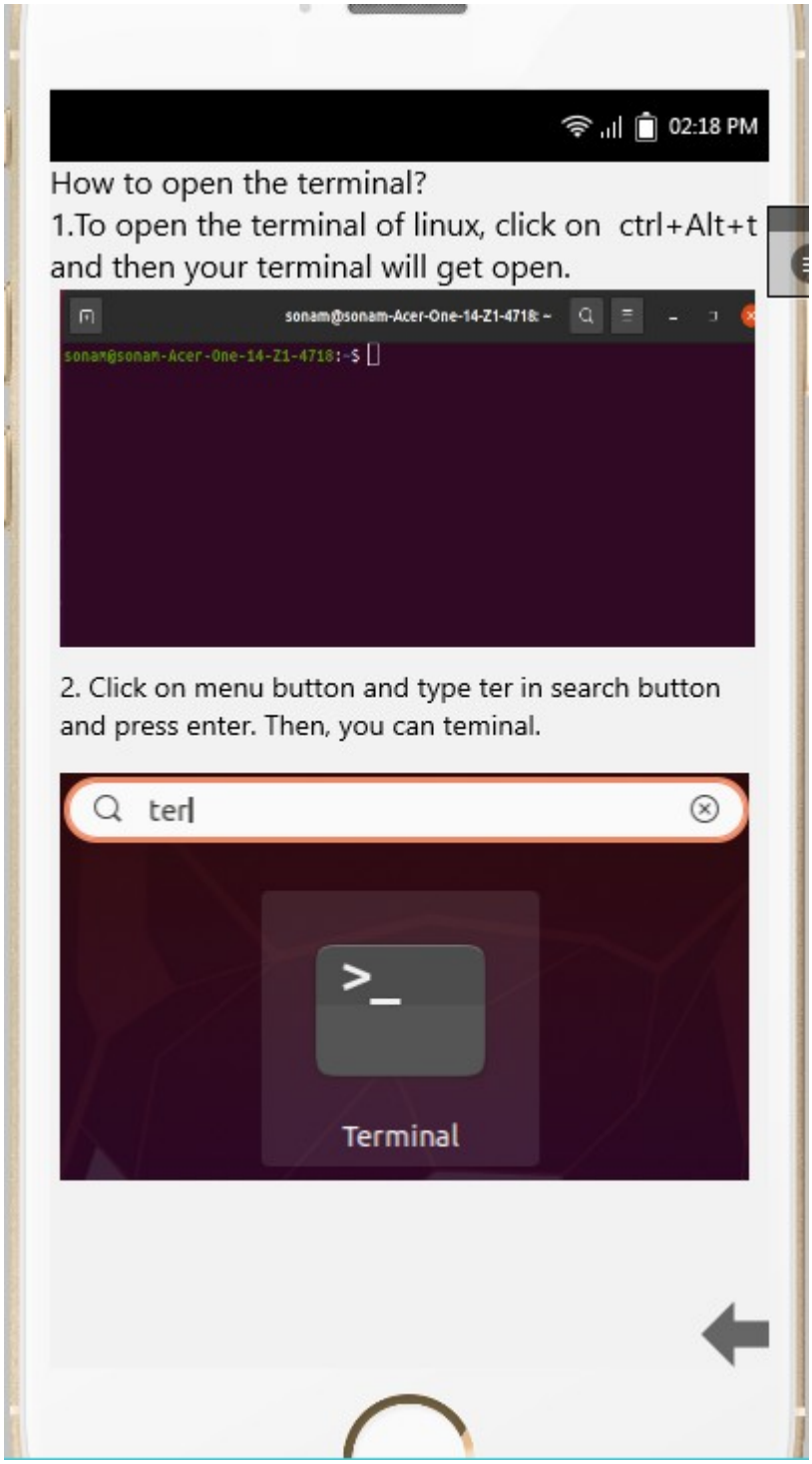


Figure 1.5: Command with description and image

If User want to know about how to open terminal in Linux operating system then user can select first question button to get information and command line. While user click on question button, above information will be pop up.

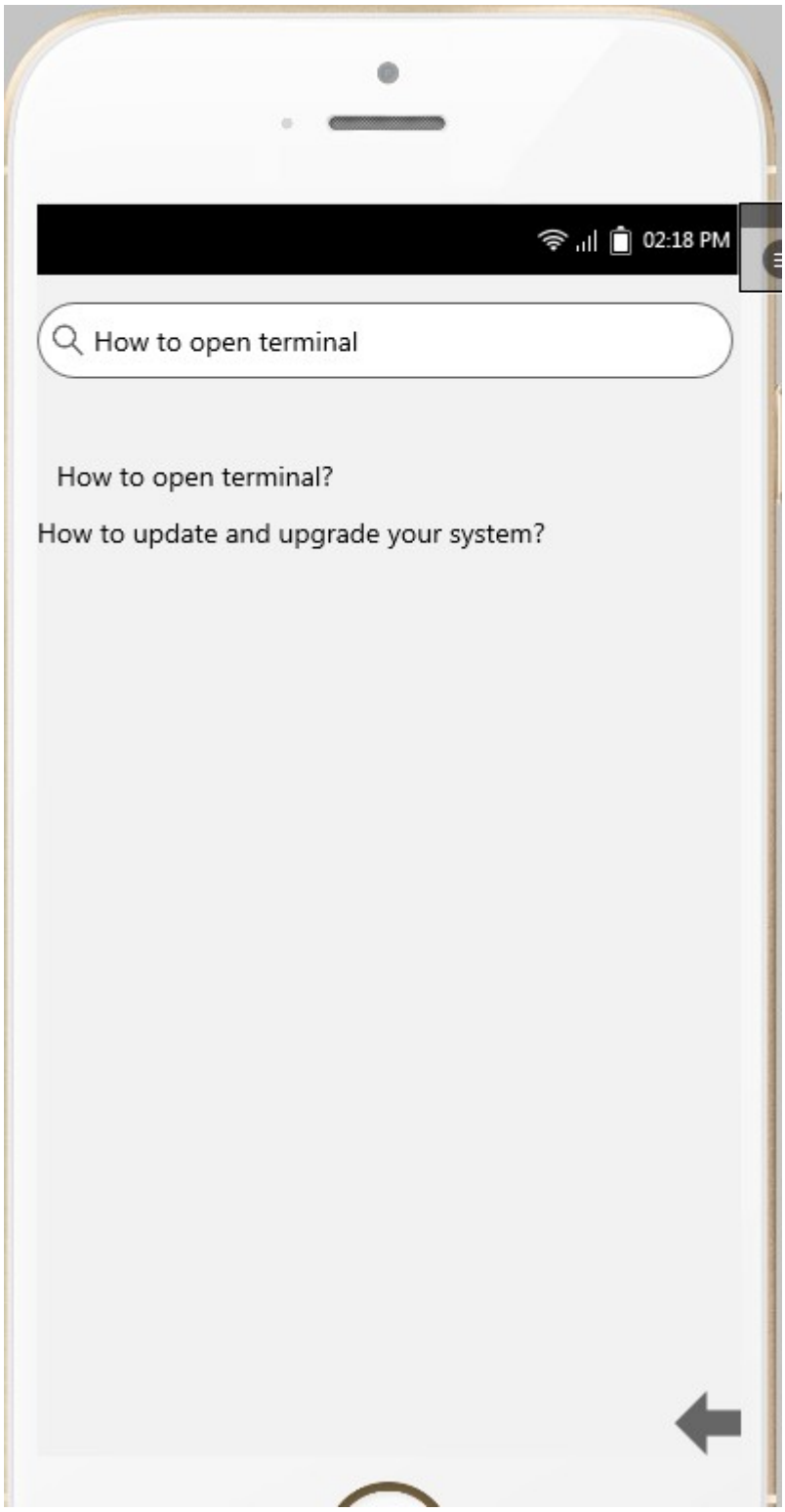


Figure 1.6: Seach

The Linux command are presented in scrolling feature so, If users think that it is time consuming to scroll all the commands and then user can used search button to get the desired Linux command within short period . In the figure above, the keyword typed is how to open terminal and "terminal" will be keyword to get desired commands . And there is back button in bottom right to go back to the previous page.

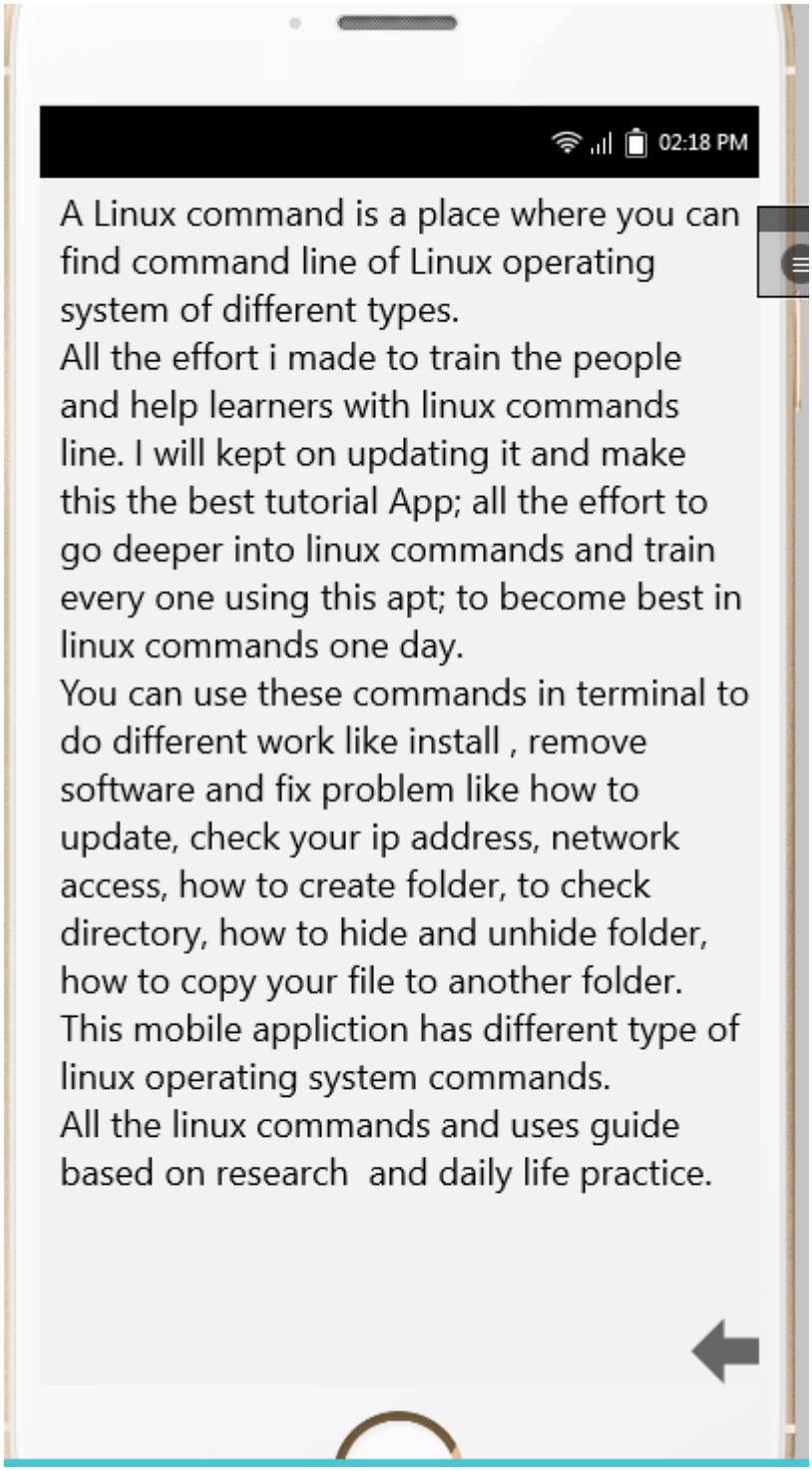


Figure 1.7 About

This page will be display when user tap on about menu bar and it is about Linux commands and why i choose to do this project , working of command line.