Chapter No. 02

Interface Requirement

Interface requirements are defined as those that the system must accomplish. These include the both hardware and software interface requirements. Smart Access is an android based application & Web App and mostly be made up of software components, which highlights the importance of designing the interface components in such a way that are ease in interaction and well in performance. These are the following hardware and software interface requirements of our application.

Hardware Interface Requirement

These are the various hardware interface requirements that are necessary for development and deployment of an application.

Desktop Computer/Laptop

Desktop computer or laptop having high end specifications are required due to modern technologies and tools (like flutter and react, etc) used in development process of an application. The minimum required specifications are 6 gigabytes of RAM, Core i5 Processor and 512 gigabytes of SSD.

Android Smart Phone

Smart Access is an android based application that must deploy and run on an android based smart phone. So, an android smart phone having minimum 2 gigabytes of RAM is required with an internet connection.

Software Interface Requirement

These are the following software interface requirements that are essential for the development of an application.

React Native

Hybrid Platform that combines the best parts of native development with React, a best-in-class , Function JavaScript library for building operator interfaces.it also used some other libraries like Code Push.

JavaScript/React JS

For Web Side Panel, Various JavaScript and its powerful library React JS is required.

Visual Studio Code

As a code editor, visual studio code is required because an excellent editor makes the work one-hundred times easier and visual studio code has all the capabilities that declare it an excellent editor.

Database Requirement

Database is a necessary segment of an application, which provide an ability to perform various data operations at back-end. The following database is required in Both Android and Web Sides.

Firebase

For back-end database operations, Firebase is required because the application used cloud-hosted NoSQL realtime database.

Functional Requirement

Functional requirements are actual product features or functions that developers must implement. These are the various functional requirements of Smart Access ,an **android based application & Web Based Panel**.

**App** **Functions :**

* Signup/Login

Smart Acess is very secured and not available for public usage so everyone cannot allow to login into the app handle it from firebase manually that which operator can login and track records.

* Delete Request

The Delete Record Management Process through the application is designed to handle and manage deletion requests for records within the Distribution web panel. This process plays a crucial role in ensuring the efficient removal of records as per user requests. By utilizing this process, admin are able to initiate and track deletion requests, facilitating a streamlined and organized approach to record management within the application.

* Sales Man Records

This Feature Show Real Time Graph Representation into the app which shows Salman recovery remain are other details such as loan empty recovery balance.

* Employee

In this page it include all the records of an employee which includes loan, recovery, remain as well as details is in which includes Credit Debit details and balance details as well managed by dates and show Graphical Representation of Employee Loan , Recovery & Remain.

* **Daily Activity:**

The daily activity section provides access to all records on a daily basis. It includes the starting time of work, a detailed table of records.

* Advance Features

In advanced feature page you can select delete the bank as well as you can see all the records of the bank in which day includes (date of transaction amount as well as Credit Debit record from to to record etc) and insecurities on session you can add a operator who can access website panel are login into that parallel to manage over distribution section and it also has a feature of security to check password using fingerprint authentication.

**Website Functions :**

* Stocks

In the stock management section, we can effectively handle the inventory of all available categories. Currently, we have RGB 500 ml, 1000 ml, 1500 ml, and other variations. We can submit stock orders to the warehouse and utilize the warehouse function to access comprehensive stock data and calculate the current stock levels available.

* Daily Sale

In the daily sales module, we oversee the management of inventory and stocks that are dispatched by drivers and subsequently returned. Our goal is to ensure efficient handling of these transactions.

* Empty

This module facilitates the management of empty stocks that are returned to the company. Whether it involves pallets returned by our own company or third-party entities, we maintain real-time records of empty stocks within the warehouse.

* Sales Man Recovery:

.Salesperson recovery encompasses all records associated with individual salespeople, including loan recovery, closing balances, current balances, and the ability to delete records. This module also supports credit and debit functionalities.

* Sales Man (Record Book):

The Salesperson Record Book contains a comprehensive log of credit and debit transactions, allowing us to track their history by date and effectively monitor their sales performance.

* Other Staff (Record Book):

Similar to the Salesperson Record Book, the Other Staff Record Book contains detailed credit and debit transaction records for all staff members, enabling efficient tracking of their performance and financial activities.

* Employee Recovery:

The Employee Recovery Book consolidates all data related to employee loan recoveries. It provides insights into loan recovery records, categorized by months and dates, facilitating effective management and analysis.

* Daily Expenses and Closing:

Within the Daily Expenses and Closings module, we can record various expenses that occur during distribution, including bills, vehicle expenses, miscellaneous expenses, and expenditures related to salespeople, employees, and investors. This module provides real-time tracking of total cash, bank transfers, and daily closing records.

* Vehicle Expenses

This section records all vehicle-related expenses, allowing us to track monthly expenditures and apply relevant filters to streamline the data.

* Miscellaneous Expenses

Miscellaneous expenses encompass various expenditure categories, such as distribution, construction, stationery, and food expenses.

* company Credit Debit

The Company Credit and Debit module enables the addition of debit transactions, such as incentives or discounts, as well as credit transactions, such as uniform expenses or other relevant items.

* Tax

This section maintains records of monthly tax payments and closing balances, with the ability to filter data based on specific months.

* Billls

In the bill management section, we handle all types of distribution-related bills and maintain their records. This includes bills from service providers like PTCL, WAPDA, and gas companies.

* **Net Profit:**

The net profit module allows us to calculate the overall profit by considering total expenses, discounts, company expenses, total sales, current stock levels, total incentives, and net profit.

* **Rate Manager:**

In the rate manager module, we can efficiently manage the prices of various stocks. For example, we can set rates for RGB, 500 ml, and 1500 ml stocks. These rates will be utilized for future calculations within the web portal.

* **Promo Manager:**

The promo manager section enables us to add promotions or discounts for different stock items, providing the flexibility to modify their current prices separately.

* **Investor:**

Within the investor section, we maintain a list of all investors associated with the company or distribution. This includes their details, credit and debit information, as well as transaction history.

* **Balance Sheet:**

The balance sheet module allows us to generate comprehensive balance sheets that include records of both debit and credit transactions.

* **Daily Activity:**

The daily activity section provides access to all records on a daily basis. It includes the starting time of work, a detailed table of records, and the option to print out relevant information.

* **Profit & Loss:**

The Profit and Loss module offers a detailed overview of our current financial status, including profit or loss figures, closing balances, and credit and debit records.

Non Functional Requirement

Non-Functional requirements specify the quality attributes of a product and how well it will operate. These are the following non-functional requirements of an application.

Usability

Smart Access provide effectiveness, efficiency and the overall satisfaction of the operator, when they interact with the application.

Scalability

The application is scalable because of an iterative approach used while development. In future, any addition or detached of feature is easily possible.

Maintainability

The application is written by using write-clean code approach. The code is well-organized according to in order structure inside different files and directories.

Performance

The performance of an application is smooth due to modern front-end and back-end technologies. The operators observe the experience of an application overall excellent.

Security

The application obeys both confidentiality, integrity and availability CIA triad.Only Admin Can Handle Main Functionalities or Accessibility of Apps. The application is available 24-hours, whenever the operators want to use it.

Use Case Diagram

When a system is examined to gather its functionalities, use cases are created. Below is the following illustrative representation of application use cases.

Use Cases Description Tables

These are the following use cases (illustrate in an above use case diagram) description tables of Smart Access.

Use Case Description Table 01: Signup

|  |  |  |  |
| --- | --- | --- | --- |
| App Login Use Case Description Table | | | |
| Name | Login | | |
| ID | UC-01 | | |
| Objective | This use case defines the login process on the application. | | |
| Brief Description | The Admin Can Login in App Which Login is controlled by Firebase | | |
| Pre-Condition | Operator must have to an account in an application or Google. | | |
| Post-Condition | The App is login / Accessed successfully. | | |
| Failed Condition | If you Don’t Have Prmission to Access The App From Firebase | | |
| Primary Actor | Admin | | |
| Dependency | Firebase Approved Use Case | | |
| Basic Flow | Steps | Action | Response |
| 01 | The operator open the application. | The system will show the panel screen. |
| 02 | Admin Can Acess The App if he is already approved From firebase | App Will be Accssible |
| Alternative Flow | Errors | Action | Response |
| 01 | Admin not have acess of App | The system will throw the message That you not have Accessibility |

Use Case Description Table 01: Login

|  |  |  |  |
| --- | --- | --- | --- |
| Delete Record Use Case Description Table | | | |
| Name | Delete Record | | |
| ID | UC-02 | | |
| Objective | This use case outlines the Delete Record Management Process through the application. Essentially, it involves displaying all the deletion requests for records from the Distribution web panel. | | |
| Brief Description | The primary objective of the Delete Record Management Process within the application is to effectively handle and oversee deletion requests for records in the Distribution web panel. This process plays a vital role in ensuring the prompt and accurate removal of records as requested by users. By implementing this process, users can conveniently initiate and monitor their deletion requests, promoting an organized and efficient approach to record management within the application. | | |
| Pre-Condition | Admin must have Access of an account in an application. | | |
| Post-Condition | Deletion Request Send to Database Successfully | | |
| Failed Condition | Due to Some Inappropriate handling | | |
| Primary Actor | Admin | | |
| Dependency | Login Use Case | | |
| Basic Flow | Steps | Action | Response |
| 01 | The operator open the application and Click on Delete Request Section | The system will show the Delete Request Screen |
| 02 | Admin Can Delete Details of Deleted Record Request using Delete icon | A Popup Appear For Confirmation of Deletion |
| 03 | The operator select the services form option at bottom navigation bar. | The system will open the services form page. |
| 04 | By Click On Agree Button | System mark the Requst as Deleted |
| Alternative Flow | Errors | Action | Response |
| 01 | By Clicking Disagree | Not Change Anything Deletion Request Will be Cancel |

Use Case Description Table 02: Deletion Service

|  |  |  |  |
| --- | --- | --- | --- |
| Sales Man Record Use Case Description Table | | | |
| Name | Sales Man | | |
| ID | UC-03 | | |
| Objective | This use case defines the real-time graphical representation within the application, illustrating Salman's recovery progress and other information, such as the remaining loan balance and the amount recovered so far | | |
| Brief Description | The real-time graphical representation feature in the application, enabling users to visually track Salman's recovery progress. The feature offers a dynamic display of Salman's ongoing recovery journey, including crucial details such as the remaining balance on his loan and the cumulative amount he has successfully recovered. By providing this visual representation, users can easily gauge Salman's progress and stay informed about his recovery status. This feature enhances the overall user experience by offering a concise and visually appealing summary of Salman's recovery journey within the application. | | |
| Pre-Condition | Operator must have an account in an application To Access Sales Man Records | | |
| Post-Condition | The service credentials are successfully updated. | | |
| Failed Condition | When you Don’t have access to Admin Account | | |
| Primary Actor | Admin | | |
| Dependency | Login Use Case | | |
| Basic Flow | Steps | Action | Response |
| 01 | The operator open the application and Click on Sales Man Record. | The system will show the Sales Man Record Scren  And show Graph Representation of Sales man Records |
| 03 | Click on Details. | It will open a modal with all details of Sales Man Including (Loan , Empty , Recovery, Credit / Debit and Balance). |
| Alternative Flow | Errors | Action | Response |
| 01 | The required credentials are missing. | The system will throw the message to must fill the required Crieteria |
| 02 | You Don’t Have Admin Access to Check Details | Show A Popup That you don’t Have Access |

Use Case Description Table 03: Sales Man Record

|  |  |  |  |
| --- | --- | --- | --- |
| Daily Activity Use Case Description Table | | | |
| Name | Daily Activity | | |
| ID | UC-04 | | |
| Objective | The objective of the daily activity section is to provide users with convenient access to comprehensive records on a daily basis. It aims to present relevant information such as the starting time of work and a detailed table of records, enabling users to track their daily activities effectively. | | |
| Brief Description | The daily activity section serves as a centralized hub within the application, offering users a convenient way to access and review their daily records. It prominently displays the starting time of work, allowing users to quickly identify when their workday began. Additionally, it provides a detailed table of records, which encompasses comprehensive information related to the user's daily activities. This may include tasks performed, milestones achieved, time spent on specific activities, or any other relevant data. By presenting this detailed overview, users can easily analyze their daily productivity and gain valuable insights into their work patterns. | | |
| Pre-Condition | Admin must have an account in an application Data Base. | | |
| Post-Condition | Visit Daily Basis Activities | | |
| Failed Condition | Internet Connection Lose | | |
| Primary Actor | Admin | | |
| Dependency | Login Use Case Diagram | | |
| Basic Flow | Steps | Action | Response |
| 01 | The operator open the application. | The system will show the Daily Activity Screen. |
| Alternative Flow | Errors | Action | Response |
| None | None | None |

Use Case Description Table 04: Daily Activity

|  |  |  |  |
| --- | --- | --- | --- |
| Employee Record Use Case Description Table | | | |
| Name | Sales Man | | |
| ID | UC-05 | | |
| Objective | The objective of this page is to provide a comprehensive overview of an employee's records, including loan information, recovery progress, remaining balance, as well as detailed credit and debit information. It aims to organize these records by dates and present them in a graphical representation, offering a visual summary of the employee's loan, recovery, and remaining balance | | |
| Brief Description | This page serves as a centralized repository for all relevant records pertaining to an employee. It includes detailed information regarding loans, recovery progress, and remaining balances. The records are organized and managed based on dates, allowing users to easily navigate and access specific entries. In addition, the page provides a graphical representation of the employee's loan, recovery, and remaining balance. This graphical display enhances understanding by visually representing the data and enabling users to quickly assess the employee's financial status and progress. Furthermore, the page also includes credit and debit details, offering a comprehensive view of financial transactions associated with the employee's account. | | |
| Pre-Condition | Operator must have an account in an application To Access App Functionality | | |
| Post-Condition | Admin Can Access Records | | |
| Failed Condition | When you Don’t have access to Admin Account | | |
| Primary Actor | Admin | | |
| Dependency | Login Use Case | | |
| Basic Flow | Steps | Action | Response |
| 01 | The operator open the application. And Click on Employee Record | The system will show the Employee Records Screen  And show Graph Representation of Sales man Records |
| 03 | Click on Details. | It will open a modal with all details of Sales Man Including (Loan , Empty , Recovery, Credit / Debit and Balance). |
| Alternative Flow | Errors | Action | Response |
| 01 | The required credentials are missing. | The system will throw the message to must fill the required Crieteria |
| 02 | You Don’t Have Admin Access to Check Details | Show A Popup That you don’t Have Access |

Use Case Description Table 05: Employee Records

|  |  |  |  |
| --- | --- | --- | --- |
| Advance Features Use Case Description Table | | | |
| Name | Advance Feature | | |
| ID | UC-06 | | |
| Objective | Objective of the advanced feature page is to provide users with enhanced functionality for managing their banking activities. This includes the ability to delete a bank, access and review detailed transaction records, add an operator with website panel access for distribution management, and incorporate fingerprint authentication for secure password verification. | | |
| Brief Description | The advanced feature page offers a range of powerful capabilities to facilitate efficient banking management. Users have the option to delete a bank, providing flexibility in managing their accounts and removing unnecessary entries.  The page also grants users access to comprehensive bank records, presenting transaction details such as the date, amount, and credit/debit information. This allows users to track their financial activities and gain a clear understanding of their banking history.  In terms of security, the page includes a session for managing operators with website panel access. This enables users to assign specific individuals who can log in and handle distribution-related tasks in parallel. By having designated operators, users can streamline distribution management processes.  Furthermore, the page offers a fingerprint authentication feature for added security. This means users can verify their password using their fingerprint, providing an additional layer of protection against unauthorized access.  Overall, the advanced feature page empowers users with convenient options for bank management, comprehensive record-keeping, distribution management through operators, and enhanced security measures. | | |
| Pre-Condition | Operator must have an account in an application To Access App Functionality | | |
| Post-Condition | Admin Can Access Records | | |
| Failed Condition | When you Don’t have access to Admin Account | | |
| Primary Actor | Admin | | |
| Dependency | Login Use Case | | |
| Basic Flow | Steps | Action | Response |
| 01 | The operator open the application.  And Click on Advance Feature | The system will show Advance Feature Screen. |
| 02 | The operator Can Select The Bank From List Which Can be Added in the Allowed List | The system will Update Bank in The Database and used For in Distribution Panel |
| 03 | User Will Fill The Form To Add Operator For Distribution Website Panel | The system will Add Record of Allowed Operator in Data base |
| 04 | Admin Click on Finget Print Icon To Check Password of that Screen | The system will open the Finger Print Scanner and Scan finger if Success it show the Password |
| Alternative Flow | Errors | Action | Response |
| Network Error | While Performing Any Action | Failure of Record |

Use Case Description Table 06: Advance Feature

|  |  |  |  |
| --- | --- | --- | --- |
| View Service Use Case Description Table | | | |
| Name | View Service | | |
| ID | UC-08 | | |
| Objective | This use case defines the view service process. | | |
| Brief Description | The operator views the public and private businesses, marketplaces, institutes and organizations. | | |
| Pre-Condition | Operator must have an account and open the application | | |
| Post-Condition | The services are displayed successfully. | | |
| Failed Condition | No internet connection. | | |
| Primary Actor | Operator | | |
| Dependency | Signup Use Case or Login Use Case | | |
| Basic Flow | Steps | Action | Response |
| 01 | The operator open the application. | The system will show the home screen. |
| 02 | The operator views all the services portfolios under their specific categories. | The system will show the services portfolios under their specific categories. |
| Alternative Flow | Error | Action | Response |
| 01 | The operator opens the application without internet connection. | The system will throw the message, no internet connection. |

Use Case Description Table 06: View Service

|  |  |  |  |
| --- | --- | --- | --- |
| Search Service Use Case Description Table | | | |
| Name | Search Service | | |
| ID | UC-09 | | |
| Objective | This use case defines the search service process of public and private businesses, marketplaces, institutes and organizations. | | |
| Brief Description | The operator will search the public and private businesses, marketplaces, institutes and organizations according to their categories or nearby feature. | | |
| Pre-Condition | Operator must have an account and open the application. | | |
| Post-Condition | The filtered results shown successfully. | | |
| Failed Condition | When required service is not available. | | |
| Primary Actor | Operator | | |
| Dependency | Signup Use Case or Login Use Case | | |
| Basic Flow | Steps | Action | Response |
| 01 | The operator open the application. | The system will show the home screen. |
| 02 | The operator searches the require services portfolios by write down the category, apply category filter or nearby feature. | The system will filter the required services portfolios according to the feature and show them. |
| Alternative Flow | Errors | Action | Response |
| None | None | None |

Use Case Description Table 09: Search Service

|  |  |  |  |
| --- | --- | --- | --- |
| Recommended Services Use Case Description Table | | | |
| Name | Recommended Services | | |
| ID | UC-10 | | |
| Objective | This use case defines the recommended service process of an application. | | |
| Brief Description | The operator will swipe through services the application’s algorithm recommended at home page. | | |
| Pre-Condition | Operator must have an account and open the application. | | |
| Post-Condition | The recommend services are shown successfully. | | |
| Failed Condition | No internet connection. | | |
| Primary Actor | Operator | | |
| Dependency | Signup Use Case or Login Use Case | | |
| Basic Flow | Steps | Action | Response |
| 01 | The operator open the application. | The system will show the home screen with the recommend services feature through an algorithm. |
| Alternative Flow | Errors | Action | Response |
| 01 | When operator open the application without internet connection. | The system will throw the message, no internet connection. |

Use Case Description Table 10: Recommended Services

|  |  |  |  |
| --- | --- | --- | --- |
| Chat Bridge Use Case Description Table | | | |
| Name | Chat Bridge | | |
| ID | UC-11 | | |
| Objective | This use case defines the text communication process between the ordinary operator and service provider. | | |
| Brief Description | The ordinary operator will communicate through chat bridge with required service provider. | | |
| Pre-Condition | Operator must have an account and open the application with required service provider portfolio. | | |
| Post-Condition | The message send successfully. | | |
| Failed Condition | None | | |
| Primary Actor | Operator | | |
| Dependency | Signup Use Case or Login Use Case with Register Service Use Case and Verified or Pending Service Use Case. | | |
| Basic Flow | Steps | Action | Response |
| 01 | The operator open the application. | The system will show the home screen. |
| 02 | The operator select the required service portfolio and click on the chat button. | The system will establish a connection between the ordinary operator and service provider. |
| 03 | The operator send the message on the other side. | The system will show the message to the service provider. |
| Alternative Flow | Errors | Action | Response |
| None | None | None |

Use Case Description Table 11: Chat Bridge

|  |  |  |  |
| --- | --- | --- | --- |
| Admin Panel Use Case Description Table | | | |
| Name | Admin Panel | | |
| ID | UC-12 | | |
| Objective | This use case defines the admin panel process. | | |
| Brief Description | The owners of the application see the statistics, verify or reject the submitted service as well as delete the verified service. | | |
| Pre-Condition | The owners must login into the admin panel. | | |
| Post-Condition | The required action is performed successfully. | | |
| Failed Condition | None | | |
| Primary Actor | Owner | | |
| Dependency | None | | |
| Basic Flow | Steps | Action | Response |
| 01 | The owners of the application open the admin panel. | The system will show the home screen of the admin panel. |
| 02 | The owners review the pending or verified services portfolios by clicking on each of them. | The system show the pending or verified services portfolios. |
| 03 | The owners verified or rejected the pending service portfolios. | The system will verify or reject the services portfolios according to what the owners want. |
| 04 | The owners also review the violation and delete the service. | The system will successfully delete the service. |
| Alternative Flow | Errors | Action | Response |
| None | None | None |

Use Case Description Table 12: Admin Panel

Summary

This chapter discussed the requirement specification of the application, which includes interface requirements (hardware and software interface requirements), database requirements, functional requirements and non-functional requirements. It also talks over use case diagram and description table of each use case.