# Software Requirements Specification

**-By Ayush Singhal (U101114FCS054) Section – S2**

**For**

**Statistical app for tours and travels company**

**Version 1.0 approved**

**Ayush Singhal, Jai Agrawal, Amit Jhajharia, Ashwin Pilgaonkar, Akash Agarwal**

**Group**

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# Revision History

| Name | Date | Reason For Changes | Version |
|---|---|---|---|
| Group | 16-09-16 | Initial Version | 1.0 |
| | | | |

# 1. Introduction

## 1.1 Purpose

The purpose is to create an app which provides statistics for tours and travel company for the owner which help them to manage the business. The revision or release number is 1.0. The vision for the project is to make an app which fulfill the requirement of a clients who is the owner of tour and travel company. The app is only made for client which will help him to keep look at their company's performance on yearly basis. There will be point in point in app which will convert the data which user have taken from other company's into a graph or chart for better visualization. At the end of every year, app will automatically send an email to the agent under whom, the most bookings for that year are made (user will be notified before the email is sent). App will also show the user the flight/train schedules of different companies and will standardize them into a single file.
The scope of the project is to cover the development of user interface software for the app and maintain a database for all the booking related information. The client can also import flights/trains schedule.

## 1.2 Document Conventions

The document comprises of sections along with their numbers, sub-sections along with their numbers and the contents within the section and sub-section. The bold-faced text is used to describe section and sub-section.

## 1.3 Intended Audience and Reading Suggestions

The document is intended specifically for the development group, project manager and documentation writers. The documentation can be read by the group making an app and the client for whom the app is to be made. Other involvement required to check the document as such:

System Features: It should be understood by the testers so that they can test properly and give feedback to the developers.

External Interface Requirements: The user interface of the app should be user friendly. The group should understand external interface requirements to explain the client about the features of the app and how his requirement has been a priority for the group.

Functional and Non-functional Requirements – Software development.

## 1.4 Product Scope

The app containing the features which is exclusively required by client. The feature of the app is to see the statistics of the business by the client and also access all the flights/trains schedules. The auto email feature also saves the time of the client as they don't have to check manually for the particular agent and doesn't have to manually type email. For further details refer to sub-section 1.1.

### 1.5 References

Mentioned in integrated SRS.

# 2. Overall Description

### 2.1 Product Perspective

This app will act as a secondary system for the client in which they can access all the data for which this app gives them in their pc as well. It will be installed on the smartphones which help the clients to access the data whenever required.

### 2.2 Product Functions

The product features are:

1. The user will be able to select a year range and a category such as age, gender, country, etc. and then the user will be shown the number of bookings made within the selected year.
2. The app show the user all the statistics in form of graphs and charts for better understanding.
3. At the end of every year, an email will be sent automatically by the app in which user will be asked for confirmation. An email sent to the agent under whom, the most number of bookings have been made.
4. App help the user to import flight/train schedules of multiple airlines/trains company and the app will standardize them into a single spreadsheet/excel file.

### 2.3 User Classes and Characteristics

There will be only one user for this product which is the owner. The product is being custom made for a single person.

### 2.4 Operating Environment

The application will run on Android 5.0 (Lollipop) and above and there is no specific hardware required.

### 2.5 Design and Implementation Constraints

1. Android APIs don’t support connecting to MySQL Databases. For doing this, we have to create a PHP script which connects to the database and returns data in JSON format. Then the app will connected to domain which hosts the PHP script, and process the returned JSON data.
2. Android APIs cannot parse spreadsheet files also. For doing this, we have to use the Apache POI library. The library works only on Android SDK 21 and above therefore we had to set the Android version to 5.0 Lollipop.

3. We also have to use the Java Mail API which will automatically send emails.
4. The file picker which is implemented using the default Android API not allow the users to select multiple files at a time for that we have to implement a custom file picker for our app.

## 2.6 User Documentation

There is no need for a separate documentation as the product is being custom made according to the requirement of only a single person. But there will be help section within the app.

## 2.7 Assumptions and Dependencies

The assumption is that the user has a smartphone running Android 5.0 (Lollipop) and above. For dependencies refer to section 2.5.

# 3. External Interface Requirements

## 3.1 User Interfaces

When the user open the app the screen will show the user to input the year range and the category to sort records. Then on clicking the show button, the user will be shown all the requested data which can also be shown in form of graphs or charts depend on user. There will be an option for flight/train schedules of multiple airline/train companies and standardize them into a single spreadsheet file. There is a help section that will act as a guide to the user whenever user feel to use it. There will also setting menu where the user can enter email address and password for enabling the auto email feature.

## 3.2 Hardware Interfaces

None

## 3.3 Software Interfaces

The app will work on Android 5.0 (Lollipop) and above. This app connects to a remote MySQL database and temporarily stores the information requested by the user, in a local SQLite database. For further information, refer to sub-section 2.5.

## 3.4 Communications Interfaces

The app will not require communication interfaces as most of the app will work offline but the area when it is required is when database is required. As android cannot connect to databases natively, it will use HTTP protocol to connect to the domain which contain the PHP script, which connects to the database and returns data in JSON format.

# 4. System Features

The system comprises of a client/server architecture. For the major services provided by this product, refer to 2.2 Product Functions. The following subsections contain the functional requirements for the system feature.

## 4.1 Information regarding flights

4.1.1 Description and Priority
The user imports the flight schedules of different airlines which is in excel format. For each airline, the data is sorted in a different manner. The app will standardize all this data into a single excel file. It has medium priority.

4.1.2 Stimulus/Response Sequences
* User uploads the flight data of different airlines
* All the data is arranged according to predefined format of the table.
* The app standardizes the data of all flights into one file
* User get the full table in excel format.

4.1.3 Functional Requirements
* Import, Standardization

## 4.2 Statistics of the business

4.2.1 Description and Priority
The app allows the user to select the year range and a category to sort by age, country, gender, etc. The number of bookings made in each year within the selected range are presented to the user. It can either be shown in the form of raw data, or a graph for better visual representation. There is also help section within the app so that the user can easily use the app. It has high priority.

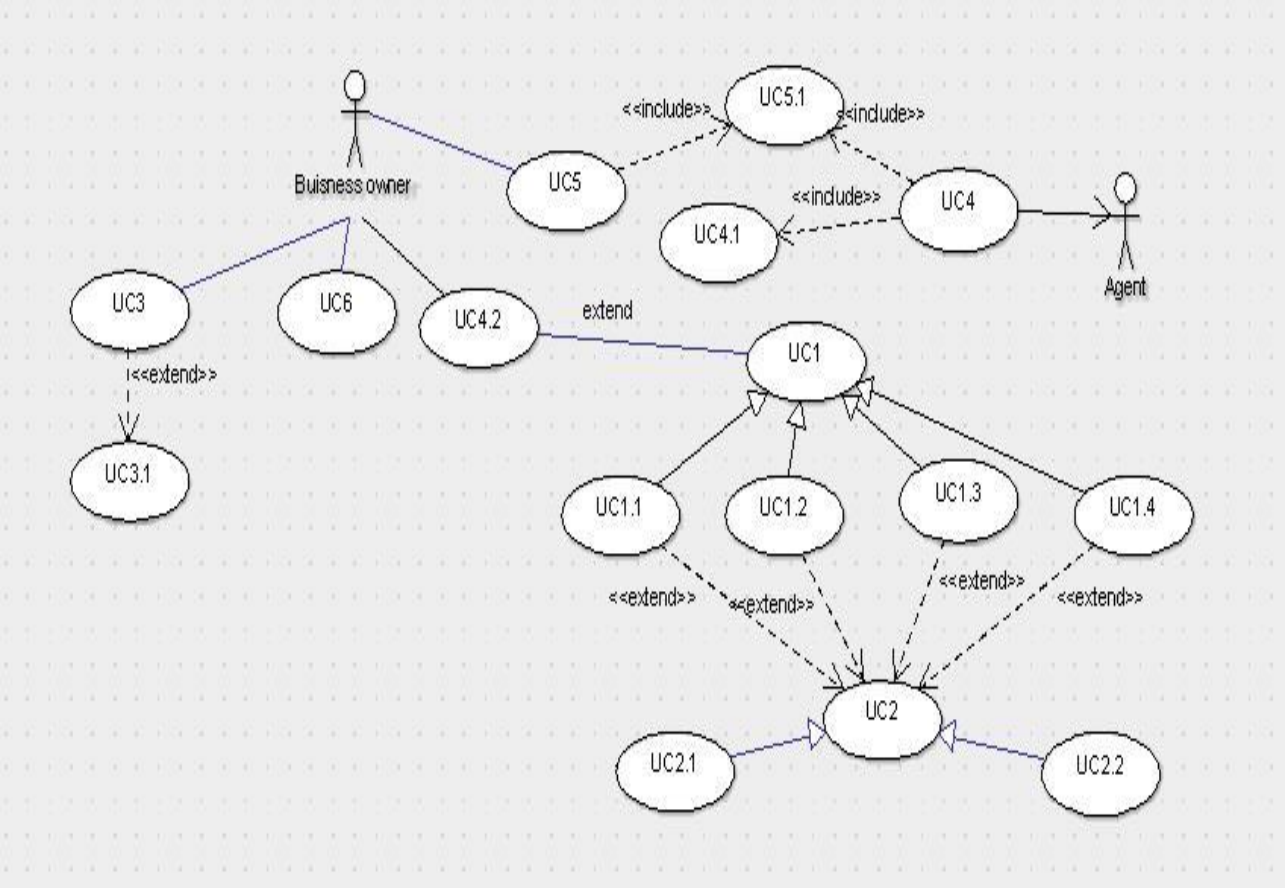
4.2.2 Stimulus/Response Sequences
* Select the year range and category to sort by age, gender and country, etc.
* App help the user to analyze the statistics in form of raw data, graph and charts.
* The user can enter email address and password for enabling the auto email feature in the menu settings.
* At the end of every year, the system will send an email automatically (user will be asked for confirmation) to the agent under whom, the most number of bookings have been made.

4.2.3 Functional Requirements
* Search Category, year, age, gender, country
* Result, graph, raw data
* Generation of email, database, email-id
* Settings menu, Email-id & Password
* Help section

**Functional Requirement table:**

| ID | REQUIREMENT | DESCRIPTION |
|---|---|---|
| UC 1 | Search Category | System allows the user to select a year range and a category to sort by (like age, country and gender, etc.) and number of bookings made in each year within the selected range is shown. |
| UC 1.1 | Year | User can select the year range. |
| UC 1.2 | Country | App allow the user to sort by country. |
| UC 1.3 | Gender | App also allow the user to sort by gender. |
| UC 1.4 | Age | App also allow the user to sort by age. |
| UC 2 | Result | App displays the result in the form of raw data. |
| UC 2.1 | Graph | User can visualize the data in form of graph and charts for easy understanding. |
| UC 2.2 | Raw data | User can see the result information. |
| UC 3 | Import | User can import flight/train schedules of multiple airlines/trains. |
| UC 3.1 | Standardization | App will standardize the imported files into a single excel file. |
| UC 4 | Generation of email | At the end of every year, system will send an email automatically (user will be asked for confirmation) to the agent under whom, the most number of bookings have been made. |
| UC 4.1 | Database | The database which the user helps to contain all the business related information. |
| UC 4.2 | Email-id | There is an option for retrieval of an email-id. |
| UC 5 | Settings Menu | The user can enter email address and password for enabling the auto email feature. |

| | | |
|---|---|---|
| UC 5.1 | Email-Id & Password | User can enter their email-id and password. |
| UC 6 | Help Section | App help the user as guide feature within the app for easy use. |




**Use Case Diagram**

# 5. Other Nonfunctional Requirements

## 5.1 Performance Requirements

The performance of the app will mainly depend on the hardware of the user's smartphone. For data to load, the product will require internet connectivity. Internet connection strength should be strong so that time to perform the task is less. The other features performance depends on the processor of the user smartphone. So, powerful the processor better the performance of app features.

## 5.2 Safety Requirements

None.

## 5.3 Security Requirements

Not yet decided.

## 5.4 Software Quality Attributes

Availability:
There must be an internet access so that when the remote database is required. For all other functions, there will be no need of internet.
Usability:
The UI will be user friendly and a help section will be provided in the app. The app is easy to use as the app performs relatively simple functions.
Maintainability:
For easy maintenance, the code will be documented thoroughly.
Portability:
The app is simple and can be easily ported to other platforms provided that the external libraries used, are available for the platform being to be ported.
Reliability:
The system will be designed in such a way such that it remains reliable. The reliability depends on the changes made in future versions of Android OS. It may fail only if the server hosting the database fails.

## 5.5 Business Rules

None

**Non Functional Requirements Table:**

| ***ID*** | ***REQUIREMENTS*** | ***DESCRIPTION*** |
|---|---|---|
| R1 | Performance | The performance of the app will mainly depend on the hardware of the user's smartphone. |
| R2 | Safety | None |
| R3 | Security | Not yet decided |
| R4 | Availability | There must be an internet access so that when the remote database is required. For all other functions, there will be no need of internet. |
| R5 | Usability | The UI will be user friendly and a help section will be provided in the app. The app is easy to use as the app performs relatively simple functions. |
| R6 | Maintainability | For easy maintenance, the code will be documented thoroughly. |
| R7 | Portability | The app is simple and can be easily ported to other platforms provided that the external libraries used, are available for the platform being to be ported. |
| R8 | Reliability | The system will be designed in such a way such that it remains reliable. It may fail only if the server hosting the database fails. |

# 6. Other Requirements

Not yet decided.

# Appendix A: Glossary

Statistics: The practice or science of collecting and analyzing numerical data in large quantities.

&: And

API: API (Application Programming Interface) is a set of functions and procedures which allow the creation of applications which access the features or data of an operating system, application, or other service.

JSON: JSON (JavaScript Object Notation) is a lightweight data-interchange format. It is easy for humans to read and write. It is easy for machines to parse and generate.

Apache POI: It provides pure Java libraries for reading and writing files in Microsoft Office formats, such as Word, PowerPoint and Excel.

Android SDK: It is a set of development tools used to develop applications for android platform.

# Appendix B: Analysis Models

For use-case diagram refer to section 4.

# Appendix C: To Be Determined List

1. Other Requirements
2. User Interfaces – Settings options
3. Security Requirements