Akash Agarwal-U101114FCS038 (S2)

Software Requirements Specification

For

Statistical app for tours and travels company

Version 1.0 approved

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

Group

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Table of Contents

Revision History

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

1. Introduction

1.1 Purpose

The product created is an app that provides statistics for a tours and travel company for the owner, and allows him to manage his business with revision or release number being 1.0.

The **vision** of this project is to make an app that will fulfill the requirement of the client who is an owner of tours and travel company. This app is made only for the client exclusively which will help him to keep track of his company's performance on yearly basis, and sort this data according to different categories (like gender, country, etc.). There will be a button which will convert this data into a bar chart/pie chart for better visual representation. At the end of every year, the app will automatically send a congratulatory email to the agent under who, the most bookings of that year are made (user will be notified before the email is sent). App will also allow the user to import flight/train schedules of different companies into the app, and will standardize them into a single spreadsheet file.
The **scope** of this project will be discussed below in subsection **1.4 Product Scope.**

1.2 Document Conventions

In this document Bold-faced text has been used to describe the different sections and different sub sections within section. Highlighting is done to point out important terms within the subtopic.

1.3 Intended Audience and Reading Suggestions

The document is intended for the development team, project manager, marketing staff, testers and documentation writers. Our group, team providing the app and the client for whom the product is made can read the documentation to understand the project and its requirements. The developer and group need to be familiar with the SRS.

Other involvement required to check the document as such:

Overall Description – In our case, we do not require a marketing team as such because the product is being custom made for a single person, exactly according to his needs.
System features – The system features should be understood by the testers (group) so that they can test thoroughly and give proper feedback to the developers (group).

External Interface Requirements – Since it is an app so the software developers (group) should know the requirements of the client to build upon. 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.

Nonfunctional and Functional Requirements – Software development.

1.4 Product Scope

The app of statistics for tours and Travel Company has features which is exclusively required by the client. The purpose of this app is for the client to have access to the statistics of his business on the go. As it is a smartphone app, this data will be accessible to him, whenever and wherever he requires it. The auto email feature also saves his time as he doesn't have to check manually check for that particular agent and doesn't have to manually type the email. He will also have access to all the flight and train schedules at his fingertips. Refer to the project scope paragraph within Purpose sub section for further information.

1.5 References

Mentioned in the final SRS.

2. Overall Description

2.1 Product Perspective

This app which is developed by the group is a new product which will be used as a secondary system by the client. The client can also use the data provided by this app on his pc but this app will be comparatively faster which will save his time and it will be user friendly. Since it will be installed on his phone, he can access the data whenever he wants to. This app will also provide him with some useful features. For more details please refer subsection 2.2(Product Features).

This app is a new product developed by the group which will act as a secondary system for the client. All those data which the app will provide to the client can also be obtained from his PC, but using the application will be fast thereby saving time and easy also. Since the app will be installed on his android device, he can access the data when and wherever he needs to.
This app will also provide him with small, useful features. For more details, go to **2.2 Product Features**.

2.2 Product Functions

The key features of the product are-

1. User can select a year range and a category (like country, age, gender) to sort by.
2. Then after the user will be shown the number of bookings made each year within the selected range along with the category selected by him.
3. For better understanding user can view all the statistics in the form of graph or chart.
4. Also if the user wants he can import schedules of flights/trains of single flights/trains or multiple flights/trains and then the app can generalize it into a single table.
5. After every year, an auto generated email will be sent (although the user will be asked for confirmation) to the travel agent under which the most bookings have been done.

2.3 User Classes and Characteristics

This product is developed only for a single client, who is the owner of the firm, so he is the only user.

2.4 Operating Environment

This app requires Android 5.0 (Lollipop) and above to run properly. No such hardware requirement.

2.5 Design and Implementation Constraints

1. Android APIs does not support natively connecting to MySQL Databases. To do this, we need to create a PHP script that will connect to the database and will return data in JSON format. The app will be connected to the domain that will host the PHP script, and will process the returned JSON data.
2. Android APIs is unable to parse the spreadsheet files. To implement this, we will require to use the Apache POI library- which is a library in JAVA that will provide API to change different Microsoft Office file formats (xls, doc, ppt, etc.). This library works only with Android SDK 21 and above due to which we had to set the minimum Android version requirement to 5.0 Lollipop or above.
3. We would also require to use the Java Mail API to send emails automatically in the background.
4. The file picker which can be implemented using the default Android APIs does not allow the users to select multiple files at the same time so then we need to implement a custom file picker for our app.

2.6 User Documentation

Since the product is being developed according to the requirements of a single client, so a separate manual for the software is not required. The app will be having a help option integrated in it which should be adequate.

2.7 Assumptions and Dependencies

Assumption made here is that the user has an Android device running Android 5.0 (Lollipop) or above. All the dependencies are listed in subsection 2.5 Design and Implementation constraints.

3. External Interface Requirements

3.1 User Interfaces

When user will launch the app he can select the year range as an input and in which category he needs to sort the data. Then after he will click the show button after which the requested data will be displayed. If the user wants the data can be also represented as a bar graph or pie chart.

On the home screen of the app, there will also be an option to upload train/flight schedules of one or more flight/trains and generalize them into a single table.
The app will also have a help section that will guide the user if and when needed.
Also settings menu will be integrated in the app where the user can enter his email address and password to enable the automatic email feature. Other options for settings has not been decided yet.

3.2 Hardware Interfaces

None

3.3 Software Interfaces

The app will run only if the Android version of the system is 5.0 (Lollipop) and above. The app will connect to a remote MySQL database and store temporarily the information data which is requested by the user, in a SQLite database.
For more details, refer to 2.5 Design and Implementation Constraints.

3.4 Communications Interfaces

No communication interface is required as most features of the app will be working offline. It only requires internet when it needs to connect to the database. As Android is unable to connect to databases natively, it will be using HTTP/HTTPS protocol to connect to the domain that has PHP script, which will connect to the database and will return data in JSON format.

4. System Features

The system is made of a client/server architecture. For the services which the product provides, refer to **2.2 Product Functions**. The subsections below contains functional requirements for the system feature.

4.1 Information regarding flights

4.1.1 Description and Priority
The user will import flight schedules of one or different airlines which will be in some format. For each airline schedule, the data may be sorted in a different way so then this app will generalize all this data into a single data file. It has medium priority.

4.1.2 Stimulus/Response Sequences
* User will upload flight data of one or different airlines
* Arrangement of all the data is done according to the predefined format for the table.
* The app then generalizes the data of all the flights in one file
* User will then get the full table of flight data in excel format.

4.1.3 Functional Requirements
* Standardization of different airlines schedules into one excel file.

4.2 Statistics of the business

4.2.1 Description and Priority

The system app will allow the user to select year range and categories to sort by like country, age, gender. Each year the number of bookings made within the selected year range will be shown to the user. The user can either see in the form of excel file or in the form of graphs, pie chart. It has high priority.

4.2.2 Stimulus/Response Sequences

* Select the range of year and categories to sort by like gender, age and country.
* System will help the user to see the data statistics in the form of raw data, graphs and charts.
* The system will send an email automatically (user will be asked for confirmation) at the end of each year, to the agent under whom, the most number of bookings have been done.

4.2.3 Functional Requirements

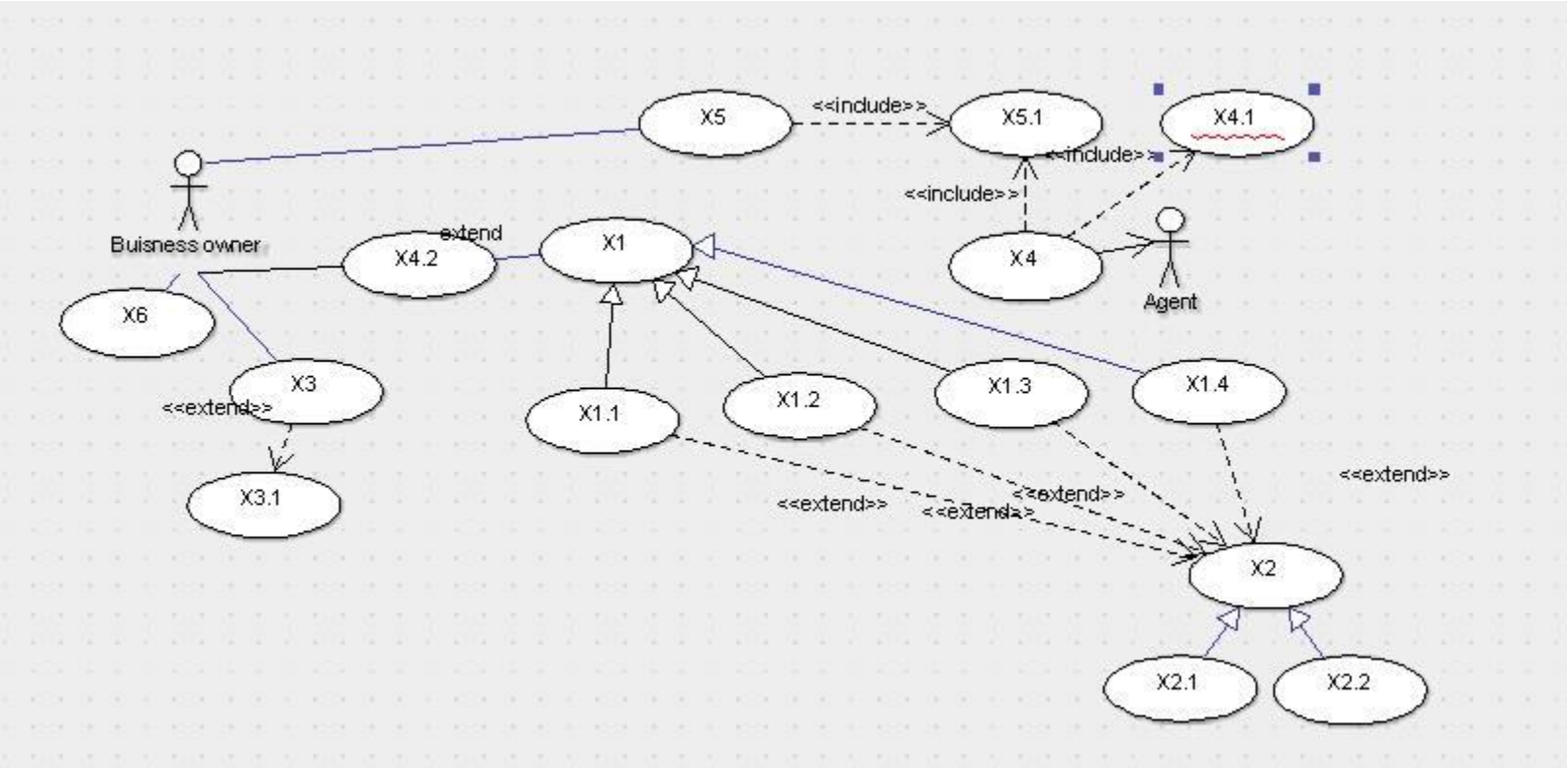
* Search Category
* Result
* Generation of email

Functional Requirement table:

ID	REQUIREMENT	DESCRIPTION
X1	Search Category	The user can select a year range and a categories to sort by (like country, age, gender) and the number of bookings done each year within the selected year range is shown.
X1.1	Year	Select year range
X1.2	Country	Sort by country
X1.3	Age	Sort by age
X1.4	Gender	Sort by Gender
X2	Result	System can display the result in the form of raw data, graphs or charts for better understanding.
X2.1	Raw data for result	Result information
X2.2	Graph	Visual information
X3	Import	User can import flights/trains schedule of one or multiple flights/trains.
X3.1	Standardize	System will generalize the imported files (schedule) into a single table.
X4	Generation of email	After every year, an auto generated email will be sent (although the user will be asked for confirmation) to the travel agent under which the most bookings have been done.
X4.1	Email ids	Retrieval of email id

X4.2	Database	Main tour database that contains all the business related information
X5	Settings Menu	User can provide his email address and password to enable the auto email feature.
X5.1	email id and password	User can enter his email id and password.
X6	Help Section	A guide is included in the app for easy use of application.

Use Case Diagram



5. Other Nonfunctional Requirements

5.1 Performance Requirements

The performance of the software product will depend completely on the hardware of the user's Android device.
The app will require an internet connection by Wi-Fi or mobile data sometimes to fetch some data. Time taken to complete this task will completely depend on the speed of the internet. The

performance of other features like generalizing and processing of schedules into one file will depend on the processor of the device.

5.2 Safety Requirements

None.

5.3 Security Requirements

Not yet decided.

5.4 Software Quality Attributes

Availability
Access to the internet should be there when the remote database needs to be queried. For other functions, access to the internet in not needed and the app will function normally.

Usability
The app has been developed to meet the needs of our client and the app performs simple functions which will be easy to understand and hence easy to use. The user interface of the app will be designed in a user friendly way and for further assistance a help section will be in the app.

Maintainability
The source code of the app will be documented properly and completely to provide easy maintenance.

Portability
The app is quite simple and so it can be ported to other platforms easily, provided that the external libraries used in the existing platform is available for the platform to which the app is being ported to.

Reliability
The app is developed and designed to be reliable. It will only fail (partially), if the database which is hosted by the server fails. The reliability will also depend on the changes which are made in the further versions of Android.

Non Functional Requirements Table:

ID	***REQUIREMENTS***	***DESCRIPTION***
I1	Software Quality Attributes	Maintainability, Portability, Reliability, Availability, and Usability.
I2	Safety	None
I3	Performance	The performance of the software product will depend completely on the hardware of the user's Android device.
I4	Security	Not yet decided

6. Other Requirements

Not yet decided.

Appendix A: Glossary

Distributed System: A distributed system is a model in which components located on networked computers communicate and coordinate their actions by passing messages.
Client/Server system: It is a distributed system in which some sites are client sites and other sites are server sites, all data resides at the server sites and all applications execute at the client sites.
Apache POI: It provides pure Java libraries for reading and writing files in Microsoft Office formats, such as Word, PowerPoint and Excel.
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.
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.
Android SDK: It is a set of development tools used to develop applications for android platform.

Appendix B: Analysis Models

For the use case diagram please refer to section **4.0 System Features**.

Appendix C: To Be Determined List

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