Software Requirement Specification For Tour Guide

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1 Introduction

The introduction of the Software Requirements Specification (SRS) provides an overview of the entire SRS with purpose, scope, references and overview of the SRS. The aim of this document is to gather and analyze and give an in depth insight of the complete Tour Guide system by defining the problem statement in detail. Nevertheless, it also concentrates on the capabilities required by stakeholders and their needs while defining high-level product features. The detailed requirements of the Tour Guide are provided in this document.

1.1 Purpose

The main purpose of this project named "Tour Guide" is to make a system which might be helpful for the millions of tourists to find a secure tour guide very easily and which will be affordable and will reduce your tension of exploring unknown places and also This will become a platform for the tour guide to make profit and make them employed. That's why for this certain concern we are going to develop such project.

1.2 Project Scope

The main scope of this project is to develop a web application based on PC and android. This SRS is also aimed at specifying requirements of application to be developed but it can also be applied to assist the selection relation between the different stakeholders. The standard can be used to create software requirements directly or can be used as a model for defining the system requirements.

1.3 Glossary

This subsection contains definitions of all the terms, acronyms, and abbreviations used in the document. Terms and concepts from the application domain are defined.

- GUI - Graphical User Interface
- API – Application Programming Interface
- SRS – Software Requirement Specification
- UI – User Interface
- SDLC – Software Development Life Cycle

1.4 References

IEEE. IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998

1.5 Overview

Today we have computers with large computing power and almost every business is going to take the advantages of using those technologies. Moreover people nowadays are so connected with computers and mobile devices. In Bangladesh's population of 160 million, more than 140 million people use mobile phones while around 80 million people access the internet. So, it's a very big issue that internet users are rapidly growing and it's very much easier for someone to access internet and get information. So, our system will be very much helpful for them to easily get any guide for certain tour.

People wanted to explore unknown places also they have different choices of their own. Whenever they think of going somewhere they wanted to preview the places and also want to know some information about the place. For this they actually search in Google and find pictures and details information. At this case they have to search a lot for knowing information about the places. This is kind of time wasting and also irritating. Also they need someone to help them in unknown places, they need someone to guide them properly and let the place to introduce in front of them. That's why they actually try to hire someone as a guide. But it's sometimes so difficult to get someone guide you. Sometimes it's risky also because you are new to that location and any uncertain things can happen.

Moreover Tour Agencies arranges package tours and you can be one of the tourists of their package and they provide tour guide that's why actually you are joining with them .In that case they charges extra charge from you and that charge goes to the agencies. That's some wastage of money.

At guides point of view they are actually connected with the tour agencies. That's why there might have chances to be betrayed by the agencies and get less amount of money, also the guides are kind of the employees of tour agencies. There have no freedom to work as an employee.

We are here to help them out. A person can easily become our member as a guide by going through certain verifications and there a person/group can easily find a guide of specified location just by enrolling our sites and can easily book one in a cheap rate. There don't have any issues of uncertainty and risks. All the guides are properly verifies and secured. Moreover, a person can easily look up some places by simply searching in our sites to get all the information, pictures and blogs at once. There's no pain of searching in Google for several times to know about the place. This is the way we are trying to help people and make the guides self-employed. They are free and they don't have any boss also they are actually generating money throughout this system. That's the way we are approaching and trying to help people out.

2 User Classes and Characteristics

There are two types of stakeholders in our "Tour Guide" system. Such as:

2.1 Tourists

Tourists are the mass people who want to go somewhere for spending good time. They are actually the one who needs information about tourist spots and guides. They will search for spots and available guides and will hire guides in advance. They are actually our consumer for whom we are actually developing this system.

2.2 Guides

For helping the tourist for being able to complete the tour properly there might have some guides. They are also our stakeholders. People having interest on helping tourists can easily join our system and help them to visit specified places. They are our stakeholders and they are the one who will get paid by his job. Guides are kind of our working member who can develop his career throughout our system and also there's no boss on whom they should work on. They are totally free in taking decisions and helping others. A guide also can give a tour with having another guide. They have the facility of becoming a tourist also and easily can go anywhere as their personal interest and also can search and can look up for any places.

3 Design and Implementation Constraints

Design and implementation constraints are those that we have used to implement this project make successful. It also describes tool that enables developers and testers to view and interact with the user interface (UI) elements of this application.

3.1 User Interface Technology

User interface (UI) is everything designed into a system view that which person's associates with this system may like the interface of this system.

3.1.1 Programming Language

For developing this system, we will use Java as a programming language. Java is a widely used open source general-purpose programming language that is especially suited for Android application development. Java is a programming language, and a powerful tool for making dynamic and interactive mobile applications based on Android operating system.

3.2 Implemented Tools and Platform

Every business plan, campaign, or project comes down to Tactics, Tools, and Strategies. To conceive, develop, and implement a sound social media marketing strategic plan that will be successful needs to have those three critical components.

3.2.1 Web Server

A Web server is a program that uses HTTP (Hypertext Transfer Protocol) to serve the files that form Web pages to users, in response to their requests, which are forwarded by their computers' HTTP clients. Dedicated computers and appliances may be referred to as Webservers as well. We will use the Apache HTTP server to implement this project. We will use RESTful API to retrieve data from our server to mobile application. RESTful stands for Representational State Transfer. And API stands for Application Programming Interface.

3.2.2 Database Server

We will user Oracle database sever to store all of the information of this system. The reason behind to choose the database server are given below

- Security
- Reporting and Data Mining
- Replication
- Fault tolerance
- Performance diagnostics User Case Diagram

4 Requirement Specification

The complete requirement specification base on the elicitation process is described in this section.

4.1 Functional Requirements

Functional requirements refer to the functions which are mandatory to the system. Functional requirements must be able to perform on the software system. Every system must have some functional requirements. Now, we are going to mention functional requirements associating with our project.

4.1.1 Tourist and Guide Search for tourist spots

FR-1	Tourist/guide search for tourist spots
Description	Tourist/Guide may need to look up for some places first before booking a guide. In that case he/she will be able to use the search bar to look up the place and, in that case, they have to search by tourist spots name.
Stake Holders	Tourist , Guide
Priority	High

4.1.2 Tourist/Guide finds a Guide

FR-2	Tourist/Guide finds a guide
Description	Tourist/guide wants to go at a specific place and need a guide. By clicking Find tour he/she will see a search bar that search by places. Just type that specified place and he/she will see some available guides nearby with their short profile. Then he/she can click any of them to see their full profile and offers or can book them. Place
Stake Holders	Tourist , Guide
Priority	High

4.1.3 Tourist/Guide Check Profile

FR-3	Tourist / Guide Checks Profile
Description	Tourist/Guide may want to see his/her profile .In that case he/she will go to his profile by clicking on the profile button and can see previous tours and can give feedback if it's a tourist profile or can check feedback if it's a guide's profile . He/she can update their information and can change password in this case if they want to change.
Stake Holders	Tourist, Guide
Priority	Medium

4.1.4 Log in As Tourist

FR- 4	Log in as Tourist
Description	A tourist wants to book a guide. For booking a guide he/she needs to log into the system. For this reason, they will log in the system by providing username/email and password. If he/she is a new user don't have any account then they have to register into the system. For this reason he/she will provide information about himself such as name , password , email ,username , mobile no and in that way he/she will be a signed member and then he/she can log into the system and then he/she will be able to book a guide .
Stake Holders	Tourist
Priority	High

4.1.5 Guide Checks Feedback

FR- 5	Guide checks Feedback
Description	Feedback of guide plays a vital role in that system. The person whose rating is high will be shown first in the list while anyone searches by location. Also feedbacks will be shown at guide profile. So, It's very important for guides. A guide can check feedback and can reply the feedback
Stake Holders	Guide
Priority	Low

4.1.6 Log in as guide

FR-6	Log in as Guide
Description	A guide needs to log in his /her profile. In that case he/she will just click on the profile button .He/she will be able to see previous history and can change his information. If anyone wants to become a guide then first he/she needs to register. He/she can offer tour and update his/her profile
Stake Holders	Guide
Priority	High

4.1.7 Tourist Gives Feedback

FR- 7	Tourist Gives Feedback
Description	Feedbacks are very important for a guide that describes how a guide actually approaches and help him/her in conducting the tour. So, it's tourist responsibility to give feedback after a tour. It will help the system and other tourists to know the specified guide's service
Stake Holders	Tourist
Priority	Medium

4.1.8 Register as a tourist

FR-8	Register as a tourist
Description	A tourist needs to provide name, user name, email, password and mobile number to register into the system. Then anytime he/she needs to log in just by providing username and password he/she can logged in.
Stake Holders	Tourist
Priority	High

4.1.9 Register as guide

FR-9	Register as a Guide
Description	For registering as a guide into the system he/she needs to give information about himself name, address, password, mobile number, email, postal code, city etc. Then have to verify phone no and email no. this is the first step. Admin will check his/her application and accept or reject it. If get accepted then he/she have to provide other information like NID Card scan copy , passport copy , references and picture and then again he/she have to wait for confirmation . If his information is valid and confirmed then he/she will be one of our guides.
Stake Holders	Guide
Priority	High

4.1.10 Confirm a guide

FR-10	Confirm a guide
Description	To book a guide you need to confirm a guide. By seeing the offer that provided by specified guide if you are interested in him you need to message him throughout the message section or can call him. That's how you can contact with him. Then you need to pay 20% of the total payable money through our system using your credit card or through bKash. After that the tour will be confirmed and before meeting with our guide you can contact him/her 24/7 through calling or messaging.
Stake Holders	Tourist
Priority	High

4.2 Data Requirements

For defining data requirements, we need to build the model. For our application maximum data would be loaded from remote user. And for that purpose we need to focus on some major points.

Such as:

- Types of entity of the system
- Route data locations
- Capacity and resources of the data requirements
- Data source sequence
- Data availability schedules
- Quantity of data
- Availability of data

4.3 Performance Requirements

It is very important to maintain performance of any software system. To ensure performance, we need to maintain some steps. Now, I will explain some perspective by which we are going to enhance the performance of our project.

4.3.1 Speed and Latency Requirements

Speed and latency requirements must be ensured while retrieving data from the cloud server.

SLR-1	Search must be faster
Description	While tourists/guides are searching for a locations or guide it must be faster within seconds in showing results.
Stake Holders	Tourist, Guide
Priority	Low

4.3.2 Precision and Accuracy Requirements

Results that is to be shown to the end user is need to be accurate. Because, wrong information might be ruined the whole business process.

PAR-1	Search result must be accurate
Description	When tourists/guides are searching for a location then the search result must be according to the input value.
Stake Holders	Tourist, Guide
Priority	Medium

4.3.3 Capacity Requirements

The developed system by us must be capable to handle user data, provide accurate information, handling database, manage http request etc.

CR-1	The System will handle thousands of data
Description	The System needs to handle thousands of data at every moment It should have the capacity
Stake Holders	N/A
Priority	Low

4.4 Dependability Requirements

The term dependability is measured based on four dimensions. Such as:

- Availability
- Reliability
- Safety
- Security

If we want to say that our application system is dependable then it must fulfill the four dimensions. But there are other tasks. Like there is no way to make mistakes or our system should have the ability to detect and then remove errors. Besides that, it is also very important to limit the damage which might be caused by system failure.

4.4.1 Reliability and availability Requirements

Now, I will mention requirements which is related to reliability and availability.

RAR-1	The System must be available on 24 x 7
Description	Our system must be available all day long, every day in a week • The system must be updated regularly • System must be malware free
Stake Holders	Tourist, Guide
Priority	High

4.4.2 Robustness or Fault-Tolerance Requirements

To ensure robustness and fault-tolerance facilities to the end users, it is urgent to ensure 0% crush. Moreover, it must show accurate results.

RFT-1	The system handles all user access without system errors
Description	Thousands of our application system at a time. All their request must be handled without any fault.
Stake Holders	Tourist, Guide
Priority	Low

4.4.3 Safety- Critical Requirements

There are no safety-critical requirements in our project.

4.5 Maintainability and Supportability Requirements

It is very important to provide after service or support to the end users.

4.5.1 Maintainability Requirements

MR-1	System helps to update user profile
Description	It is very important to update user profile
Stake Holders	Guide, Tourist
Priority	Medium

4.5.2 Supportability Requirements

Supportability requirements may have related to some extends. Like:

- Testability
- Extensibility
- Adaptability
- Maintainability
- Compatibility
- Configurability
- Serviceability
- Install ability

Our application meets all of the above requirements related to supportability.

4.5.3 Adaptability Requirements

There are no adaptability requirements in our system software.

4.6 Security Requirements

Making software security as a requirement is very important. Software security requirements should be its functional requirement. Software security enforces security of an application system.

Functionality related to software security can either be directly tested or observed. Some security related requirements is given below:

- Signing in as guide , tourist
- Get access according to logged in user
- Set ratings values to the guides without having any issue
- Signing out from system
- Handling encrypted passwords

While accessing to the system, each and every module must provide a central authentication mechanism. There is also a process to prevent entering into the system by ensuring hashed password for the unauthenticated users.

4.6.1 Access requirements

For accessing to our application system, there remains some authentication and authorization techniques. And every module of our system will provide it. Now I will provide an explanation below.

AR-1	Application provides security mechanism
Description	Every module is designed in such a way that it only give access to the authorized and authenticated users
Stake Holders	Guide, Tourist
Priority	High

4.6.2 Integrity Requirements

Integrity requirements refers to a security system which ensures an expectation of data quality. It also ensures that all data of the system would never be exposed to the malicious modification or accidental destruction. For that reason, we will store our user passwords as encrypted format which is impossible to decrypt. It is also called hashed password.

4.6.3 Privacy Requirements

It is very important to ensure privacy of the system users. Privacy requirements enhances to protect stakeholder's privacy. In this way, all data or a partial part of data are going to be disclosed according to system's privacy policy. To ensure privacy, the central database should be protected by the anonymous. Users are permitted to get access to those data which are being associated by them which can be ensured by the user log in system.

4.7 Usability and Human-Interaction Requirements

The main target of developing any system is to make the system user friendly and easy to usable for the end users.

4.7.1 Ease of Use Requirements

Our application is easy to use and also easily understandable.

EUR-1	Application must be usable for the end user
Description	This web application is enough usable to the tourist and tour guide by which they can operate this system easily
Stake Holders	Guide, Tourist
Priority	High

4.7.2 Personalization and Internationalization Requirements

There are not any personalization and internationalization requirements to our system. This maiden version of our application is only be operated by Bangladesh.

4.7.3 Understand ability and Politeness Requirements

It is already said that the application which we are going to develop, is understandable enough. The system provides hints to users whether any error occurred or wrong. By reading those errors users can be able to operate the system easily.

4.7.4 Accessibility Requirements

There are no specific accessibility requirements associated to our system yet.

4.7.5 User Documentation Requirements

Documentation are mainly two types. One is internal documentation which is generally written by the application engineers. It is prepared to make development life cycle easier for the system engineers or system analysts.

UDR - 1	The system engineer documentation
Description	To develop our application named Tour Guide firstly we made a system analysis team as well as documentation team
Stake Holders	System analyst or software developers
Priority	High

4.7.6 Training Requirements

No need of training because of being easy to use and handle the application.

4.8 Operational and Environmental Requirements

Operational and environmental requirement refers to the capabilities, performance measurements, process, measurements of effectiveness, measurements of performance, measures of sustainability, measurements of technical performances etc.

4.8.1 Expected Physical Requirements

There are no expected physical requirements in our system.

4.8.2 Requirements for Interfacing with Adjacent Systems

There are no requirements for interfacing with adjacent system for our project.

4.8.3 Release Requirements

There are no specific release requirements in our system.

4.9 Legal Requirements

Legal requirements normally refer to the terms and conditions or privacy policy of any organizations. The terms and condition of our application is that, no third-party software or person are allowed to engage to use our data for their b**usiness purpose.**

5 Requirement Engineering Process

Requirements engineering refers to the process of defining, documenting and maintaining requirements in the engineering design process. It is a common role in systems engineering and software engineering.

5.1 Requirement Elicitation Techniques

Requirement elicitation is the process of collecting and refining stakeholder's requirements. Projects are garbage-in-garbage-out meaning that poor quality requirements typically lead to project issues and failure.

5.1.1 Hold Elicitation Interviews

We hold interviews that can be performed one-on-one or with a small group of stakeholders. They are an effective way to elicit requirements without taking too much stakeholder time because we meet with people to discuss only the specific requirements that are important to this system. Interviews are helpful to separately elicit requirements from members in preparation for workshops where those members of this system come together to resolve any conflicts.

5.1.2 System Interface Analysis

The first thing to do is to identify which systems the system-to-be shall communicate with. It could be a server on the Internet, a piece of software on the same host as the system-to-be, some hardware or something completely different.

The following is an incomplete list of types of interfaces that we have considered:

- Relational Databases
- Protocols
  - For Communication on the internet
  - For communication via a specific port on the computer
- Specific registers in the computer

- Specific Address in RAM

In some cases, it is worth considering modifying the systems that interact with the system-to-be. As an example the System Interface Description could specify a minimum version of a program that cooperates with the system-to-be.

5.2 Requirement Validation

Validation ensures that the requirements are correct and demonstrate the desired quality that you want from this system. Requirements that seem fine when you read them might turn out to have ambiguities and gaps when to try to work with them.

5.2.1 Review the Requirements

Peer review of requirements, particularly the type of rigorous review called inspection, is one of the highest-value software quality practices available. Assemble a small team of reviewers who represent different perspectives and carefully examine the written requirements, analysis models, and related information for defects.

5.2.2 Test the Requirements

We test constitute an alternative view of the requirements. We also conduct writing tests about how to tell if the expected functionality was correctly implemented. Derive tests from the user requirements to document the expected behave of the product under specified conditions.

5.2.3 Simulate the requirements

To simulate the requirements commercial tools are available that we have used to simulate a proposed system either in place of or to augment written requirements specifications. Simulation takes prototyping to the next level.

6 Appendix

6.1 Prioritization of requirements

We've prioritized the functional requirements by following **Three-level Scale technique.**

6.1.1 Three-level Scale

With the numbering on the different sections of the diagram, the priority of the sections is implicit. Important items have the highest preference, while urgent items have lower preference.

1. High Priority – These requirements are urgent and important. These are requirements that are generally with respect to compliance or contract that cannot be left out. These requirements need to be implemented in the current release and not implementing the same will have some adverse effect on the business.

2. Medium Priority – These requirements are important but not as urgent. Implement these after you implement the high priority items. If you see closely there is a line that splits this quadrant into 2 parts. Implement the items that are on the right side of the line first as they are relatively of higher medium priority.

3. Do these later – These items are urgent but do not have a lot of effect on the business. Hence do it after completing the more important medium priority items. Similar to the medium priority items, this quadrant has also been split into two; the items on the right side have a higher priority relatively to the items on the left.
4. Low Priority – These items are neither important nor are they urgent.

The items on the right hand side of the diagonal have higher priority. Start with the bottom-right corner of the high-priority quadrant and work your way up and left.

Prioritization of the requirements of Tour Guide system:

FR1 - High Priority. Tourist/guide searches for location. It's important for choosing where to go and getting guide of specific location

FR2 – High Priority. Tourist/guide finds a guide. It's very important because the system is relying on that.

FR3 – Medium Priority. Tourist/guide checks profile. It's for developing user's profile and necessary for better system.

FR4 – High Priority. Log in as Tourist. Tourist must log in to use our system so, it is urgent.

FR5 – Low Priority. Guide checks feedback. Guide may want to check tourist feedback. It's guide's wish so , it's not that urgent .

FR6 – High Priority. Log in as Guide. Guide must log in our system to use the system.

FR7 – Medium priority. Tourist give feedback. Tourist can give feedback. it's important for knowing a guide's behavior and facilities that's why it's important but not must.

FR8 – High Priority. Register as a tourist. Tourist must register in the system to use the system. FR9 – High

Priority. Register as a guide. Guide must log into the system to use the system.

FR10 – High priority. Confirm Guide. For booking a guide we must confirm the guide through the system .so, This requirement must be fulfill very fast and urgently.

SLR1 – Low Priority. Speed and latency requirements. here users are using search bar .so, the search result should be fast. But it can be done later.

PAR1 – Medium priority. Precision and accuracy requirements. There should not show wrong answer. so, its important.

CR1 – Low priority. Capacity requirements. There will have thousands of data that increases day by day. So, It can be done slowly.

RAR1 – Medium priority. Reliability and availability Requirements. System must be available 24/7. So it is important and should be done urgently.

RFT1 – Low Priority. Robustness or Fault-Tolerance Requirements. Users will increase day by day and system needs to handle all the users so, system should be robust and should not have any faults. That can be done slowly.

MR1 – Medium Priority. Maintainability requirements. System needs to maintain all the users and update their profiles.

AR1 – High Priority. Access Requirements. System needs to authenticate every user before logging in the system. it provides security. So, it's so much important .

EUR1 – High Priority. Ease of Use Requirements. System should look cool and easy access advantage. So, it should do quickly.

UDR1 – High Priority. User Documentation Requirements. Documentation is very much important for further access for any other system engineer. It's very much important for future to know the system and work easily.

SR1 –Medium priority. Style Requirements. Style requirements are needed to control the appearance.