

Software Requirement Specification (SRS)

Project Name: Train Ticket Reservation website.

1. Introduction

1.1 Purpose:

This document discusses the requirements of our project (" Train Ticket Reservation Website") with its two categories: User Requirements and System Requirements.

It describes goals, objectives and constraints of Train Ticket Reservation Website, which we extract them from Owner and Sponsor.

1.2 Intended Audience and Reading Suggestions:

This document can be accessed by:

- Sponsor ("Owner/Admin").
- Project Manager
- Team Members (developers – testers – designers – analysts)
- On-Site Customer

1.3 Product Scope:

Our system is a governmental system, " Train Ticket Reservation Website " is an attempt to simulate the basic concepts of an online reservation system and improves the service of process.

It enables railway stations to reduce the load in ticketing station, reduce chances of error by making all calculations, facilitates the reservation, cancellation and update of the ticketing reservation process.

2. Overall Description:

2.1 Product Perspective:

Our website is already existing software product which will be developed by the project team to solve the problems that have been due to the current unreliable ticketing websites. Our website will provide a reliable service, friendly interface, and security to the customer.

Our website provides in addition to the normal features which are: reduce a lot of paperwork and hence the load in ticketing station, the website performs all calculations hence chances of error are nil, the passenger, reservation, cancellation list can easily be retrieved and any required addition, deleting or update can be performed, the system provides user ID validation, hence unauthorized access is prevented.

2.2 Product Functions:

- Registration for user and Admin (sign up, sign in).
- Selection (date, time & pickup station, destination).
- Search.
- Search result.
- Payment.
- Cancellation.
- Settings (suggestion, complain, contact us).

2.3 User Classes and Characteristics:

2.3.1 User classes:

- Students
- Adults
- People
- Governance

2.3.2 Characteristics:

Educational level: Familiar at least with Arabic or English.

Technical Expertise: User should be familiar with Internet and mobiles.

2.4 Operating Environment:

Hardware:

Operating System: supports Android operating systems and any pc.

Mobile: 32Gb at least and 3 GRAM and pc with 8Ram.

Software:

Software is designed to run on any platform above Android 5.0 (lollipop) and any pc.

The app required internet connection.

2.5 Design and Implementation Constraints:

Software development crew provides their best effort in developing the system. In order to maintain the reliability and durability of system, some design and implementation constraints are applied. System will need a hard of 1T HDD and 256G SSD hard. Availability of an IOS app could make the system more usable but due to time and budget constraint it is not possible. It prefers using Bootstrap to design the interface but the designer could use any other tools.

2.6 Assumptions and Dependencies:

Some software used in implementing the system is with a high-cost server and the client has agreed to afford the amount of money needed to purchase them. Assume users have mobile or pc, access to the internet, and reliable network. Assume users have a valid username, password to access the software. Passengers are provided tickets only if seats are available.

3. External Interface Requirements:

3.1 User Interfaces:

National Train Reservation

Home

Search Ticket

Purchased Tickets

Complaints&Suggestions

Contact Us

Hi,Maria

Edit

Logout

You are Welcome to Contact Us at anyTime!

Send us a message

Name * Your name

Email * abcde@gmail.com

Phone (+20) 012-345-678-90

Company Company name

Message *
Write your message

SEND MESSAGE

Contact Information

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Molestias, magnam!

• 9757 Aspen Lane South Richmond Hill, NY 11419

• +1 (291) 939 9321

• info@mywebsite.com

Delete

Are you sure you want to delete this?

Time_Pickup	5/24/2023 1:07:00 AM
Pickup_Station	Asyut
Destination	Cairo
Seat_Number	15
Ticket_Money	90
Ticket_Classes	AC1
Train_Coach_Number	5
Train_Number	2007

Delete

 | [Back to Tickets List](#)

Compliments, Suggestions and Feedback

We are always here to support you!

Let's talk about everything!

We appreciate your Message, Let us know how we can help you?



User Name:

Your name

Email:

abcde@gmail.com

Phone Number:

(+20) 012-345-678-90

Message Type: ☒ Complaints ☐ Suggestions

Subject:

Subject

Details:

Write your message

Upload File: No file chosen

You are Welcome to Contact Us at anyTime!

Send us a message

Name* Your name

Email* abcde@gmail.com

Phone (+20) 012-345-678-90

Company Company name

Contact Information

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Molestias, magnam!

• 9757 Aspen Lane South Richmond Hill, NY 11419

• +1 (291) 939 9321

User Edit

National Number

First Name

Family Name

Email

Password

Phone Number

Purchased Tickets

Gender

Purchased Tickets

Id	Time_Pickup	Pickup_Station	Destination	Seat_Number	Ticket_Money	Ticket_Class	Train_Coach_Number	Train_Number	
26	5/24/2023 9:33:00 PM	Aswan	Cairo	26	150	AC1	6	2015	<input type="button" value="Cancel Ticket"/>



Please sign Up

☐ Remember me

Sign Up

If you're already have account please [Login](#)

National Train Reservation

[Home](#)

[Search Ticket](#)

[Purchased Tickets](#)

[Complaints&Suggestions](#)

[Contact Us](#)

Hi,Maria

Edit

Logout

Purchased Tickets

There is No Purchased Tickets!

Id	Time_Pickup	Pickup_Station	Destination	Seat_Number	Ticket_Money	Ticket_Class	Train_Coach_Number	Train_Number	ID
Add									

National Train Reservation

[Home](#)

[Search Ticket](#)

[Purchased Tickets](#)

[Complaints&Suggestions](#)

[Contact Us](#)

Hi,Maria

Edit

Logout

Search Result

Date	From	To	Seat Number	Price	Class	Train Coach Number	Train Number	
5/24/2023 9:33:00 PM	Aswan	Cairo	26	150	AC1	6	2015	Buy

Sign in

Email

Password

Search for Ticket

From

To

Date



Ticket_Classes

[Back to Home Page](#)

↑ Platform 3a
↑ Platform 3b

Sign in

Email

Password

Admin Edit

Name

Email

Password

[Back to Home Page](#)

Tickets

[Create New](#)

Time_Pickup	Pickup_Station	Destination	Seat_Number	Ticket_Money	Ticket_Classes	Train_Coach_Number	Train_Number	
5/24/2023 1:07:00 AM	Asyut	Cairo	15	90	AC1	5	2007	Edit Delete
5/19/2023 2:34:00 AM	Aswan	Asyut	15	100	AC1	5	2007	Edit Delete
5/24/2023 9:33:00 PM	Aswan	Cairo	26	150	AC1	6	2015	Edit Delete

3.2 Hardware Interfaces:

Devices must match with our application requirements to take the maximum benefit from our website.

In general operations (Registration, Searching, Reservation, Payment, Cancelling) the user must have a stable internet connection.

- 32Gb at least and 3 GRAM.

3.3 Software Interfaces:

Database: SQL and SQL management studio.

Programing Language: .NET

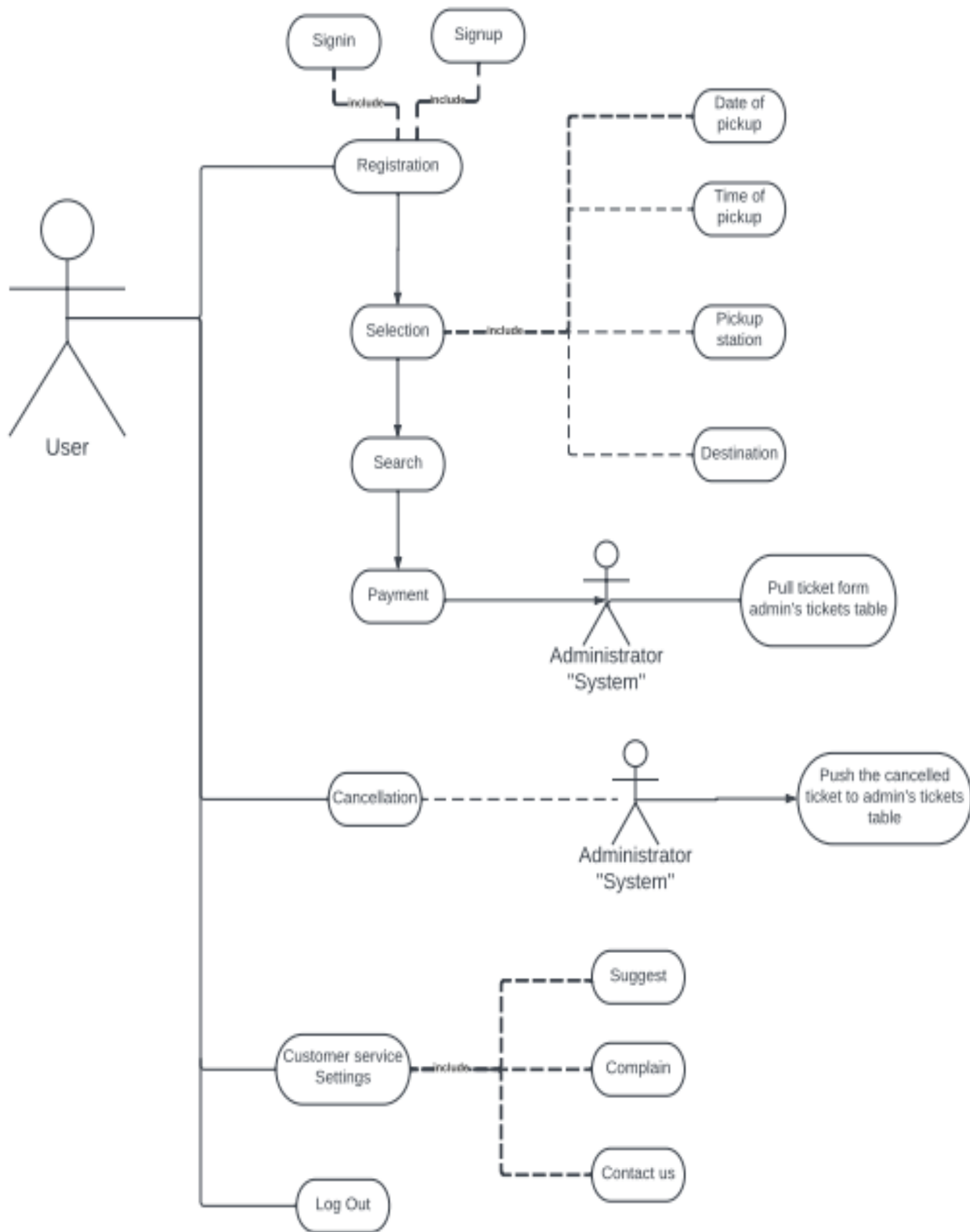
Interface: HTML, CSS, Bootstrap.

4. System Features:

4.1 E-R Diagram:



4.2 Use Case Diagram:



4.3 Use Case Scenarios:

1)Reservation:

- Sign up

Use case Name	Sign up	
Goal	Make new account	
Primary Actors	User	
Secondary Actors	None	
Precondition	Open Website from any browser and user must be above 16 years old and have valid email.	
Postcondition	New account created	
Triggers	User wants to make a new account	
Main Flow	Step	Action
	1	Open website from any browser
	2	User click sign up
	3	User enter his name, phone number, National ID number, valid email, password and any needed data in the form
	4	User click Sign up
	5	Then user could click on any tap then he could use it
	6	Sign up success
Extensions	3.1 If user has already an account display "This email is already used". 3.2 If the user used an invalid phone number displays:" Invalid phone number". 3.3 If the user is under 16 years old then display "The user must be above 16"	

Sign in

Use case Name	Sign in	
Goal	Log in to account	
Primary Actors	User	
Secondary Actors	None	
Precondition	<ul style="list-style-type: none">- User must have stable internet connection.- User already have an account	
Postcondition	Access to his application account	
Triggers	User wants to open the website to search or make a train trip	
Main Flow	Step	Action
	1	User enter his email and password that is already signed up with
	2	User click log in
	3	User go to website services and choose reserve ticket, payment, cancellation, customer service setting or any service he wants.
Extensions	If user entered wrong email or password display:" Incorrect email or password". If the user does not have internet connection display "Check your internet connection".	

2)Selection

Use case Name	Select train	
Goal	Select desired train and date	
Primary Actors	User	
Secondary Actors	None	
Precondition	User already logged in to his account	
Postcondition	Select services	
Triggers	When user inquires for any trip	
Main Flow	Step	Action
	1	User press on Search link
	2	User press pickup station button and select his location
	3	User press destination station and select his destination location
	4	User choose date and time he wants
	5	User click on search button
Extensions		

3)Search and Search Result

Use case Name	Search for available train	
Goal	Find available train	
Primary Actors	User	
Secondary Actors	None	
Precondition	User already select his ticket details	
Postcondition	List available trains	
Triggers	When user wants to search about desired train	
Main Flow	Step	Action
	1	User press search button
	2	App display list of available trains and their appointment, train number and available seats.
	3	User select suitable train.
	4	User press pay button
Extensions	1.1 If user didn't select anything display "Please select your trip details" then app wouldn't display anything or do any action. 3.1 If there is not any suitable trips for the user then user must change his trip details.	

4)Payment:

Use case Name	Payment success	
Goal	Review data and confirm reservation	
Primary Actors	User	
Secondary Actors	None	
Precondition	Select suitable trip	
Postcondition	Reservation confirmed	
Triggers	When user wants to reserve a ticket	
Main Flow	Step	Action
	1	User press pay button.
	2	App display data of the user desired ticket.
	3	User check his data and it is correct.
Extensions	3.1 If data isn't correct then user re-enter his data and click pay.	

7)Cancellation:

Use case Name	Cancellation	
Goal	User cancel his trip ticket	
Primary Actors	User	
Secondary Actors	None	
Precondition	User already reserve a ticket	
Postcondition	User cancel his reservation and get his money back	
Triggers	When user wants to cancel his reservation	
Main Flow	Step	Action
	1	User enter Website and click "Search result" button.
	2	App display all purchased trips.
	3	User select desired trip to make cancellation.
	4	Then user click "cancel" button.
	5	User confirms cancellation process.
	6	The system cancels selected trip.
Extensions		

8)Settings:

Use case Name	Settings	
Goal	To make setting's changes or contact customer services	
Primary Actors	User	
Secondary Actors	None	
Precondition	User already have an account	
Postcondition	Change settings	
Triggers	User wants to edit settings	
Main Flow	Step	Action
	1	User go to suggest & complains or, contact us of the website
	2	User choose an option that he wants from (suggestion, complain, contact us)
	3	The system make change setting due to user's change.
Extensions		

5. Other Nonfunctional Requirements:

5.1 Performance Requirements:

1. **Response time:** response of all operations shouldn't exceed 2 seconds. This has been made by careful programming.
2. **Error Handling:** response to user error and undesired situations have been taken care of to ensure that the system operates without halting.
3. **User friendless:** The system is easy to learn and understand. A native user can also use the system effectively, without any difficulties.
4. **Database:** Database shall be able to accommodate a minimum of 10000 records of passengers.
5. **Number of users:** Software support 100,000 user at the same time.

5.2 Safety Requirements:

There are several user levels in railway ticketing reservation management system, Access to our system will be protected by a user data at log in screen (which requires a user name and password), or signup screen (which requires a user personal data). Maintaining backups ensure the system database security. System can be restoring in any case of emergency.

5.3 Security Requirements:

The main security concern is for users' accounts and payment details, hence proper login mechanism should be used to avoid hacking. The online ticket reservation system shall not disclose personal information of passengers to unauthorized users the public. The system uses SSL (secured socket layer) in all transactions that include any confidential customer information, must automatically logout all customers after a period of inactivity and shouldn't leave any cookies on the customers devices containing user's passwords. System back-end servers shall only be accessible to authenticated management.

5.4 Software Quality Attributes:

Portability:

The Railway ticketing reservation System shall run in any android devices.

Availability:

The system will be available 24/7.

Correctness:

The program fulfills all the requirements requested by the user.

Flexibility:

Our system is so flexible to keep track with any changes in the customer requirements so we can add new features, improving an exist features, deleting any features from the system and handle them conveniently.

Testability:

Our system is always under testing to keep track and handle any cracks and debugs that is founded in the system during using it.

Usability:

Our system is easy to use because we use simple interface that is appropriate the user who has little knowledge of technology.

Robustness:

Our system is so fast at handling system functions accurately and maintaining the database without facing to unexpected failures.

Reusability:

Our system reuses some functions that already existing at Egyptian National Railways system which are: registration, reservation and searching.

Integrity:

Our system always maintains backups which avoids the data losses.

Robustness:

Our system is 5MB so it doesn't take big size of memory so it can run on big variety of android devices.

5.5 Business Rules:

Railway ticketing reservation Management System will perform under user who has an account and administrator.

The system is designed in a way where responsibility and privileges are decreased in the order of administrator and user.

The role of the user is elected in registration, searching, reservation, payment and cancelling. The role of administrator is elected in customer service, interacting with user if there is any error or debug and evolution the system.