Paperplane website

Software Requirements Specification

Version 1.3

Date 7-21-2016

Techno Knights

Adarsh Kumar Reddy Pidaparthy
Bhanu Teja Kurucheti
Hima Teja Gutta
Sai Sumanth Kattekola
Sai Raj Kiran Kandula
Sravya Madarapu
Vamshinath Nallamothu

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			Bhanu Teja Kurucheti Hima Teja Gutta Sai Sumanth Kattekola Sai Raj Kiran Kandula Sravya Madarapu Vamshinath Nallamothu
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			Faculty Advisor: Dr. Dennis Wong **Project Group**: Adarsh Kumar Reddy Pidaparthy Bhanu Teja Kurucheti Hima Teja Gutta Sai Sumanth Kattekola Sai Raj Kiran Kandula Sravya Madarapu Vamshinath Nallamothu

Document Approval

The following Software Requirements Specification has been accepted and approved by the following:

Signature	Printed Name	Title	Date
	Dr. Dennis Wong	Faculty Advisor	
	Nicholas	Project Sponsor	

Table of Contents

1. Introduction

1.1 Purpose

Paperplane website aims to provide travel planning service to users across the world.

1.2 Scope

The scope of this project is to provide a travel planning website for Paperplane. The Android app has already been implemented, which the website should have similar features as the Android app.

The design of the website will be similar to the design of Android, but may not be exactly the same. The design of the website will be provided by Paperplane.

Database and server management will be taken care by server team. The emphasis is only on front end website development. The main goal of this project would be development of a website which supports desktop, laptop and mobile browsers.

1.3 Definitions, Acronyms, and Abbreviations

Itinerary: A planned route or journey that include activities and duration of each day.

1.4 References

There is an android application regarding Paperplane travel so we took Android application as a reference to build our website.

For Building the website we are using Several API's to get information about different places, distances between different places and for planning the trip purpose for this we use API,s like Google API, Rome2Rio API etc., and based on HTML5 ,CSS3 and JQuery 3.1, for these we are going to take reference from http://www.w3.org/standards/.

For responsive web design we are using Twitter Bootstrap version 3.3.6 we will take the following Bootstrap libraries from http://getbootstrap.com/.

1.5 Overview

The rest of the SRS consists of functional and non-functional requirements, user interfaces, software and hardware interfaces, use cases and other related requirements of the project.

2. General Description

Performance of the server, database, internet bandwidth, location preferences might affect the requirements mentioned in this document.

2.1 Product Perspective and Functions:

It is a web based system implementing client-server model. The Paperplane website helps users to plan a trip based on the users' travel preferences, location to travel and duration of stay.
The following are the main features that are included in Paper plane website

- User account: The system allows the user to create their accounts in the system and provide features of updating and viewing profiles.
- Search: search is simply local search engine based on key words.
- Feedback: In this section, user can give feedback based on his interest and friendliness of the application and he can comment out the problems that he faced while using it.
- Map showing the destination.
- Paperplane will plan a personalized itinerary for you automatically once we Pick a destination and enter the duration of stay, so no more hassle on scheduling and planning.

Features that website or application must perform:

- Automatically plan a personalized trip with just a few taps.
- Calculate an optimized route to get the most out of your limited travel time.
- Discover attractions in the city, travel like a local.
- Automatically search for accommodations that are convenient and suit your style.
- Travel with Paperplane without using Internet.
- With detailed transit navigation, Paperplane is your travel companion.
- Sharing itinerary in Facebook and Paperplane community.
- User preferences are available for time, duration, places and hotel accommodation.

2.2 User Characteristics

Any user who has a user account can accesses the information on Paperplane website, this website is useful for travel planning, so a wide variety of users can be expected with their own priorities, by identifying the user characteristics, the services and user experience can be improved.

2.3 General Constraints

The Internet connection is also a constraint for the application. Since the application fetches data from the server over the Internet, it is crucial that there is an Internet connection for the application to function while selecting trip.
Both the web portal and the mobile application will be constrained by the capacity of the database. Since the database is shared between both application it may be forced to queue incoming requests and therefor increase the time it takes to fetch data.
Hotel accommodation can be planned anywhere between 1 to 29 days. It cannot be more than 29 days.
The website comes with responsive design and can be accessed on both web and mobile web.

3. Specific Requirements

The requirements include both technical and non-technical requirements that are needed to build the project.

3.1 External Interface Requirements

This sections identifies and documents the interfaces and describes how to interact with the software. The developer would interact with Integrated Development Environment (IDE) to design the graphical user interface and develop the functionalities. It allows to create, edit files, run and debug the application. These IDEs can also be integrated with version control system and online code repositories like GitHub, Bitbucket and SVN.

3.1.1 User Interfaces

An appropriate user interface would be developed based on design provided by the client.

3.1.2 Software Interfaces

A request will be sent to the server by using JSON to get information such as travel destinations, directions to places, estimated time to travel, images and share itinerary on Facebook or share private and publicly to community.

3.1.3 Communications Interfaces

The Paperplane project will use HTTPS protocol for communication over the internet.

3.2 Functional Requirements

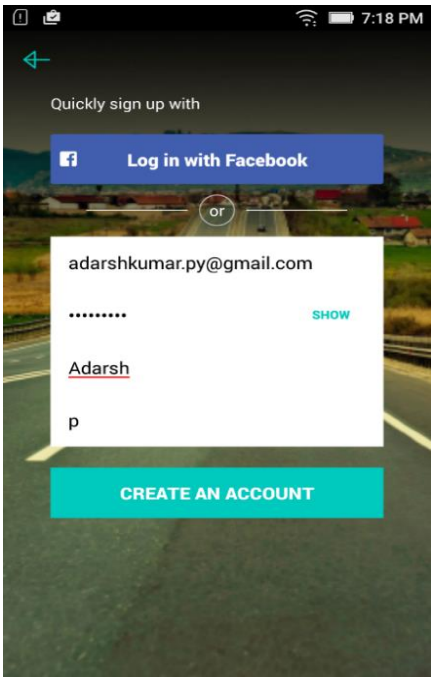
This section describes specific features of the software project. If desired, some requirements may be specified in the use-case format and listed in the Use Cases Section.

3.2.1 Feature #1: Registering new account

Introduction: The necessary credentials required are

- first name
- last name
- email id and
- password of 6 characters length.

Paperplane website



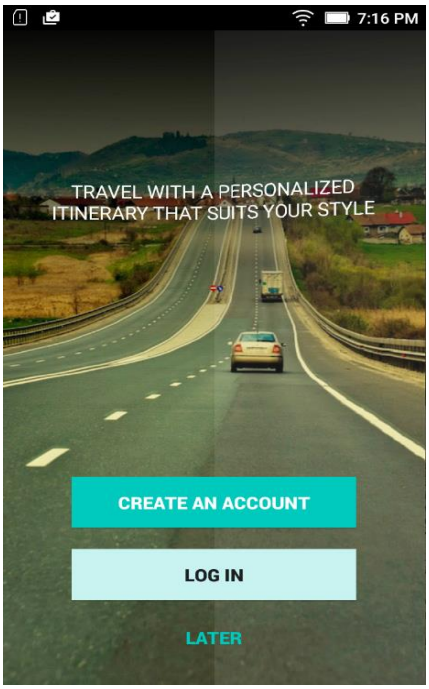


Fig 1.1 Start Page of paper plane app Fig 1.2 Creation of new account

The above figure shows the display page of paper plane application when it is launched. It shows us the multiple options where we can create an account, logging into an existing account. When the user clicks on later button, he would a see list of famous places around the world.

Inputs: All the necessary credentials

- first name – string of length with 1 to 16 characters, cannot be empty
- last name- string of length with 1 or10 characters, cannot be empty
- email id- for this we are using a regular expression which has limitation of symbols, numbers and alphabets.
- password – should be a minimum of 6 characters.
  They are stored using HTTPS which automatically encrypts and store in database and it is as shown in Fig 1.2 Creation of new account
- For Sing-in through Facebook directly we will use Facebook API

Processing:

- Checks whether all the credentials were given in proper format.
- If the username is already used, it will give a pop up that username already exists, asking the user to provide a different username.
- It also might check for password sequence and its length.
- It must give a pop up saying password length is too short when password of less than 6 words length is given as input.

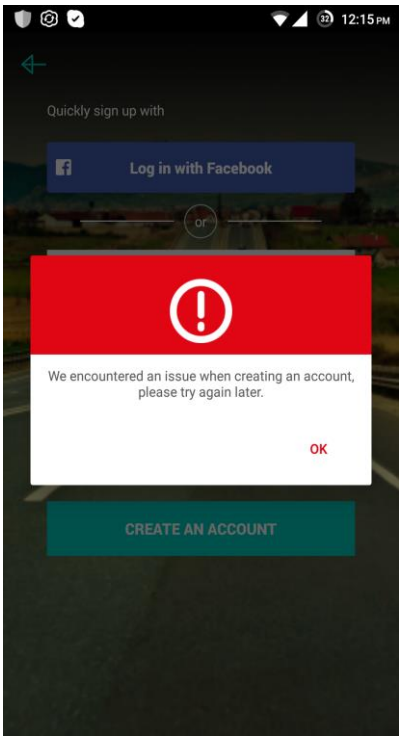


Fig 1.3 Giving same username

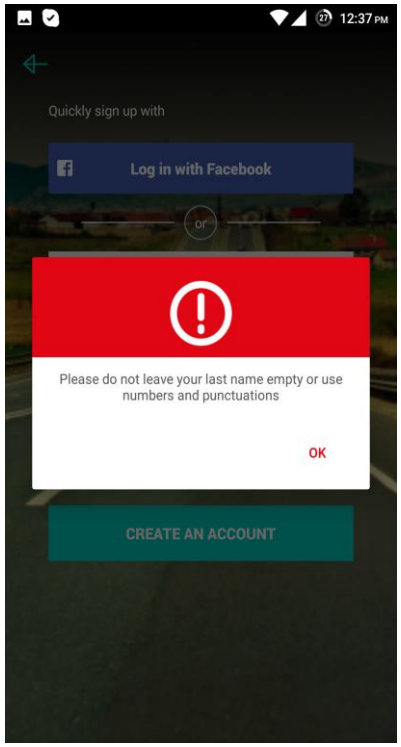


Fig 1.4 Last name not provided

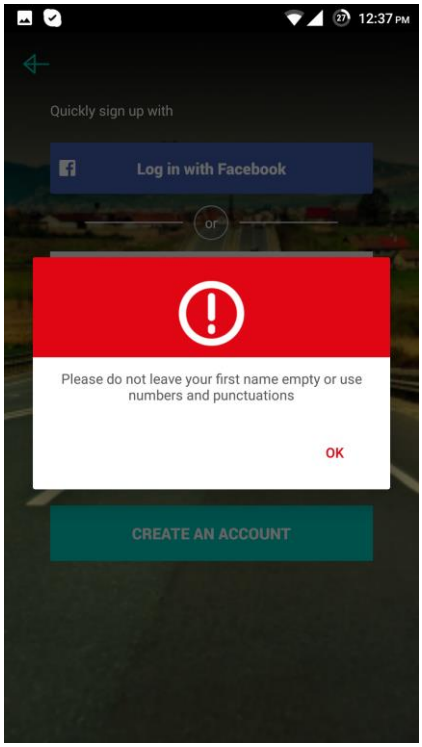


Fig 1.5 First name not provided

- When the username already exists, the creation of new account would be halted as shown in Fig 1.3 Giving same username
- When the last name is not given, there would pop up a message saying that last name must be given and proper punctuation must be given as shown in Fig 1.4 Last name not provided
- When the first name is not given, it would display a pop up of providing a proper first name as shown in Fig 1.5 First name not provided

Output: Creation of a new account in the paperplane application and user will be redirected to website.

Error handling:

- If the user credentials doesn't match with the actual details an error will be prompted to the user stating the error, thereby providing the user how to handle the error to login into his/her account.
- Similarly if user wants login using his Facebook credentials, he/she must enter a valid credentials if not an error will be prompted to the user stating the error
- An error message will be displayed with respect to the error code provided by the API. And some of the errors are shown in Fig 1.3, Fig 1.4,Fig 1.5

3.2.2 Feature #2: Login

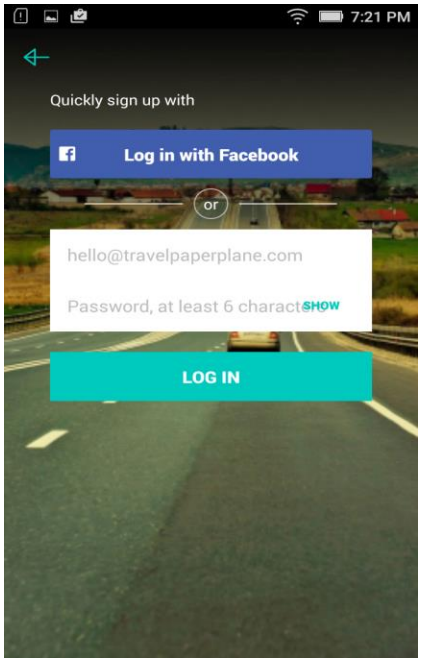


Fig 2.1 Logging in

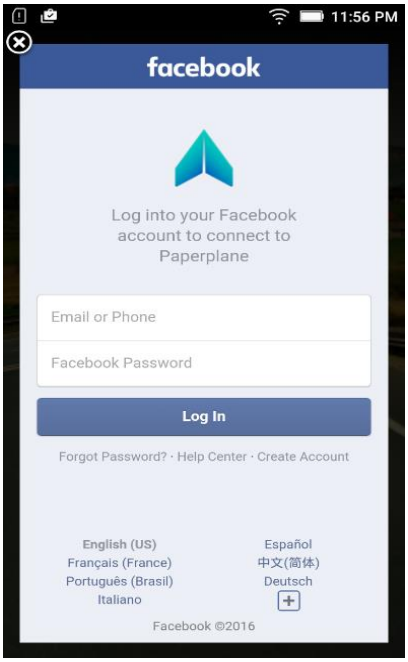


Fig 2.2 Log in through Facebook

Introduction: Logging in to the website can be done in two ways for that the necessary credentials for log in are

- **Username and password credentials**: Logging in by providing username and password given during the registration of account as shown in Fig 2.1 Logging in

- **Using social networking sites like Facebook:** Another way of logging in to the application is by using Facebook where he needs to provide the appropriate username and password for immediate login as shown in Fig 2.2.

Input:

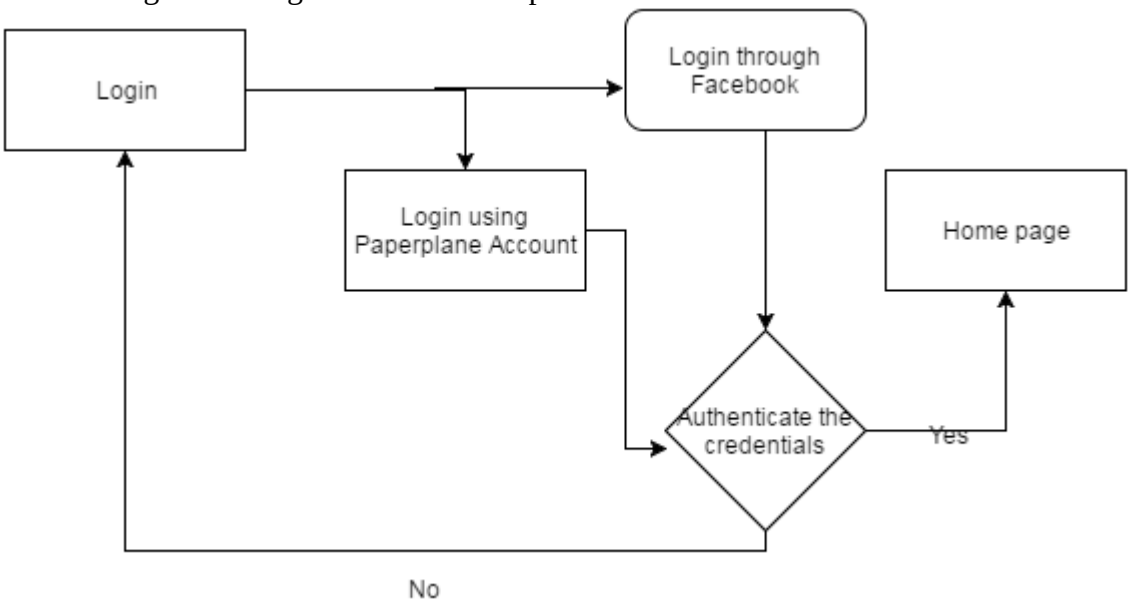
- User can enter user id and password if the user was already registered with Paperplane.
- If the user like to login with Facebook, he/she should enter Facebook credentials.

Processing:

- If the user using Facebook to login to website it will Invoke Facebook API to login.
- If the user enter credentials that are registered in Paperplane, it will check in the database and give access to the website if the user gets authorized.

Output: Displays the places on the home page filled with some famous destinations.

- Once the user successfully logs in, There would pop out a series of questions asking the user to give a rating from 1-5 based upon their interest.



Error handling: Denies the entry when improper username or password is given. Checks for the presence of Facebook account and gives entry.

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3.2.3 Feature #3: Add a Trip and Save the trip

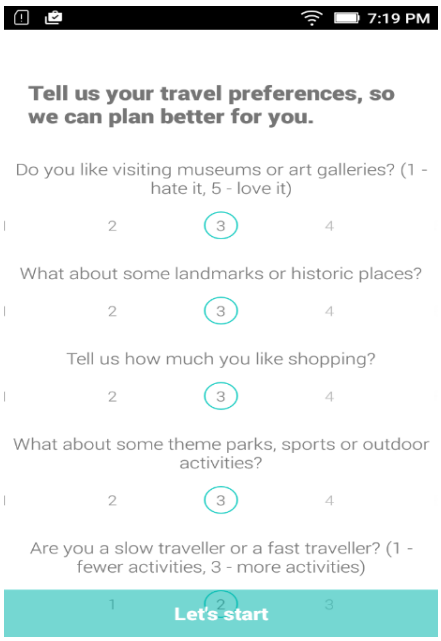


Fig 3.1 Preferences

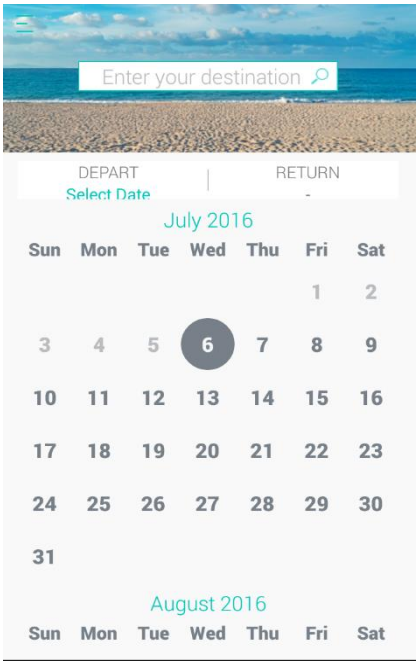


Fig 3.2 Selection of place & trip dates

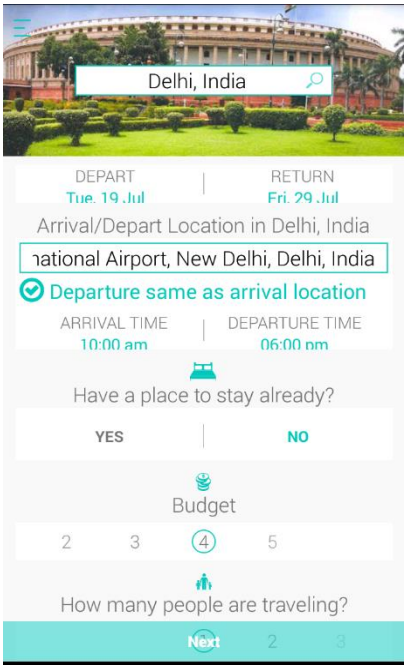


Fig 3.3 Queries about visit

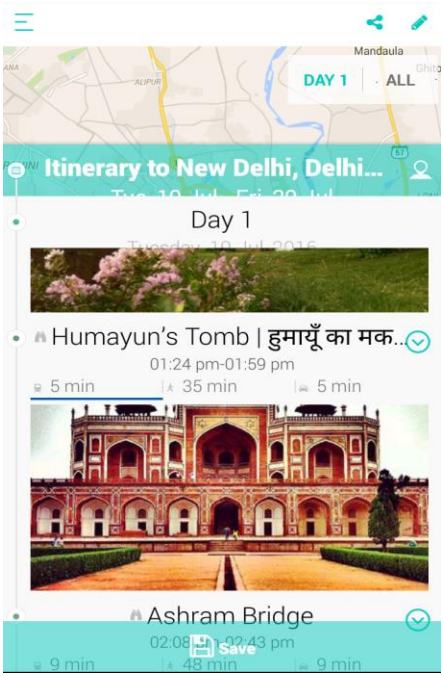


Fig 3.4 Trip details

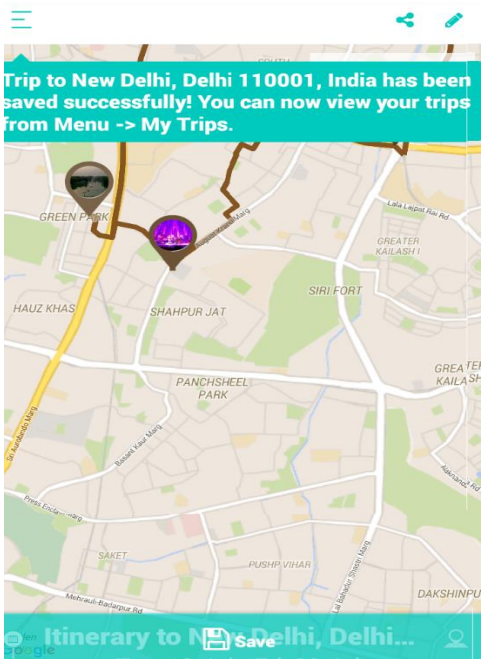


Fig 3.5 Conformation about saving

Introduction:
When user wants to plan a trip he can choose a destination from home page or he can click on Add trip button and will be directed to a page where he can look at a search option clicking on which he can enter his preferences as shown in Fig 3.1. So it can plan better for us.

Inputs:

- The inputs for this tasks starts from selecting Add Trip option from the settings menu.
- Users enter the preferences as shown in Fig 3.1 Preferences so it can better plan for us like about shopping number of places of different types to visit.
- Users can select the destination he/she want to go and dates they prefer as shown in fig 3.2 and Fig 3.3 Selection of trip dates and the process is as follows
    1. Enter the City where the user like to travel.
    2. Enter departure date and return date.
    3. Enter arrival time and departure time.
    4. Select budget preference from 1 to 5, where 1 is lowest and 5 is highest.
    5. Select number of people travelling.
    6. Select a place to stay or application will suggest a place based on user's budget preference.

Processing:

- The inputs supplied by the user will be sent to the server to plan an itinerary.

Outputs:

- After clicking next the server team will provide information about places and duration of visit to places based on this information route will be calculated by calling Google API and/or Rome2Rio API and itinerary will be generated for the given duration. The itinerary has detail route and time to famous locations as shown in Fig 3.4. .
- If the user is logged in, he/she can save the itinerary and once the saving is done a conformation message will be displayed that our itinerary is added to our My Trips as shown in Fig 3.5.

Error Handling:
Displays an error message based on the error code from the server.

3.2.4 Feature #4: Customize the trip

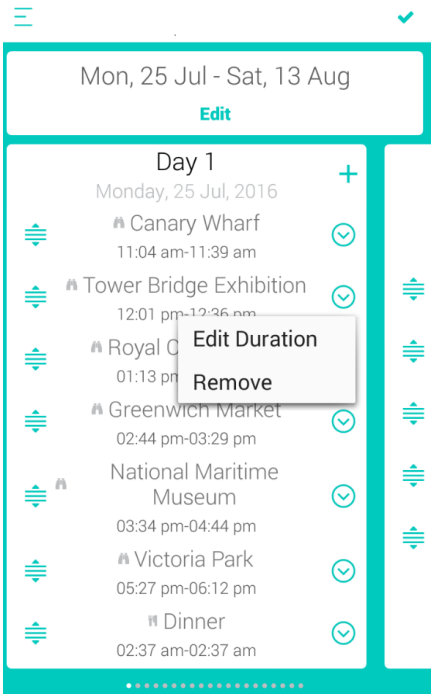


Fig 4.1 Edit duration

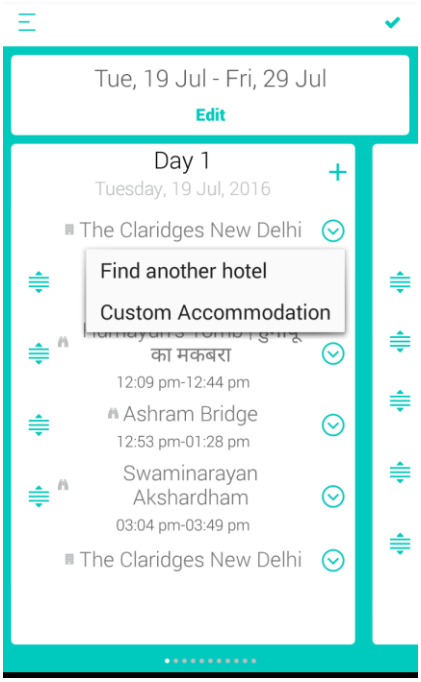


Fig 4.2 Add user's desired hotel

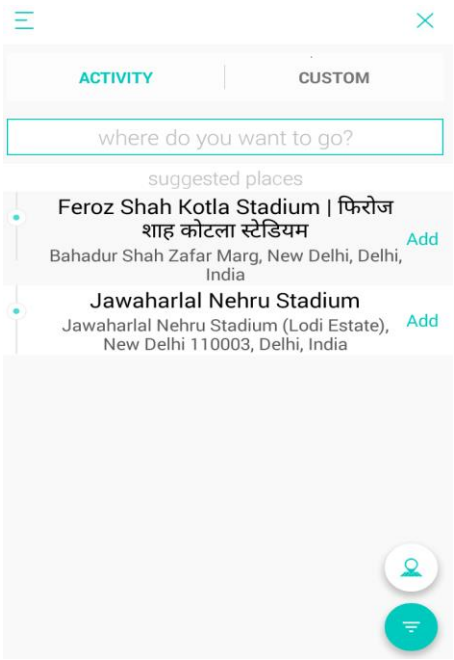


Fig 4.3 Add user's desired place

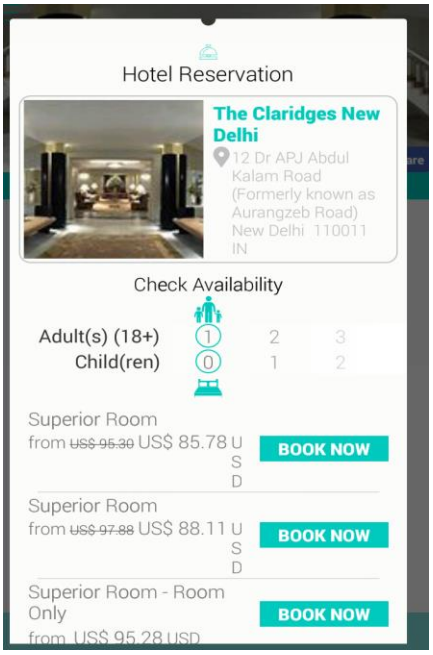


Fig 4.4 Booking Hotel

Introduction: When the itinerary is generated the user can customize the places and time and other activity in the days.

Inputs: User can select that if it a hotel or place or a day from the list to customize the trip.

- User can also change the duration of a trip by giving the start and end dates as an input.
- The duration of a particular place by edit duration option as input.
- As shown in Fig 4.1 Edit duration we can remove the trip using remove option or change the duration of visit to that particular place
- Add an activity by clicking on '+' icon as shown in Fig 4.1
- We can change activities order.
- User can set preferences for hotel accommodation, choose from the options generated based on the preferences and also customize their stay as shown in Fig 4.2
- Hotel recommendations will be provided to the user to book a room. If user is satisfied with the suggestion given by the application he/she can book the hotel as shown in Fig 4.4.
- Specific API will be decided by server team.

Processing:

If it is the hotel the user have the options to find the other hotel or user can enter the custom accommodation if it is with the place the user can change the scheduled time or can totally remove the hotel and choose hotel you like as shown in Fig 4.1 and/or Fig 4.2.
If it is with the day you can change the activities in the like adding the custom place as shown in Fig 4.2.
Using a hotel search engine API, hotel recommendations will be provided to the user.

Outputs: The changes made by the user will be updated in the itinerary and updated itinerary is shown.

Error Handling:
Displays an error message based on the error code from the server.

Paperplane website

3.2.5 Feature #5: Directions and details of the places in the Itinerary

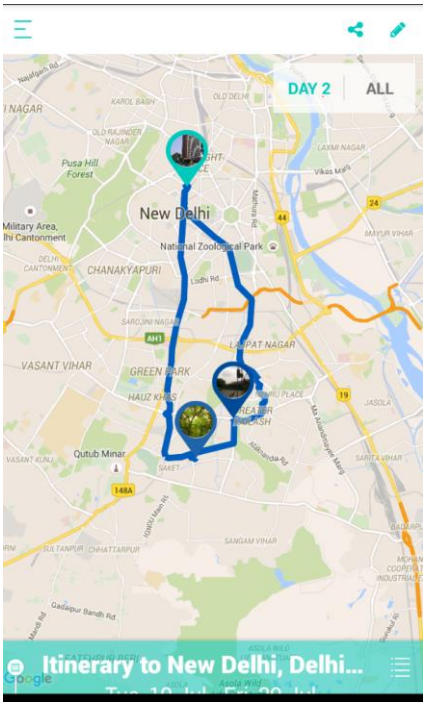


Fig 5.1 Calculating Distance

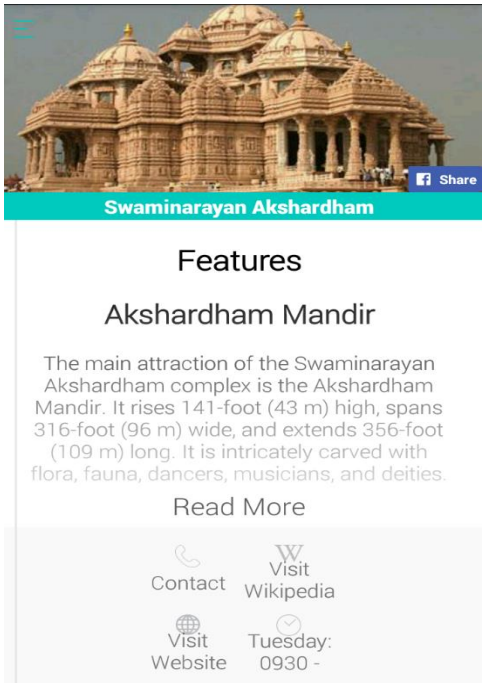


Fig 5.3 Brief description about places

Introduction: The user can check the places their details and directions for the place to travel. When the itinerary is generated, the places in the Itinerary are displayed and above it the maps for the places in the itinerary are provided

Input: The user can select places displayed and can check for activities for individual days or all days. Information from the servers about places, their latitude and longitude and distances is retrieved using Rome2Rio API.

Processing:

- When the user click for the place in the itinerary the distance from the previous place is calculated using google APIs and Rome2Rio API's as shown in Fig 5.1
- Brief description of the place by calling Wikipedia API and information provide by server team as shown in Fig 5.3.

Outputs:

When the user clicks on the day the activities for that day are displayed.

- Directions from place to place will be shown as shown in Fig 5.1 and it also shows distance between places
- If it is place the brief description of each place in a selected city is provided as shown in Fig 5.2 and we collect this information from server team.

Paperplane website

Error Handling:

Displays an error message based on the error code from the server.

3.2.6 Feature #6: Tell a friend

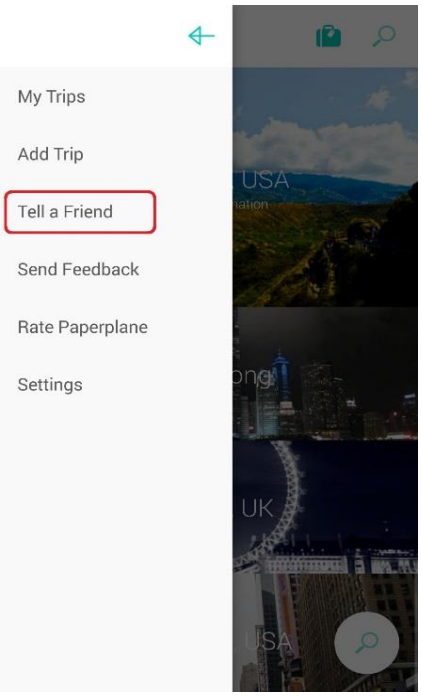


Fig 6.1 Telling a friend

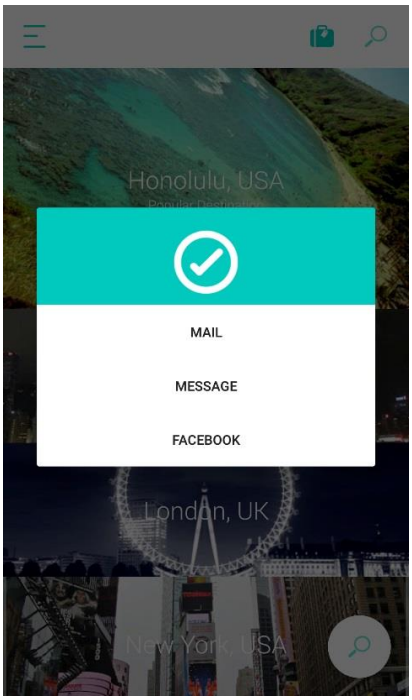


Fig 6.2 Methods of telling a friend

Introduction:
Tell a Friend is to suggest user's friend or family person about the website. User can tell by mail or by social media like Facebook.
Input:

- Select 'Tell a friend' option in the menu as shown in Fig 6.1.
- Select any of the methods shown in Fig 6.2 and give corresponding details to send a message to user's friend or family person.

- Mail:

If a user wants to tell his/her friends about the website through mail, an option will be provided to enter email id of a person.

- Facebook:
  User can share about the website in Facebook, user will be allowed to login to Facebook and can post a predefined website link on Facebook.
- Message:
  It is not implemented because we are building website that runs on desktops.

Processing:
Mail: Calls google API and allows the user to share the URL of website to his/her friends.
Facebook: Calls Facebook API and allows the user to share the URL of website in the facebook.

Output:
The URL of the app will be send to the respective person to whom the user wants to send.

Error handling:
Displays an error message based on the error code from the server.

3.2.7 Feature #7: Settings

Introduction:
Settings is to set the user's preferences. User can set his/her preferences and can change date and time formats.

Input:

- Time format: User has a choice to select 12 hour or 24 hour time format.
- Currency: User can select currency.
- Default start and end time: User can select start and end time of the day.
- Social networking links: user can go to Paperplane official account in Twitter, Facebook, and Instagram.

Processing:

- Open Menu.

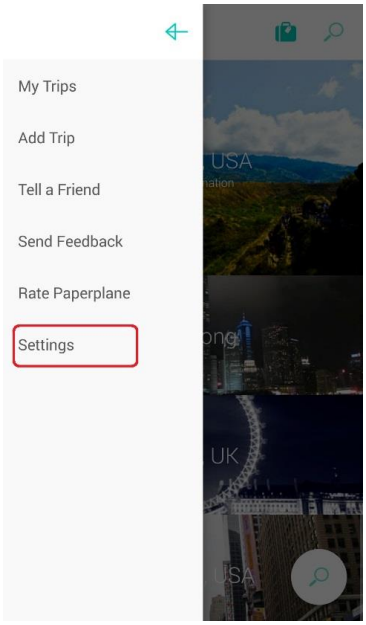


Fig 7.1 Selecting settings from menu

- Select ‘Settings’ option in the menu.

- A list of options like My Account, Currency, Default Start Time, and Default End time, Time Format, Social Media and Hotel Booking Records will be displayed.

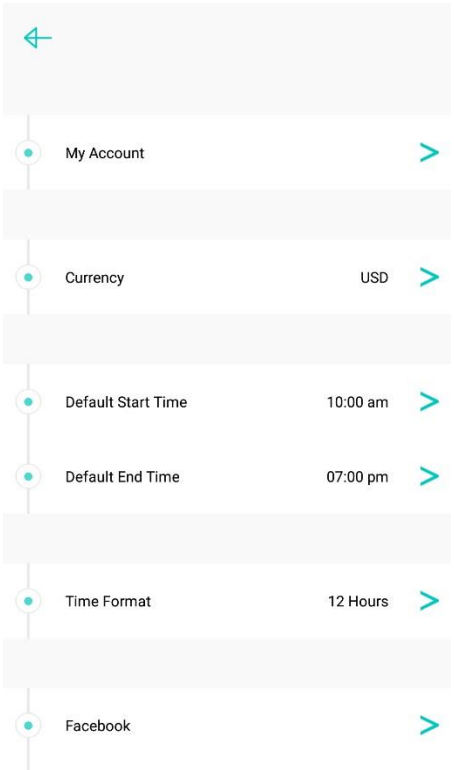


Fig 7.2 Options present in settings tab

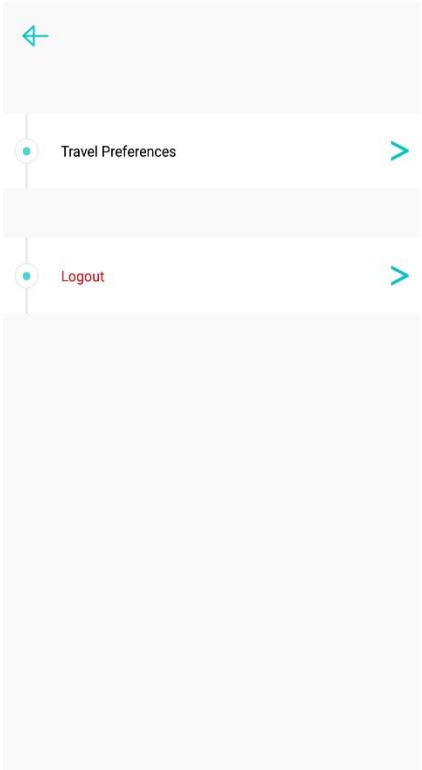


Fig 7.3 My account options

- In ‘My Account’, there will be two options like Travel Preferences and logout will be displayed.
- User can set his/her preferences/interests and their rating from 1 to 5 in ‘Travel Preferences’. So that the application will display the places basing on user interests.

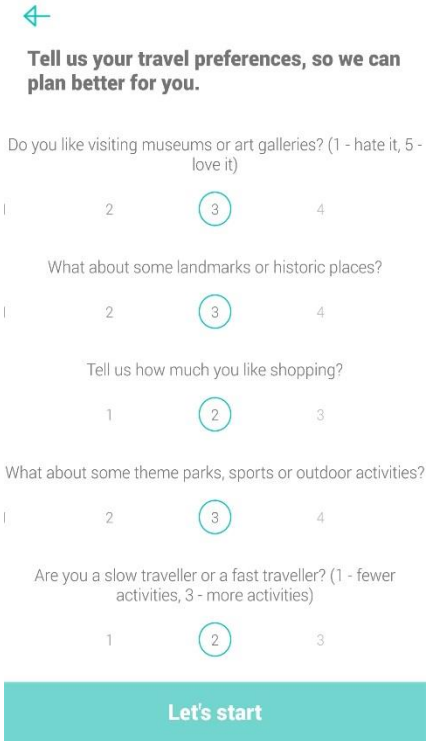


Fig 7.4.Travel preferences

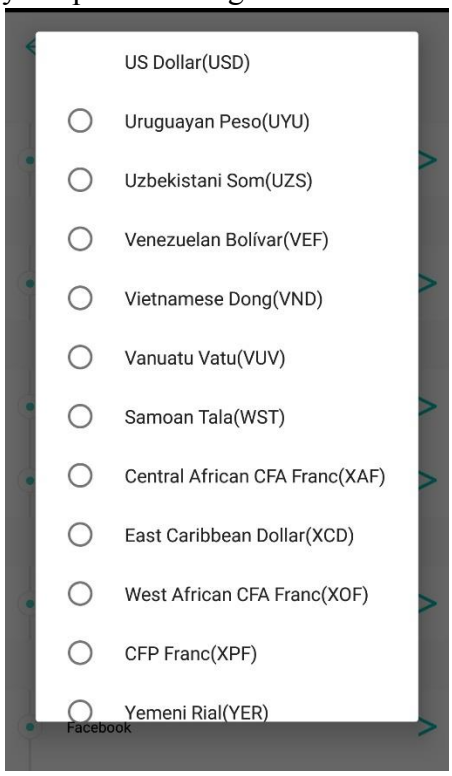


Fig 7.5 Display of various currencies

- User can logout from his account by clicking on ‘Logout’.
- In ‘Currency’, option user can select his/her currency.
- In ‘Default Start Time’ and ‘Default End time’ options user can set his/her start and end times of a day. So that the application will plan events within those day limits. By default the application will set to 10 am as start time and 7 pm as end time.
- In ‘Time Format’, user can set the time format as 12 hours or 24 hours.
- In ‘social Media’, all the social media options like Facebook, twitter, Instagram will be displayed. If the user clicks on any of the option then the user will redirected to official page of Paperplane in corresponding site.

Paperplane website

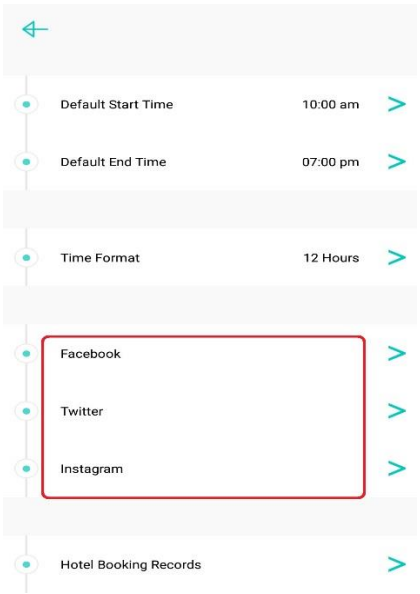


Fig 7.6 Social media options

- In 'Hotel Booking Records', the history of hotel bookings that user made using the application will be displayed. By default the hotel booking will be redirected to"www.travelnow.com". All the bookings can be made through "travelnow.com" website.

Output: Saved changes are visible to the user in settings menu if we made any changes in settings.
Error handling: Displays an error message based on the error code from the server.

Paperplane website

3.2.8 Feature #8: My Trips

1. Once we login to the website or application, there is my trips option in the menu bar.

Introduction:
It is a feature that stores the previous trips that a user has visited or planning to visit. We can also share our itineraries which may be helpful to others.
In the menu, there is my trips option.

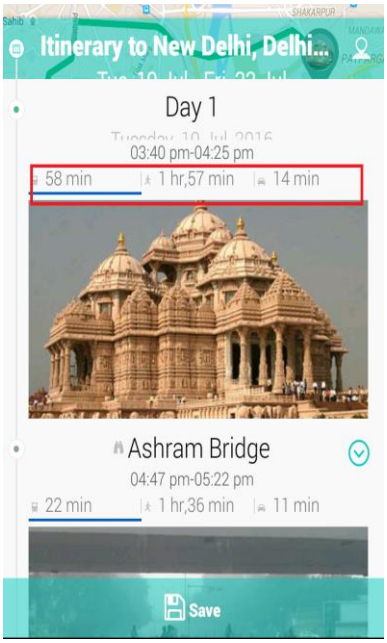
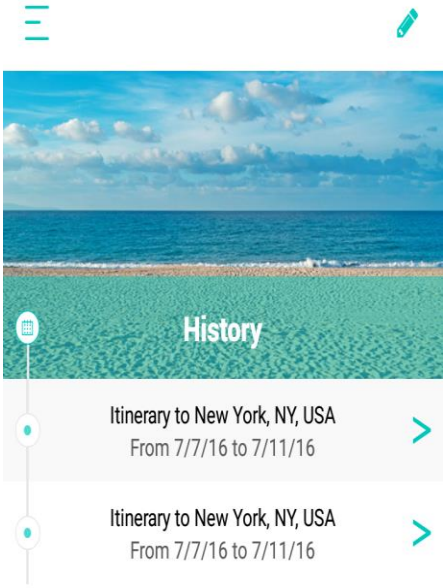


Fig 8.1 : Saving the trip



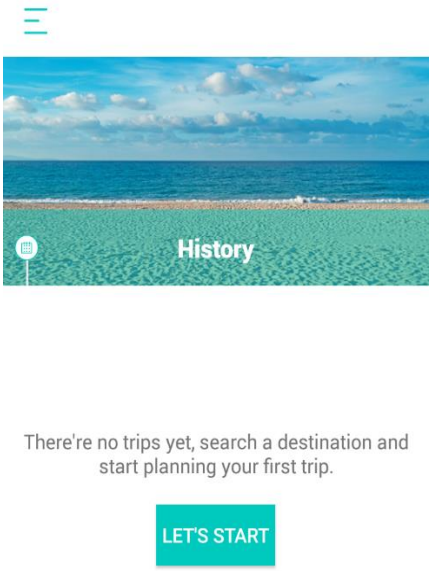


Fig 8.3 :My trips with no trips

Input:
Once we saved our trip trip details will saved in the server with our user name and we can view our itenerary when we like to see.

Processing:

- Once we select My Trips website will contact server for the saved itenaries for a particular user.
- Server will send saved itenaries for a particular user.

Output:
Once the user select my trips, it shows the history of itineraries if we save any itineraries or shows a message if we don't have any plans saved.
Error Handling:
Displays an error message based on the error code from the server.

Paperplane website

3.2.9 Feature #9: Itinerary sharing

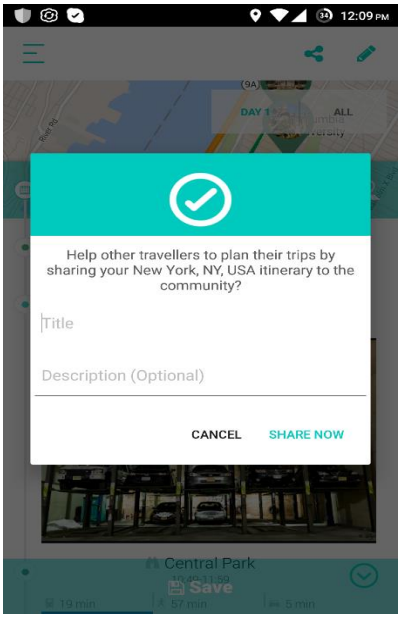


Fig 9.1 Providing title and description to itinerary

Introduction: If a user likes to share his/her itinerary, user can share with friends by clicking on share button in history screen. We can share it on Facebook, by email or message which will be implemented in the next version of Android app.

Input:

- Title of the itinerary: User will be allowed to give title for the itinerary as shown in figure Fig 9.1
- Description to the itinerary: User will be allowed to give description about itinerary what we like in this space provided as shown in Fig 9.1

Processing:

- Itinerary will be submitted to the app developers for review they will review user's itinerary and the Itinerary will be shared to the community once it is reviewed.

Output:

It will show that our itinerary has be shared or submitted like a notification giving conformation that our itinerary is shared

Error handling:

Displays an error message based on the error code from the server.

Paperplane website

3.2.10 Feature #9: Other user's Itineraries

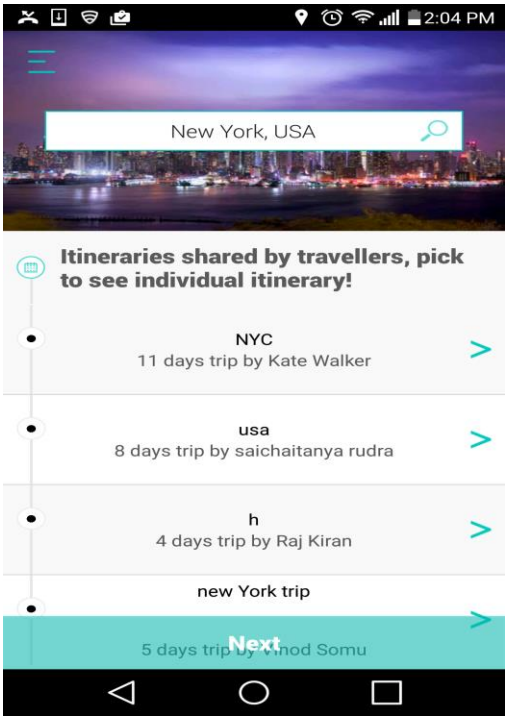


Fig 10.1 list of itineraries

Input:

In Add a Trip, the user have to select a destination, dates of visit, hotel details and click next button.

Processing:

Once the user click next button the page will be redirected to another page where it will show the itineraries of that particular destination that are shared privately and publicly in the community.

Output:

List of itineraries of that particular destination will be displayed as shown in Fig 10.1.

Error handling:

Displays an error message based on the error code from the server.

3.3 Non-Functional Requirements

3.3.1 Performance

The website regularly interacts with the server to get information requested by the user. The server should be able to handle multiple requests by a large number of users and shouldn't crash.

3.3.2 Reliability

According to survey percentage of different browsers is as shown below of year 2016

2016	Chrome	IE	Firefox	Safari	Opera
May	71.4 %	5.7 %	16.9 %	3.6 %	1.2 %
April	70.4 %	5.8 %	17.5 %	3.7 %	1.3 %
March	69.9 %	6.1 %	17.8 %	3.6 %	1.3 %
February	69.0 %	6.2 %	18.6 %	3.7 %	1.3 %
January	68.4 %	6.2 %	18.8 %	3.7 %	1.4 %

So almost 99% of people in the world uses mostly

- Chrome
- Internet explorer
- Fire fox
- Safari
- Opera

It is ideal that we prepare website which is compatible for these browsers

3.3.3 Availability

The website should be accessible at any place with Internet connection at any time across devices.

3.3.4 Security

Using HTTPS:

We are using HTTPS security protocol for securing our website from hacking HTTPS is a protocol for secure communication over a computer network which is widely used on the Internet. HTTPS consists of communication over Hypertext Transfer Protocol (HTTP) within a connection encrypted by Transport Layer Security or its predecessor, Secure Sockets Layer. The main motivation for HTTPS is authentication of the visited website and protection of the privacy and integrity of the exchanged data

Paperplane website

3.3.5 Maintainability

User's data should be backed up regularly to avoid data loss in case of a system failure.

3.3.6 Portability

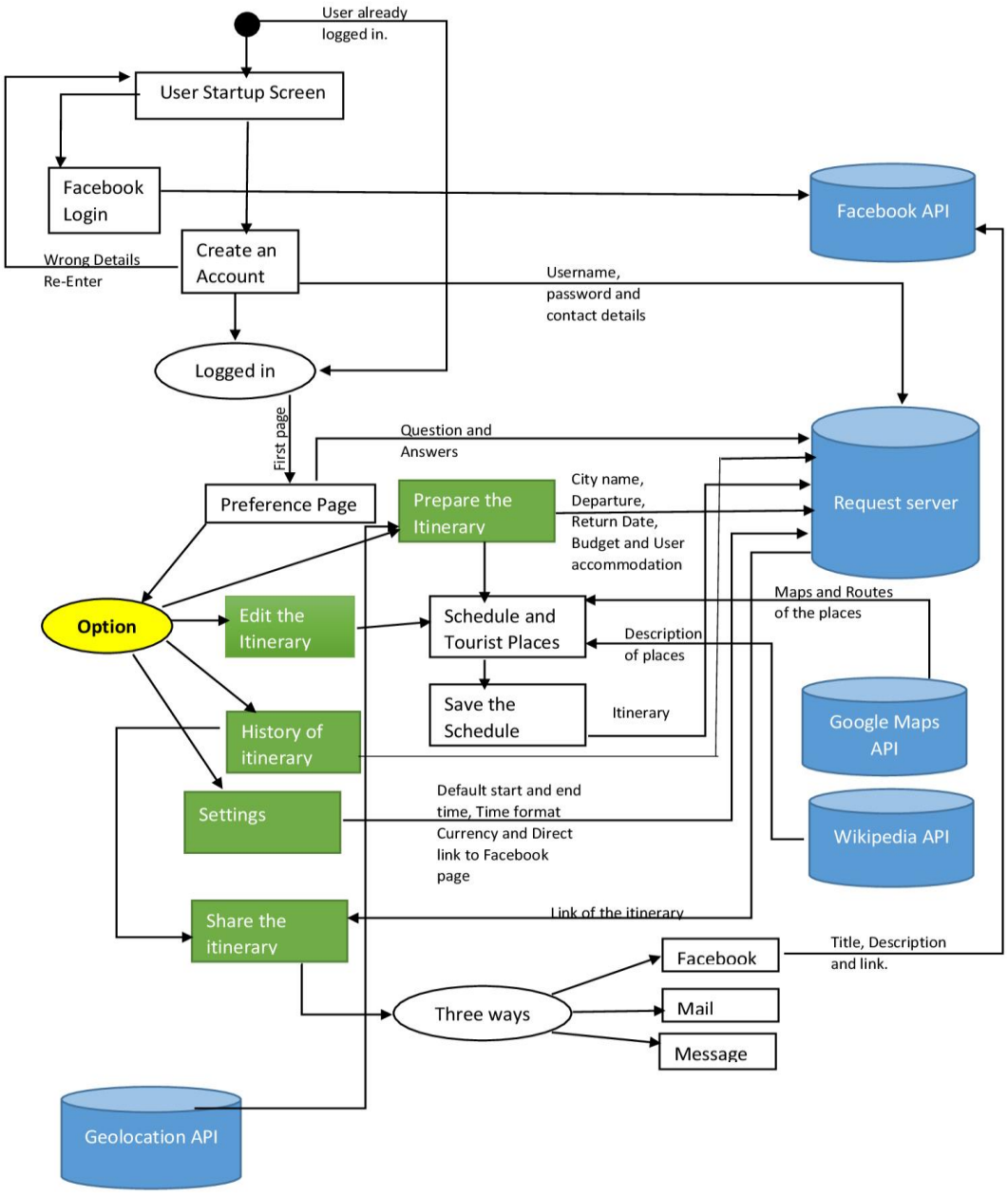
The website can be accessed through a web browser across most of device.

3.4 Design Constraints

Design constraints are yet to be given by Paperplane.

4. Analysis Models

4.1 Data Flow Diagrams (DFD)



Paperplane website

5. Change Management Process

Requirement changes in the android app will be reflected in this document and eventually in the website.