Software Requirements Specification

TRIP PLANNER

Group 2 members
Sidharth M
Rohan Anil Kumar
Athullya R
Aditya Krishna Vijay

Introduction

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Problem statement.

Problems faced while planning the trip, namely meeting time constraint requirements, budget constraints.

Difficulties faced while manually finding out the visiting places in the area within the required proximity and then scheduling the times of visit.

Why this app?

To make your journey smooth by guiding you to overcome the problems while you are travelling .

To give the confused user the idea about the journey and give them a proper plan to make their journey successful.

Scope

- Software application that generates feasible travel paths for users who want to visit tourist places within a specified budget and time duration.
- Targeted audiences anyone who’d love to travel.
- Travelers interested in spontaneity can use the application.
- Application accessible through a web application

Stakeholder identification

- Primary Stakeholders:
  - Tourists
  - Tour planning companies
  - Service Providers

- Secondary Stakeholders:
  - Government agencies
  - NGO
  - Media

Requirement Gathering Methodologies

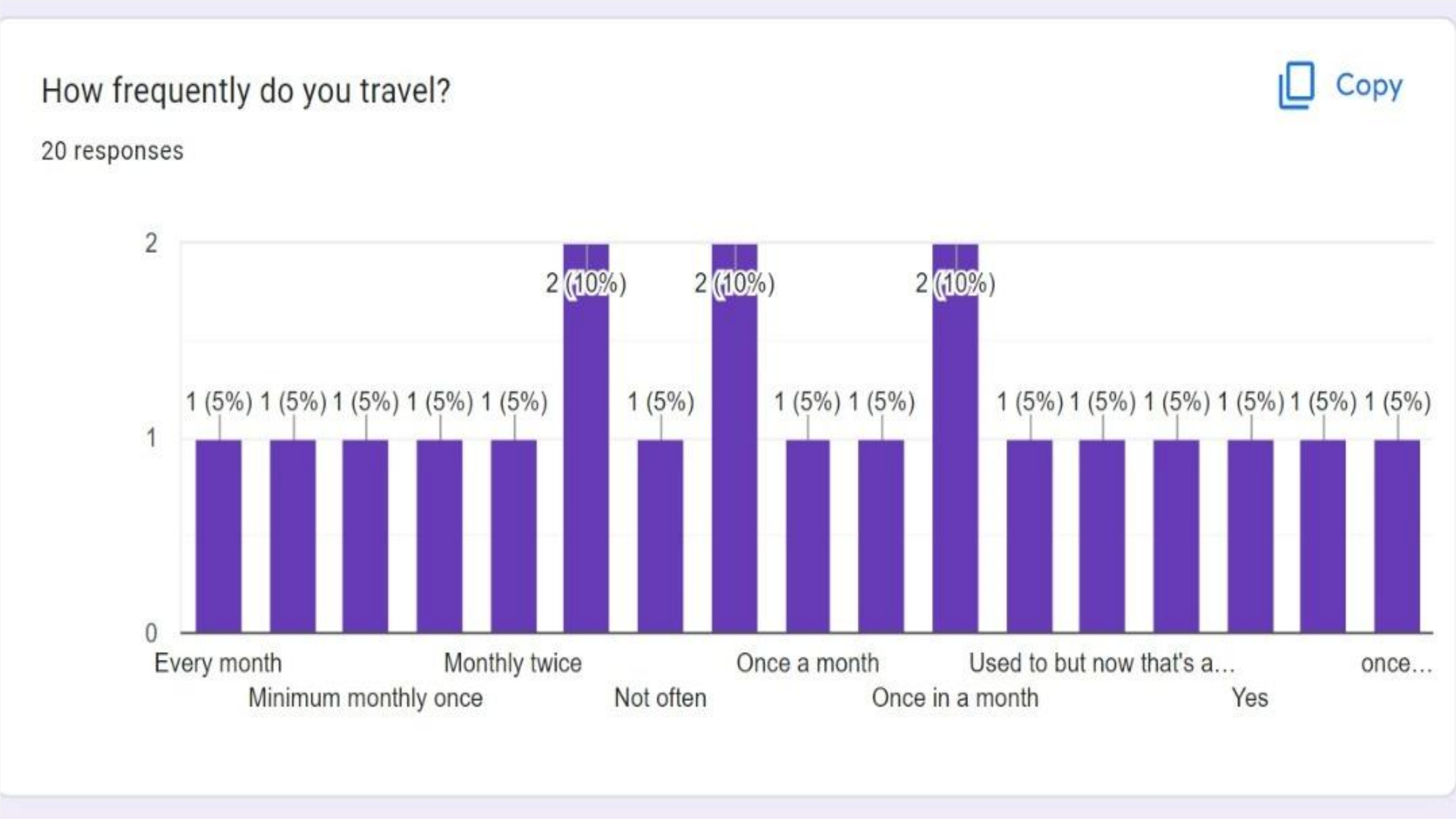
- Contacting tour operators

  Connected professionals through LinkedIn, email

- Google Forms Survey

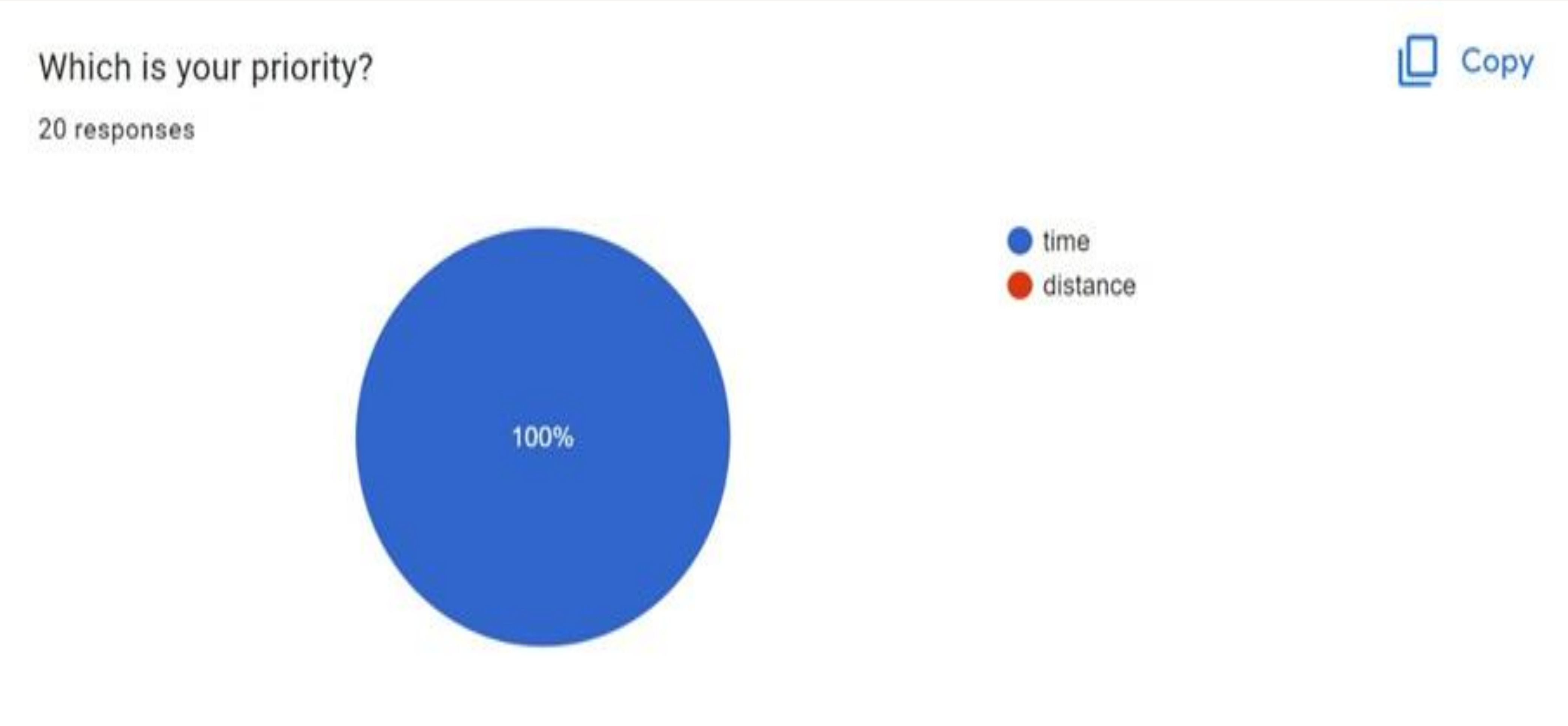
  Public opinion was gathered from TKMCE, the problems faced while trip organizing

Let’s have a survey.



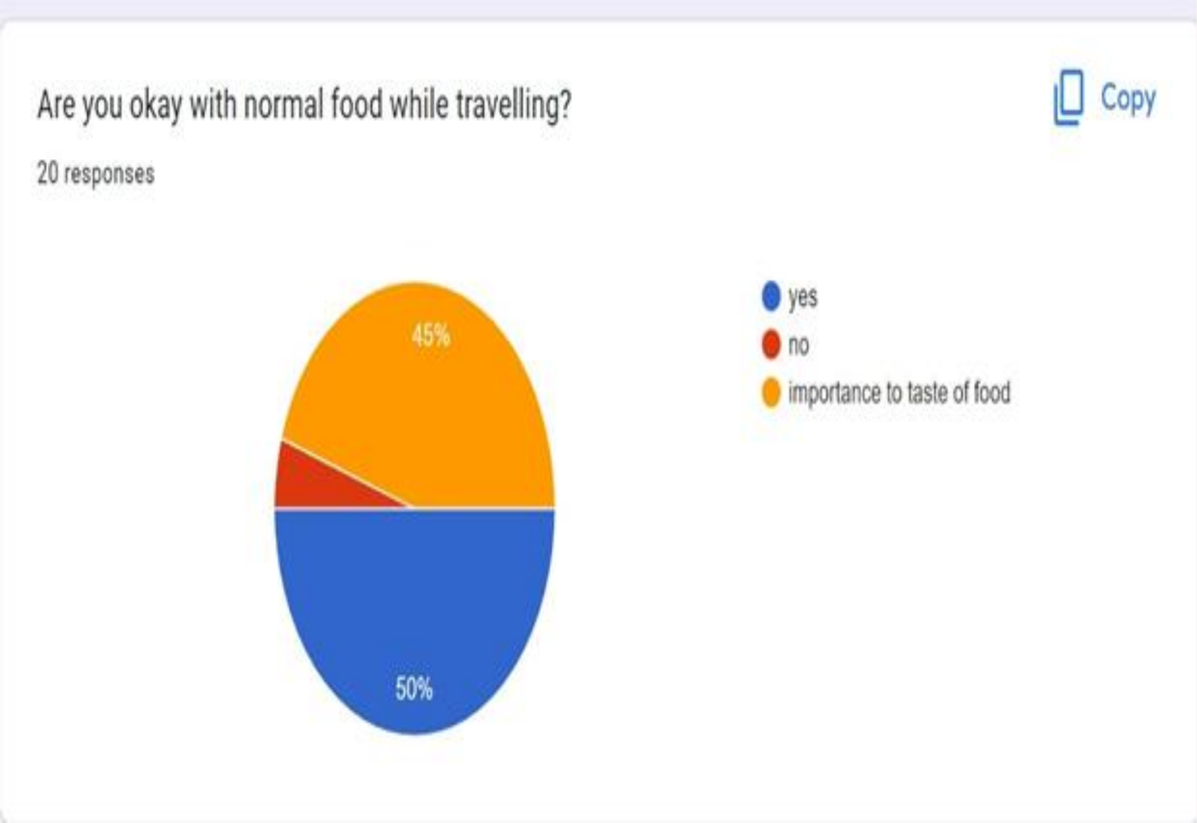
How frequently do you travel?

20 responses



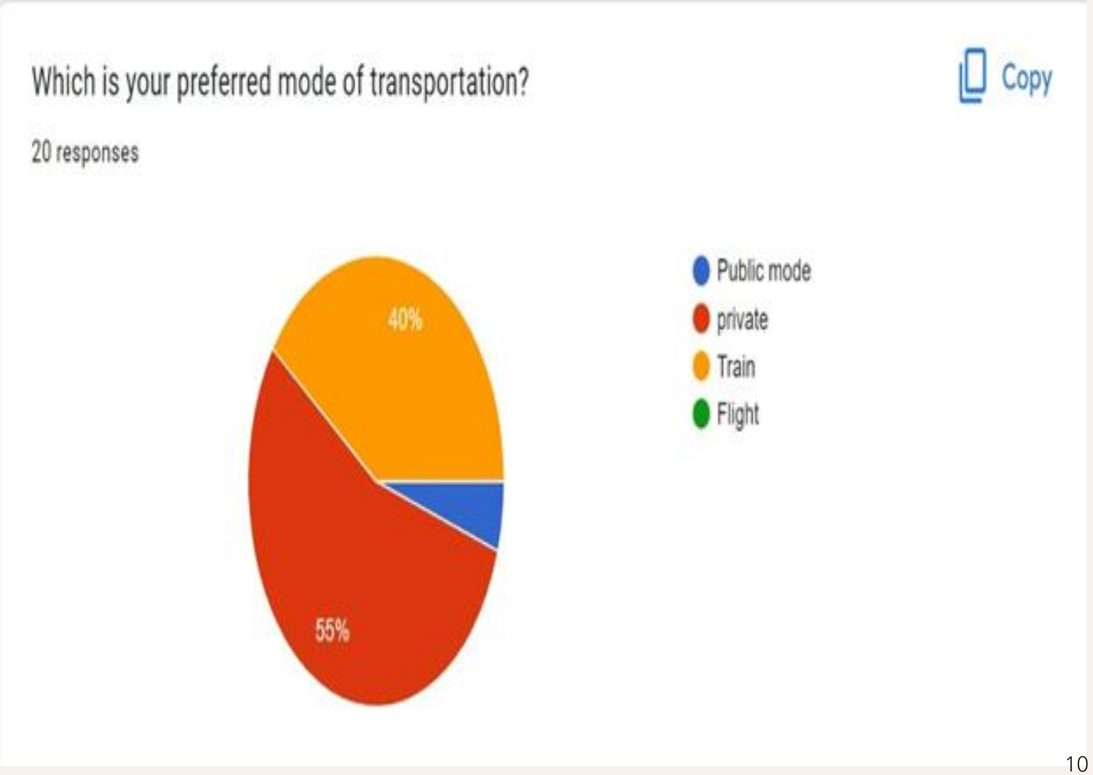
Which is your priority?

20 responses



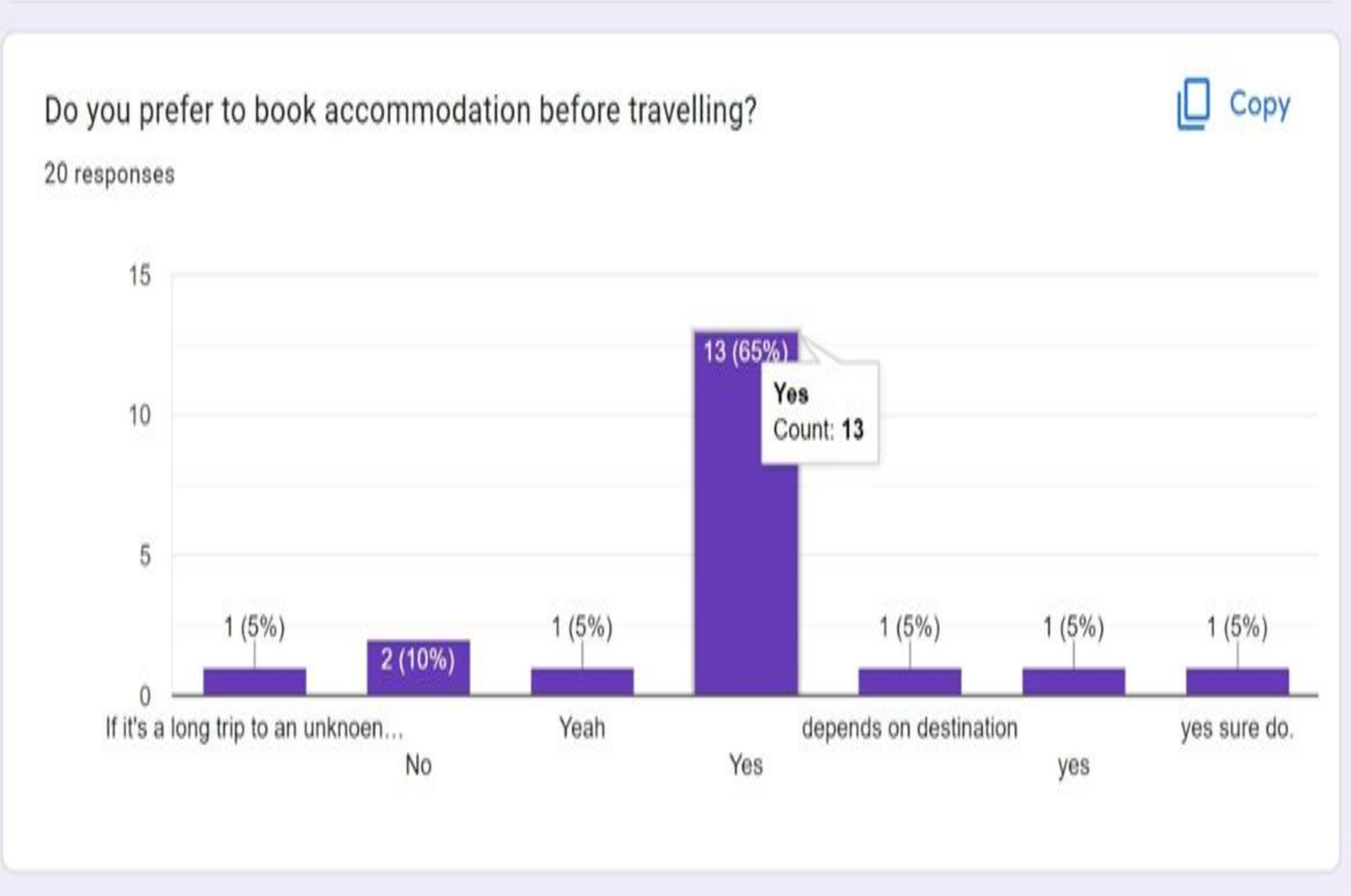
Are you okay with normal food while travelling?

20 responses



Which is your preferred mode of transportation?

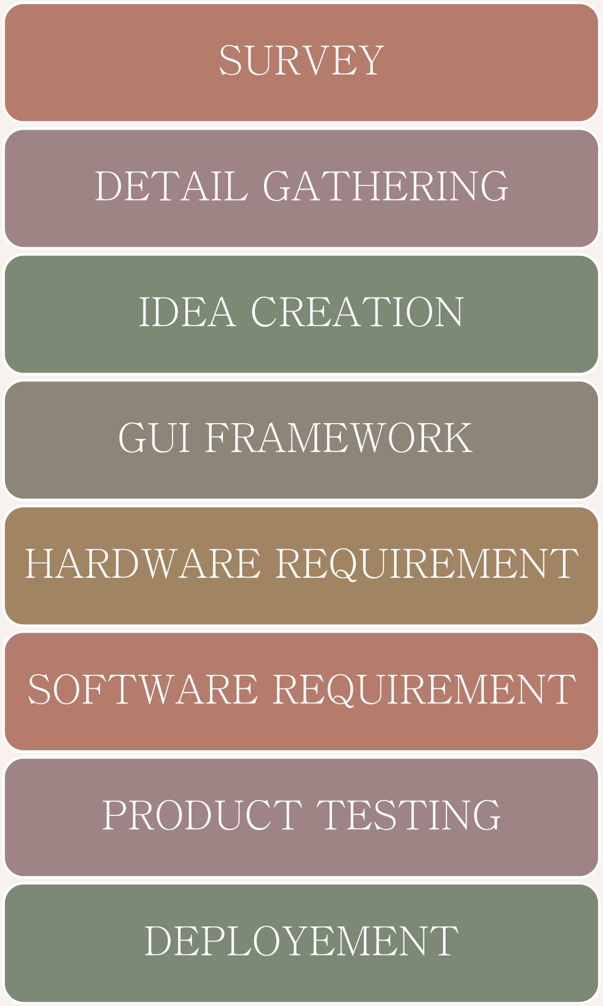
20 responses



Do you prefer to book accommodation before travelling?

20 responses

Project Plan



SURVEY

DETAIL GATHERING

IDEA CREATION

GUI FRAMEWORK

HARDWARE REQUIREMENT

SOFTWARE REQUIREMENT

PRODUCT TESTING

DEPLOYEMENT

Literature Review

- Algorithm for cost constrained shortest path

A directed graph is given whose arcs have an associated cost, and associated weight, the weight constrained shortest path problem (WCSPP) consists of ending a least-cost path between two specified nodes

- Effective indexing for approximate constrained shortest path on large road network

In a constrained shortest path (CSP) query, each edge in the road network is associated with both a length and a cost.

Functional Requirements

- Input Requirements

The software application will require the following input from the user:

- Starting point: the user's current location
- Visiting area: the area that the user wants to visit.
- Budget: the maximum amount of money the user is willing to spend, including
- transportation and accommodation. Time duration: the amount of time the user has to
- visit the area

Functional Requirements

- Output Requirements
  - The software application will generate the following output for the user: 4-5 different
  - paths for the user to visit the tourist places in the visiting area.
  - The cost of each path, including transportation and accommodations
  - The time required to complete each path.

Functional Requirements

- Processing Requirements
- The software application will perform the following processing steps:
  - Retrieve information about tourist destinations, transportation options, and
  - accommodations from external data sources.
  - Calculate the distance and time required to travel between each destination.
  - Generate multiple paths based on the user's input, ensuring that each path does

    not exceed the user's budget or time duration.

Non-Functional Requirements

- Performance Requirements
  - The software application must be able to generate 4-5 different paths for the user
  - to visit the tourist places in the visiting area within 5 seconds. The application must be
  - 4-5 paths generated based on the user inputs and google maps API input
- Security Requirements
  - Strong authorization and authentication done using JWT token.
  - Passwords hashed using sha256
  - https implementation to prevent MITM attacks

App Interface and Requirements

- Login and authentication
- User Route Dashboard
- User Route Input
- Route Results
- Route detailed view

Login and Authentication

- The user should be able to log into the application using his email and password.
- Once logged, the user will be greeted with a dashboard that he can use to find the
- routes to his desired destination

Login Interface Requirements:

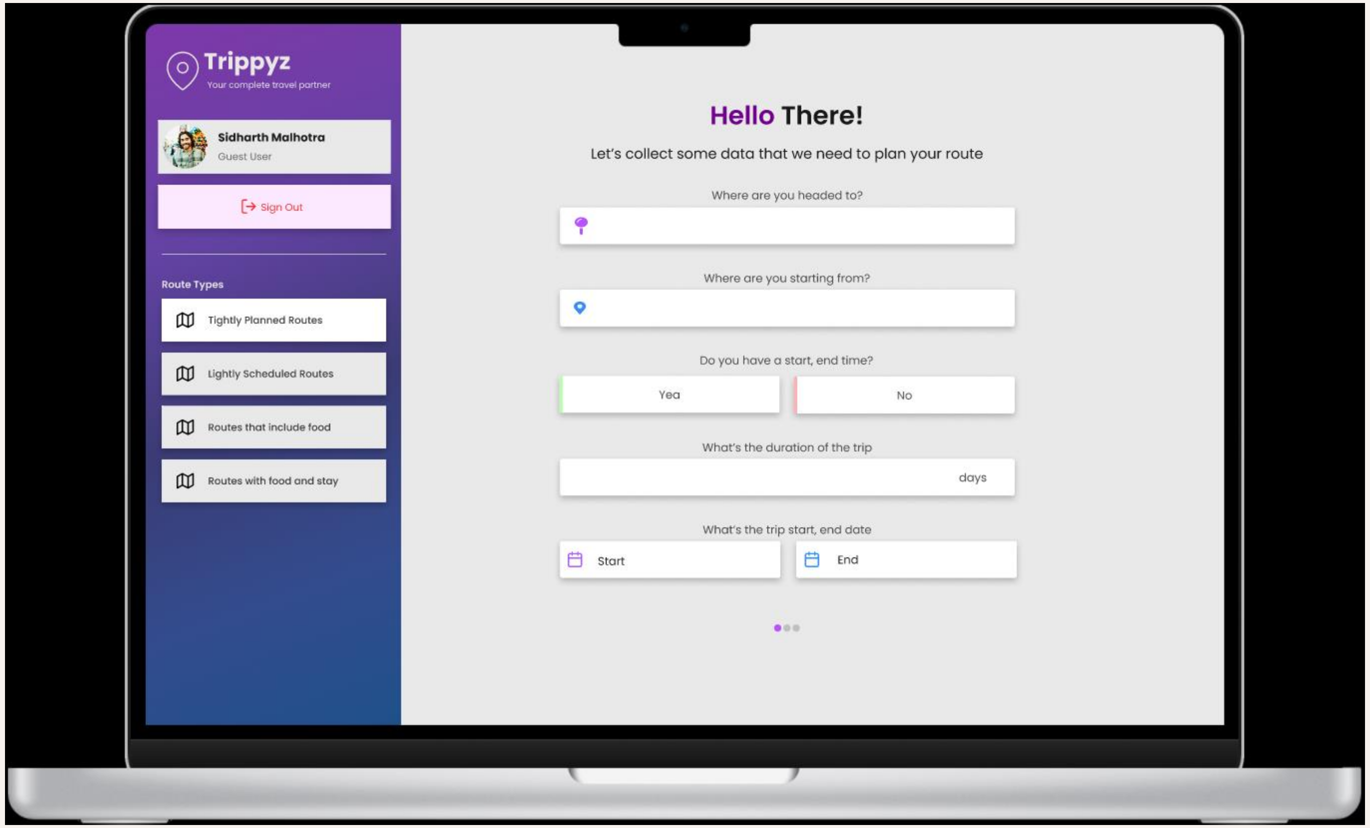
1. Single user should have a single account only
2. The user's password should contain at least 8 characters

Login and Authentication

- Login nonfunctional Requirements
  - Secure authentication using JWT tokens
  - Security enforced by hashing the user passwords and storing in mongo DB
  - Login should be fast, using Indian servers rather than servers abroad

User Route Dashboard

The user route dashboard allows the user to select between the different types of route configurations.
The route configurations are set by the development team itself



Hello There!

Let's collect some data that we need to plan your route

Where are you headed to?

Where are you starting from?

Do you have a start, end time?

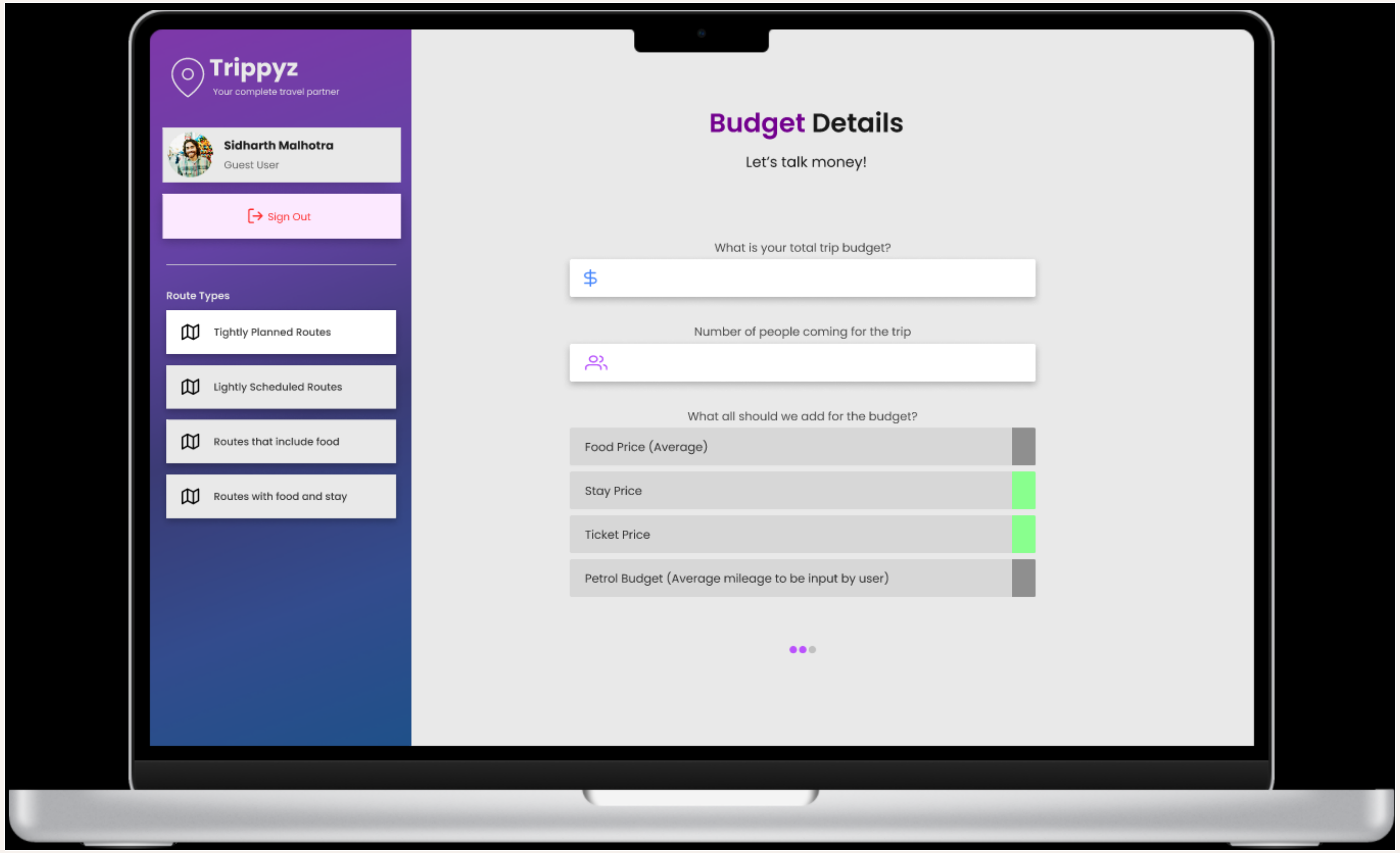
What's the duration of the trip

What's the trip start, end date

User Route Dashboard

- Functional Requirements
  - Give route ideas based on commonly used routes
  - Tightly planned routes should schedule the whole trip in a tight schedule, like 1 hour per visiting place and 30 mins for food
  - Lightly planned routes takes a different approach by reducing the number of places visited to 2-3 places per day.
  - Decision made for lightly planned routes depend on journey time and reviews of the visiting place.
- Non functional Requirements
  - Easy to understand UI that lets the user select between the route configurations

User Route Constraints Input



Budget Details

Let's talk money!

What is your total trip budget?

$

Number of people coming for the trip

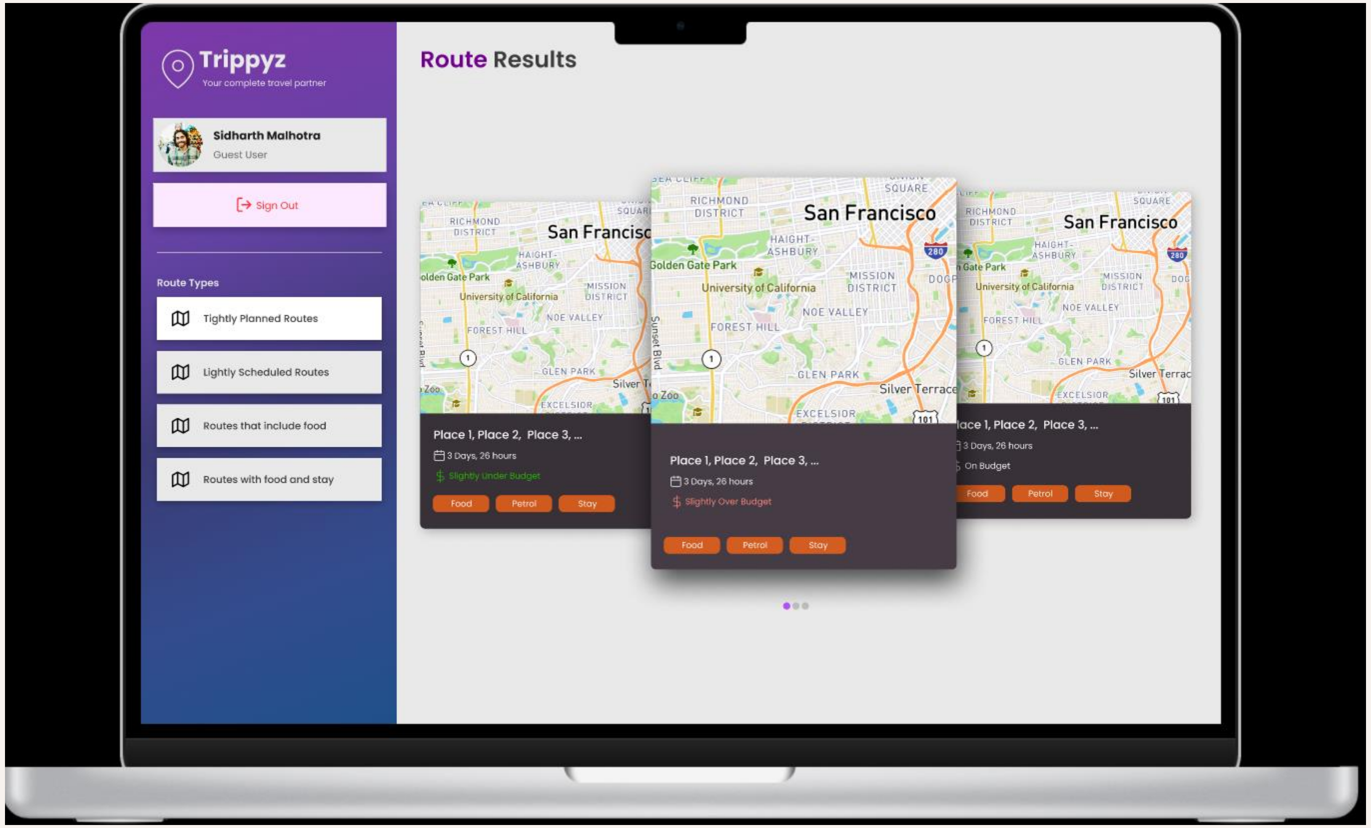
What all should we add for the budget?

Food Price (Average)	▨
Stay Price	🟩
Ticket Price	🟩
Petrol Budget (Average mileage to be input by user)	▨

User Route Constraints Input

- Functional Requirements
  - User starting point will be the place name that the user is going to start their journey from.
  - Destination should be a district
  - Budget Input should be less than 1 lakh
  - Number of people input should be less than 40
  - Duration of the trip should be taken as [Days, hours] format
  - Max duration set as 10 Days,0 hours
  - Start time, end time will be a date-time picker

Route Results



Trippyz
Your complete travel partner

Sidharth Malhotra
Guest User

Route Results

Place 1, Place 2, Place 3, ...
3 Days, 26 hours
Slightly Under Budget

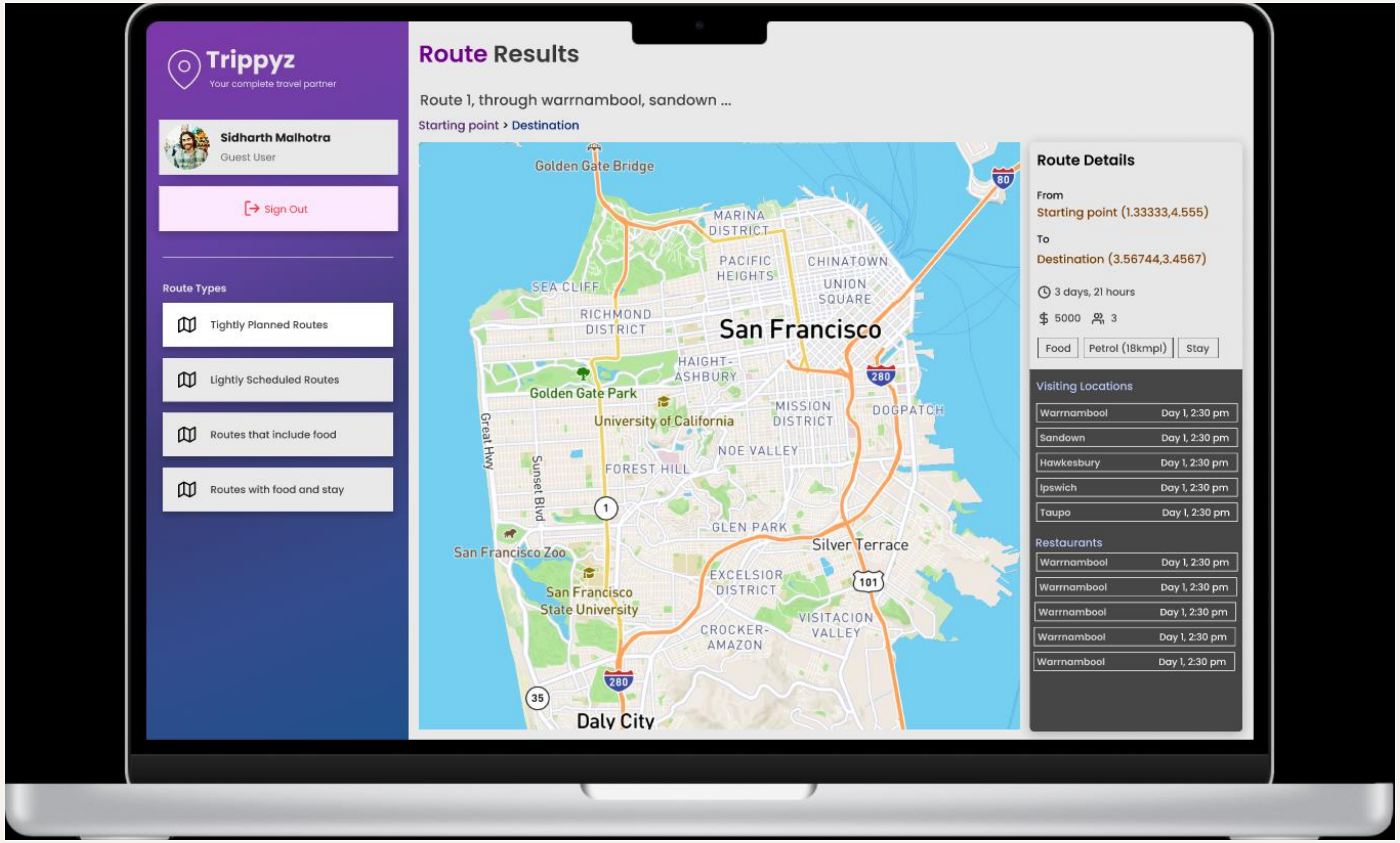
Place 1, Place 2, Place 3, ...
3 Days, 26 hours
Slightly Over Budget

lace 1, Place 2, Place 3, ...
3 Days, 26 hours
On Budget

Route Results

- Functional Requirements
  - 4 Routes will be generated based on the given user inputs
  - 2 routes will be approximately same budget as the user
  - One of the routes will be slightly above budget (+10%)
  - One of the routes will be slightly below budget (-10%)
- Non Functional Requirements
  - UI that can select the routes easily
  - Basic info about the budget should be given on the route card

Route Detailed view



Route Results

Route 1, through warrnambool, sandown ...

Starting point > Destination

Route Details

From

Starting point (1.33333,4.555)

To

Destination (3.56744,3.4567)

3 days, 21 hours

$ 5000 3

Food | Petrol (18kmpl) | Stay

Visiting Locations

Warrnambool	Day 1, 2:30 pm
Sandown	Day 1, 2:30 pm
Hawkesbury	Day 1, 2:30 pm
Ipswich	Day 1, 2:30 pm
Taupo	Day 1, 2:30 pm

Restaurants

Warrnambool	Day 1, 2:30 pm
Warrnambool	Day 1, 2:30 pm
Warrnambool	Day 1, 2:30 pm
Warrnambool	Day 1, 2:30 pm
Warrnambool	Day 1, 2:30 pm

Route Detailed view

- Functional Requirements
  - Route should be drawn using google maps API
  - Show visiting places
  - Show the restaurants chosen
  - Show the budget calculations (Not currently shown in the UI)
- Non functional Requirements
  - UI should load swiftly
  - Large number of data should be organized in an easy to understand manner.

Tools used

- Figma
  - The UI designs will be done through figma
  - All the planning and development documents made using figma
- ReactJS
  - ReactJS framework used for creating the user interface of the web application.
  - ReactJS provides easy to use tools for building complex UI
- ExpressJS
  - The backend framework used for the application will be expressJS.
  - ExpressJS helps build a REST API backend using on top of nodejs

Tools used

- MongoDB
  - MongoDB database hosted on MongoDB atlas will be used
  - Mongoose driver used for interfacing NodeJS and MongoDB atlas.
- Google Maps API
  - The google maps API provided by google cloud platform will be used as primary input for the route calculations

Conclusion

- Software that is planned will help tourists plan their journey within a couple of minutes
- Software reduces planning time from hours to minutes
- Software that is planned will allow the users to make their journey very ease.
- This Software provide the user with a proper plan of the entire journey.

THANK YOU :)