CS3354 Software Engineering
Final Project Deliverable I

Trek Travel App

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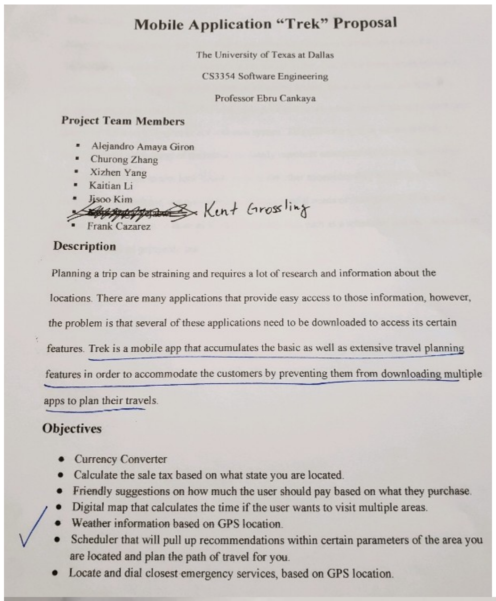
Introduction

Planning a trip can be straining and requires a lot of research and information about the locations. There are many applications that provide easy access to that information. However, the problem is that several of these applications need to be downloaded to access its certain features. Trek is an app that accumulates the basic as well as extensive travel planning features in order to accommodate the customers by preventing them from downloading multiple apps to plan their travels.

Motivation

Many of us have relatives that encounter issues when they come to visit us, but due to the unfamiliar systems that we have in place in the United States. One of the many issues foreigners encounter while visiting the United States is our taxing system, because in most our relative's countries the tax is already included in the sale price unlike our added federal tax and varied state taxes which we seek to solve in our software system. This software system we are seeking to develop would solve many of the issues our family members encounter not only in our strange financial system but to also look deeper to all of the other necessities they might have while visiting us. Furthermore, our goal is exceeded the essential needs of foreigners visiting the United States, and to give them additional functionalities such as a scheduler and tip calculator to make their stay an enjoyable one.

Final Project Draft Feedback



Mobile Application “Trek” Proposal

The University of Texas at Dallas

CS3354 Software Engineering

Professor Ebru Cankaya

Project Team Members

- Alejandro Amaya Giron
- Churong Zhang
- Xizhen Yang
- Kaitian Li
- Jisoo Kim
- [illegible] Kent Grossling
- Frank Cazarez

Description

Planning a trip can be straining and requires a lot of research and information about the locations. There are many applications that provide easy access to those information, however, the problem is that several of these applications need to be downloaded to access its certain features. Trek is a mobile app that accumulates the basic as well as extensive travel planning features in order to accommodate the customers by preventing them from downloading multiple apps to plan their travels.

Objectives

- Currency Converter
- Calculate the sale tax based on what state you are located.
- Friendly suggestions on how much the user should pay based on what they purchase.
- Digital map that calculates the time if the user wants to visit multiple areas.
- Weather information based on GPS location.
- Scheduler that will pull up recommendations within certain parameters of the area you are located and plan the path of travel for you.
- Locate and dial closest emergency services, based on GPS location.

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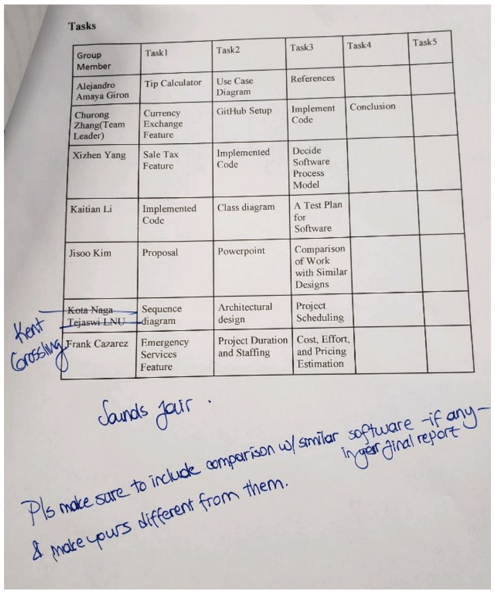
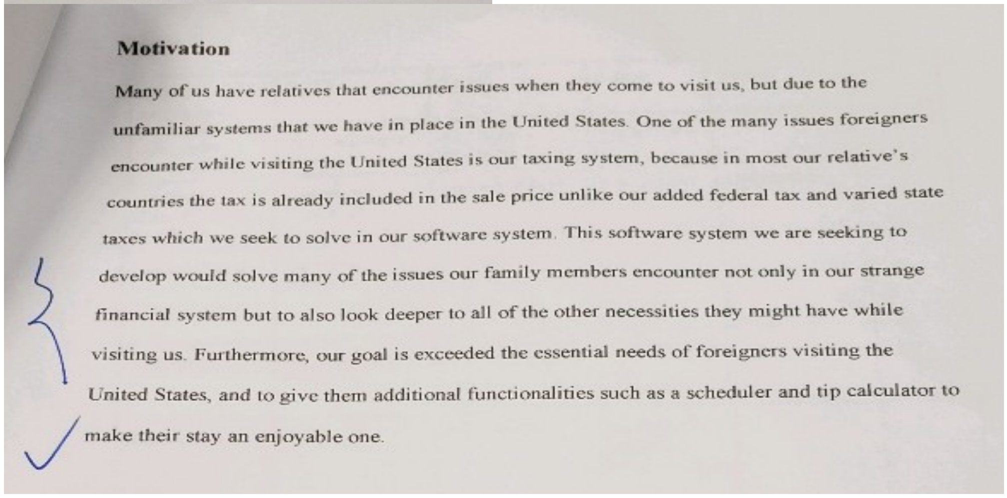


Tasks

Group Member	Task1	Task2	Task3	Task4	Task5
Alejandro Amaya Giron	Tip Calculator	Use Case Diagram	References		
Churong Zhang(Team Leader)	Currency Exchange Feature	GitHub Setup	Implement Code	Conclusion	
Xizhen Yang	Sale Tax Feature	Implemented Code	Decide Software Process Model		
Kaitian Li	Implemented Code	Class diagram	A Test Plan for Software		
Jisoo Kim	Proposal	Powerpoint	Comparison of Work with Similar Designs		
~~Kota Naga Tejaswi LNU~~ Kent Grossling	Sequence diagram	Architectural design	Project Scheduling		
Frank Cazarez	Emergency Services Feature	Project Duration and Staffing	Cost, Effort, and Pricing Estimation		

Sounds fair.

Pls make sure to include comparison w/ similar software -if any- in your final report & make yours different from them.



Motivation

Many of us have relatives that encounter issues when they come to visit us, but due to the unfamiliar systems that we have in place in the United States. One of the many issues foreigners encounter while visiting the United States is our taxing system, because in most our relative's countries the tax is already included in the sale price unlike our added federal tax and varied state taxes which we seek to solve in our software system. This software system we are seeking to develop would solve many of the issues our family members encounter not only in our strange financial system but to also look deeper to all of the other necessities they might have while visiting us. Furthermore, our goal is exceeded the essential needs of foreigners visiting the United States, and to give them additional functionalities such as a scheduler and tip calculator to make their stay an enjoyable one.

✓

Based on the feedback provided, we were to include comparison with similar software and make it different from those applications. With many people traveling all around the world, there are many travel assistant applications such as Airbnb, Expedia, Google Maps, Translator, etc. We wanted to make our application different from them by essentially combining all the features together. Applications such as Airbnb allows users to look for hotels and houses to book but does not provide ways to calculate area currencies, weather, and other extensive features. Trek application will stand out differently by combining all extensive travel assistance features into a single app.

Team GitHub Repository
https://github.com/CZhang1997/3354-Trek

Task Delegation

Task	**Assignee**	**Description**	**Status**
Create GitHub Account	All members		Complete
Create GitHub repository	Churong Zhang	Create repository with 3354-Trek	Complete
Add team members and TA	Churong Zhang	Add all member and TA	Complete
Create a README file	Kaitian Li	Create a README file	Complete
Include GitHub url	Jisoo Kim	Ensure all information in Github	Complete
Make "project_scope" commit	Xizhen Yang	1.5 project scrope	Complete
Research software process model	Kent G	Find which software model should be implemented	Complete
List software requirements	Churong Zhang	Include functional and non-functional requirements	Complete
Create use case diagram	Alejandro Giron	More than one use cases	Complete
Create sequence diagram	Kaitian Li	Individual diagram for each use case	Complete
Create class diagram	Frank Cazarez	Includes all classes of your project	Complete
Architectural Design	Xizhen Yang	Choose one and apply to project	Complete
Write Report	Jisoo Kim	Organize all contents and write deliverable	Complete
Evaluate Report	All members		

Software Process Model

So, in our project we chose to go with the spiral software project model because of both its iterative and controlled systematic qualities. We believe that given the nature of our product it will suite us perfectly. We want to be able to deliver a base platform for trial purposes that can give a feel for what we are trying to accomplish all while being able to go back and update by adding more features that will benefit the user as well as our company. We also know that our target industry is very dynamic and as such we want to be able to constantly adapt all while remaining reliability. The spiral model is perfect for just that as it will allow for later updating to current platforms without failing to guarantee that each deliverable is reliable and ready to use. Travel is a dynamic industry by nature, not only because technology is always adapting and changing but also because technology is adapting and changing at different rates in different countries, and we have to be able to accommodate anyone from anywhere. Spiral model, we believe, offers the best platform to accommodate everyone everywhere. Not only will this model help ensure that we can develop the software that we are seeking to create but it will also help us learn what the consumers liked about what we've created and what they feel is lacking. It will allow us to seek and respond to feedback. Considering our app will be all about helping end users achieve their goals and facilitate their travels, we are excited to be able to help them and get even better at helping them as we go. We also go into this with the knowledge that where we start is not where we will end up. We would be disappointed if our end product is not vastly different and evolved from where it first started, which is precisely why we love the evolutionary aspect of the spiral model.

Software Requirements

Functional Requirements:

- Currency converter
- Calculate the sale tax based on the city
- Tips suggestions on various services based on user's preference
- Local weather information
- Distance and time calculator if you want to visit certain locations
- Scheduler that will pull up recommendations within certain parameters of the area you are located and plan the path of travel for user
- Locate and dial closest emergency services based on GPS location

Non-functional Requirements:

- Currency converter should support up to 166 different currencies, and must be real time exchange rate

- Provide sales tax information for at least more than 100 cities in United States
- Tip suggestion should be simple to use
- The distance and arrival time calculation should take the traffic and other automotive incidents into consideration
- Local weather should have current weather, and up to 5 days advance
- Scheduler should save user activity and travel log permanently
- Emergency services should be easy to access and should be located easily within the app

Use case diagram

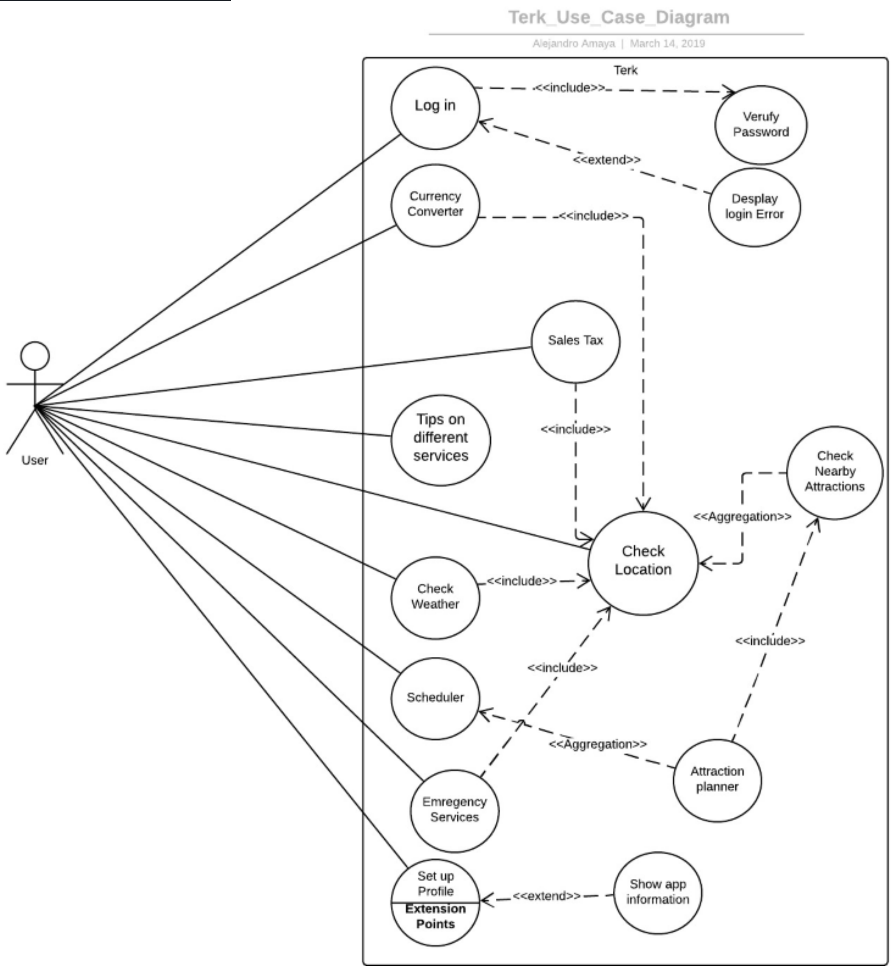


Fig 1. Use Case Diagram

<u>Sequence Diagram – see the last page for original</u>

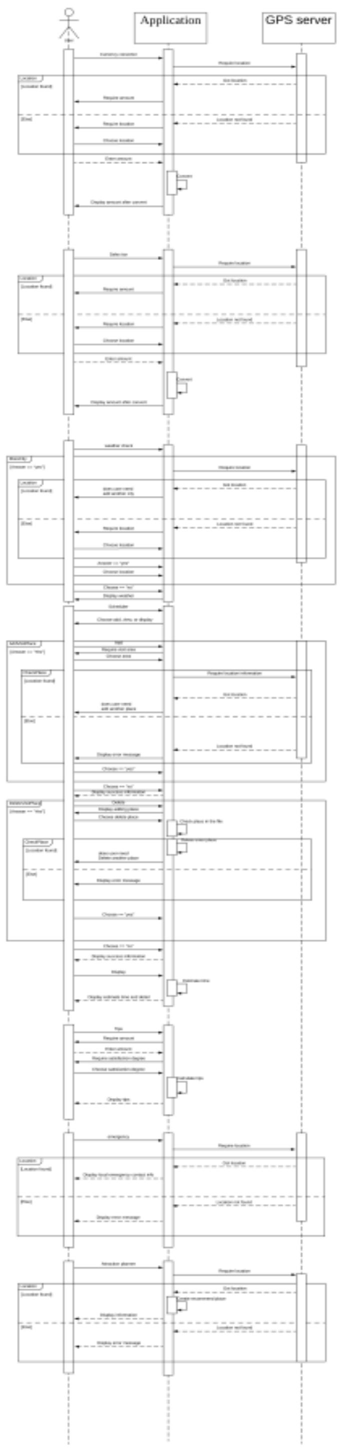


Fig 2. Sequence Diagram

Class diagram

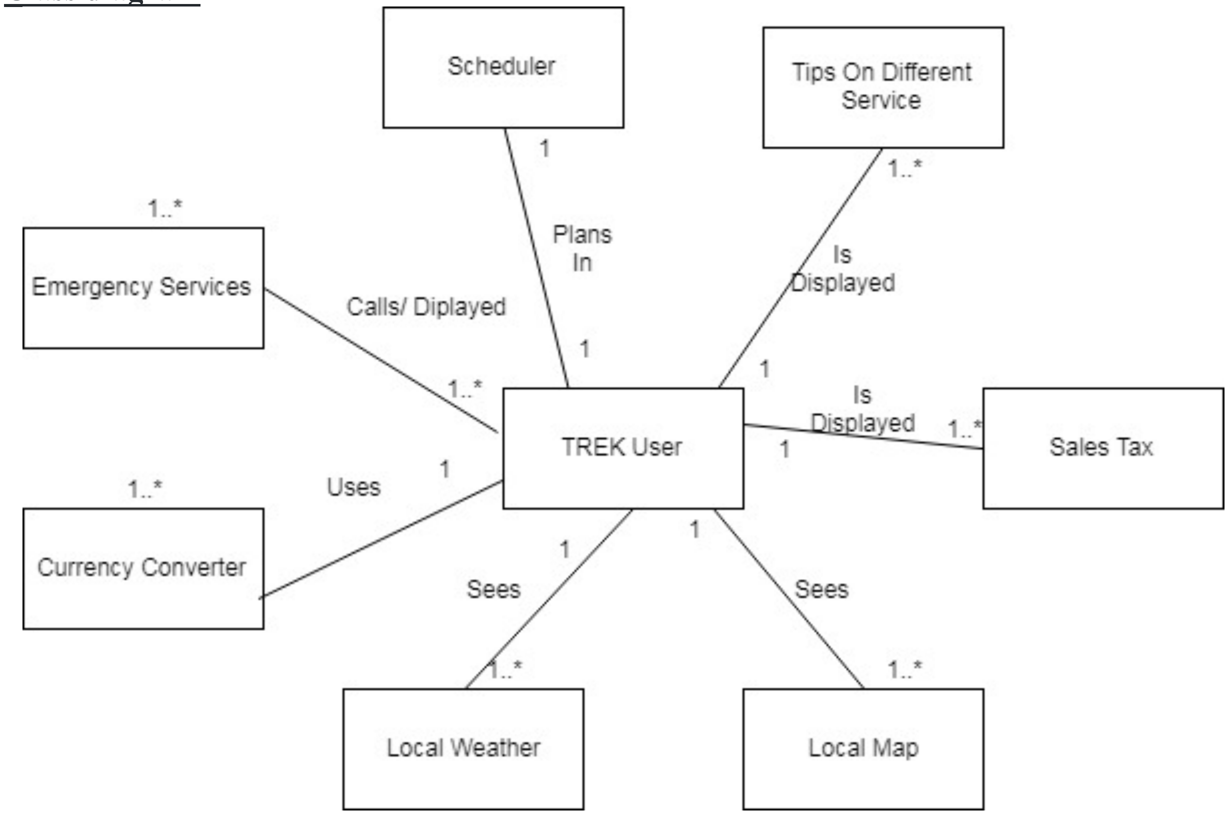


Fig 3. Class Diagram

TREK User
- Time : Date - Name: String - Email : String - Phone : int - Username: String - Password: String
+getTime() +getName() -getEmail() -getPhone() -getUser() -getPassword()

CurrencyConverter
+currentCurrency: double +convertedCurrency: double

+setCurrency(currentCurrency: double)
+setconvertedCurrency(convertedCurrency: double)
+convert(currentCurrency: double, convertedCurrency: double)
+getConverted()

SalesTax
+Currency: double +Zip: int +City: String +Tax: double

+setCurrency(Currency: double)
+setZip(Zip: int)
+setCity(City:String)
+getTax1(City:String)
+getTax2(Zip:int)
+AddTax(Currency : double, Tax: double)
+getFinal()

Tip
+Currency: double +Service: String +Tip: double +Satisfaction: Boolean +Recommend: int

+setCurrency(Currency: double)
+setService(Service:String)
+setSatisfaction(Satisfaction:boolean)
+setTip(Service:String, Satisfaction:boolean, Recommend: int)
+AddTip(Currency : double, Tip: double)
+getFinal()

LocalMap
+Location: MapAPI +Attractions: String

+setLocation(Location:MapAPI)
+Route()
+setAttractions(Attractions:String)
+getRecommendation(Location:MapAPI, Attraction: String)

LocalWeather

+Location: WeatherAPI
+Update: boolean

+setLocation(Location:WeatherAPI)
+getWeather(Location:WeatherAPI)
+getWeatherUpdate(Location:WeatherAPI, Update: boolean)

Scheduler

+Plans: String
+Events: String
+Reminder: String
+Important: String
+Day: Date

+AddPlans(Plans: String)
+AddEvent(Events:String)
+AddReminder(Reminder:String)
+AddImportant(Important:String)
+SetDate(Day:Date, Plans:String)
+SetDate(Day:Date, Events:String)
+SetDate(Day:Date, Reminder:String)
+SetDate(Day:Date, Important:String)
+EditPlans(Plans: String)
+EditEvent(Events:String)
+EditReminder(Reminder:String)
+EditImportant(Important:String)
+getPlans()
+getEvents()
+getReminders()
+getImportant()

EmergencyServices

+Location: MapAPI
+Phone: int

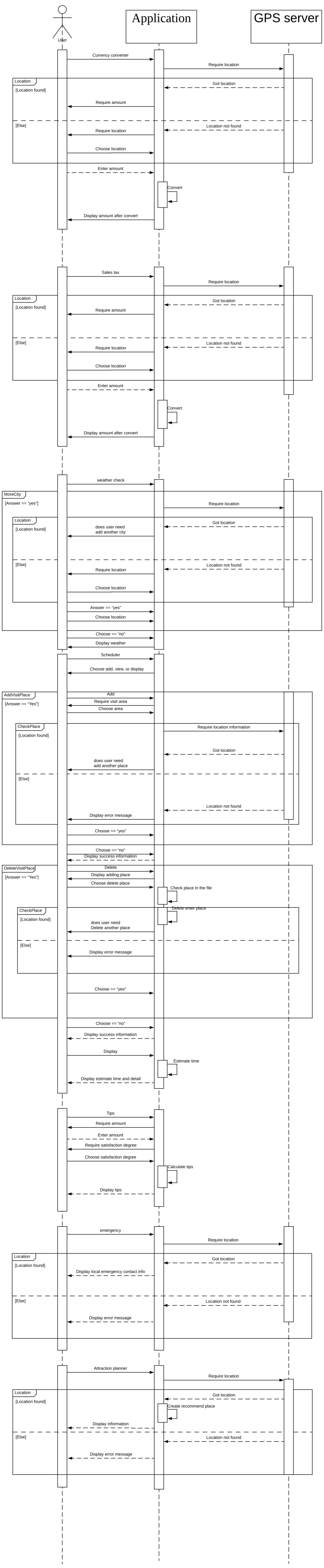
```
+LocateNearest(Location:MapAPI)
+Route()
+setPhone(Phone:int)
+DialPhone()
```

Architectural Design

Model-View-Controller (MVC)

Reason: After the comparison of different software architectural design, MVC is the best fit for our product. Our product is a mobile application which serves its users to gain better travel experience. Therefore, it must be able to provide optimum user interaction and user experience. The specialty of Model-View-Controller architectural design is that it divides the system into three components, the model, the view, and the controller.

- Model: Model component is in charge of the back-end support of our application. It will contain all the functions that allows multiple operations and various classes and models.
- View: View component is in charge of the user interface, specifically what the user sees visually on the app. It will present the data and other extensive travel information to the user; It contains the code and the design for the interface.
- Controller: Controller component manages the interaction of the application. It generates what to operate based on users' action and returns appropriate result to the user. The controller bridges the interaction between the user and the software, as well as the model and the view component of the MVC model.


User
Application
GPS server
Currency converter
Require location
Location
[Location found]
Got location
Require amount
[Else]
Location not found
Require location
Choose location
Enter amount
Convert
Display amount after convert
Sales tax
Require location
Location
Got location
[Location found]
Require amount
[Else]
Location not found
Require location
Choose location
Enter amount
Convert
Display amount after convert
weather check
MoreCity
[Answer == "yes"]
Require location
Location
Got location
[Location found]
does user need add another city
[Else]
Location not found
Require location
Choose location
Answer == "yes"
Choose location
Choose == "no"
Display weather
Scheduler
Choose add, view, or display
AddVisitPlace
Add
[Answer == "Yes"]
Require visit area
Choose area
CheckPlace
Require location information
[Location found]
Got location
does user need add another place
[Else]
Location not found
Display error message
Choose == "yes"
Choose == "no"
Display success information
DeleteVisitPlace
Delete
[Answer == "Yes"]
Display adding place
Choose delete place
Check place in the file
CheckPlace
Delete enter place
[Location found]
does user need Delete another place
[Else]
Display error message
Choose == "yes"
Choose == "no"
Display success information
Display
Estimate time
Display estimate time and detail
Tips
Require amount
Enter amount
Require satisfaction degree
Choose satisfaction degree
Calculate tips
Display tips
emergency
Require location
Location
Got location
[Location found]
Display local emergency contact info
[Else]
Location not found
Display error message
Attraction planner
Require location
Location
Got location
[Location found]
Create recommend place
Display information
[Else]
Location not found
Display error message