Software Requirements Specification

for

Trip Planner Pro

Version 1

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1 Introduction

1.1 Purpose

This Software Requirements Specification (SRS) is intended to delineate software requirements for a trip planner. This includes providing the user with flights, hotels, activities, etc. This SRS is intended to provide guidance to the developers of the system to implement required functionality, as well as the test team to develop appropriate Verification and Validation (V&V) plans and procedures required to demonstrate to the customer that the system was built to this specification.

1.2 Scope

This document specifies the requirements for the following capabilities.

1. Given a budget the system will output a full trip and give the ability to make an in-app purchase for all the various aspects of the trip.
2. Bank/Credit card verification.
3. Scrape the internet for prices on given ventures.
4. Monitoring and notifying users of trip bookings and status.

1.3 Definitions

Acronyms

- BDD: Block Definition Diagram
- SRS: Software Requirements Specification
- TPP: Trip Planner Pro
- UML: Unified Modeling Language
- V&V: Verification and Validation

1.4 References

N/A

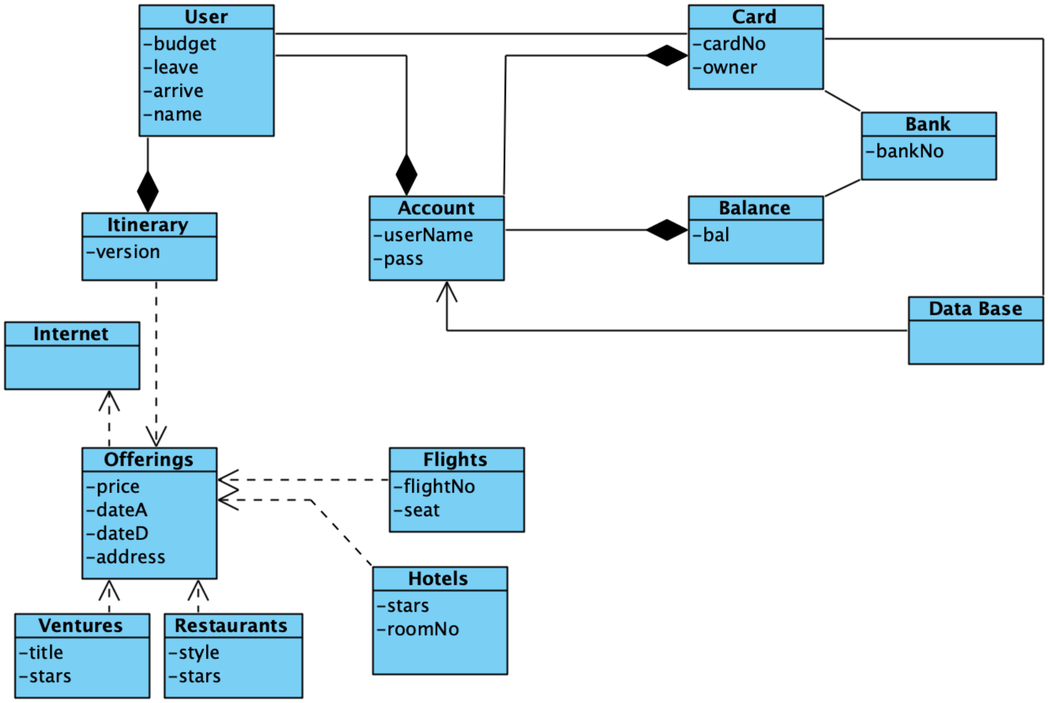
1.5 Overview

This document follows the recommended format specified in IEEE Std 830-1998 IEEE Recommended Practice for Software Specifications. For Section 3, the specific template A.5 for organizing information by feature is followed.

2 Overall Description

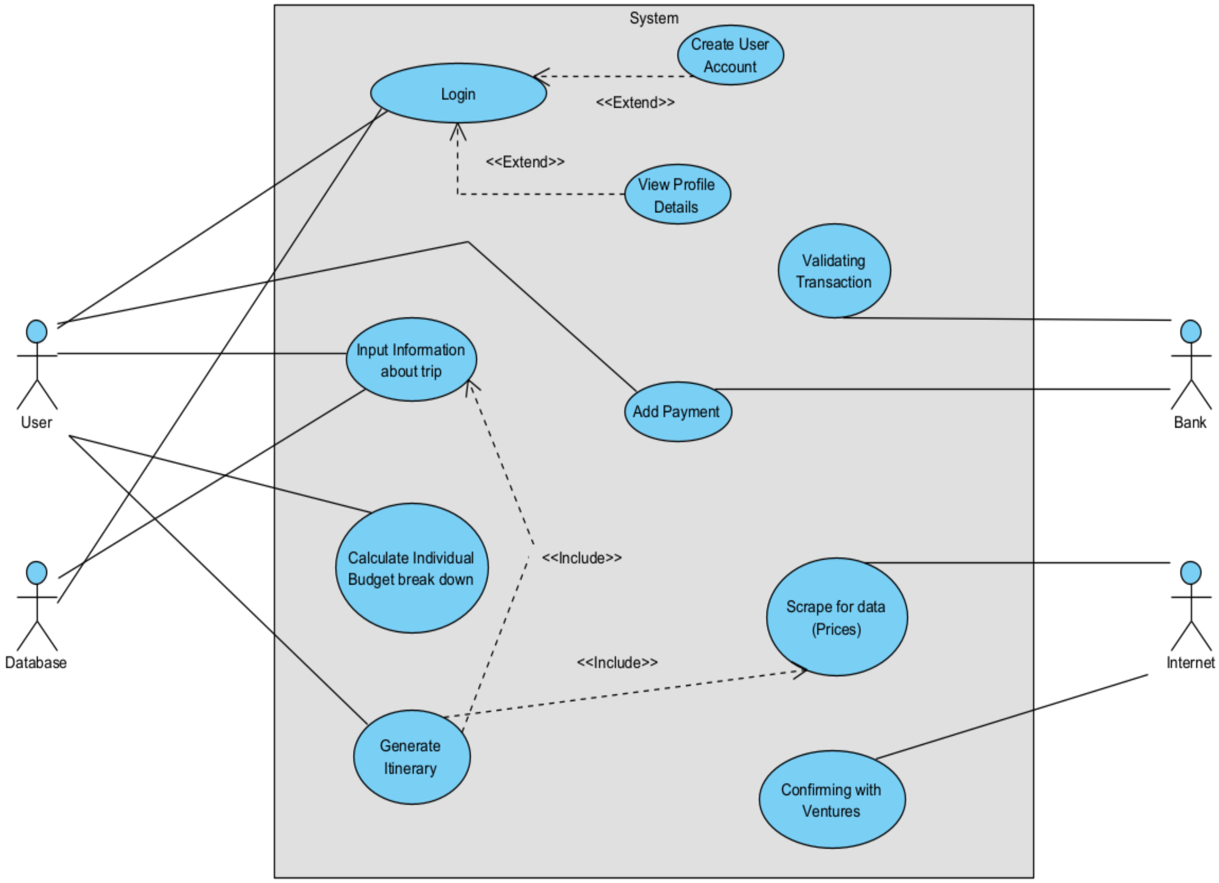
2.1 Product Perspective

TPP is intended to primarily be used as a website. For convenience, it could be hosted on a variety of devices, the most common used probably being a computer or tablet, or a cell phone. Figure 1 System Block Diagram shows the system overview, using a Unified Modeling Language (UML) Block Definition Diagram (BDD).



2.2 Product Functions

The following use case diagram depicts the users of the system, and the intended way in which they will interact with the system.



2.3 Use Case Descriptions

2.3.1 Input Information about trip

General Characteristics

Intent	Input information via form into the application to be used for the generation of itinerary
Scope	System
Primary Actor	User
Secondary Actors	Database
Preconditions	User has logged in
Assumptions	User has knowledge of itinerary

Trigger	Pushing “input information” button
Success Post Condition	Itinerary data will be saved in the database for its generation
Failed Post Condition	User will be alerted that the information was not able to be saved

Step	Action
Start	User Creates a new itinerary
1	User inputs budget
2	User inputs percent of budget they want to be used on each aspect (plane, hotel, venture, etc) of their trip
3	Application multiplies budget by percent of aspect to get a budget by aspect.
4	Internet will scrape for aspect closest to price without going over
5	Steps 3-4 are repeated for all imputed aspects
6	Scraped aspects are added to itinerary

2.3.2 Validating Transactions

General Characteristics

Intent	Ensure that customer's payment method is valid and successfully transferred to the bank
Scope	Bank/credit card verification
Primary Actor	User
Secondary Actors	Bank
Preconditions	User has created an itinerary they are satisfied with and is ready to pay for the services through our service

Assumptions	The user has money to pay with in his bank account
Trigger	The user presses "Pay Now"
Success Post Condition	The user pays for the itinerary's ventures, hotels, etc. successfully
Failed Post Condition	The bank declines their card or the venture's API is down

2.3.3 **Login**

General Characteristics

Intent	Allow the user to login to existing account
Scope	System
Primary Actor	User
Secondary Actors	Database
Preconditions	User has created account
Assumptions	User has their login details
Trigger	User has loaded up application
Success Post Condition	User will be logged in
Failed Post Condition	User will be directed to try again

Successful Execution (Sunny Day Scenario)

Step	Action
Start	User loads application
1	User types in username
2	User types in password
3	The username and password are both found in the database and are valid.
4	The user is logged in and taken to the home screen.

Failed Execution (Rainy Day Scenario)

Step	Action

Start	User loads application
1	User types in username
2	User types in password
3	The username, password, or both are not found in the database and are not valid.
4	User is asked to try again and is not allowed past the login screen

2.3.4 **Generate Itinerary**

General Characteristics

Intent	Create a trip itinerary for the user
Scope	System
Primary Actor	User
Secondary Actors	Database
Preconditions	User has inputted information about the trip
Assumptions	User has inputted complete information about the trip.
Trigger	The “generate itinerary” button has been pressed.
Success Post Condition	A detailed and concise trip itinerary is generated and saved,
Failed Post Condition	User is alerted that the itinerary has failed to generate and is asked to input trip information before trying again.

Successful Execution (Sunny Day Scenario)

Step	Action
Start	User loads application
1	User logs in
2	User inputs trip information
3	User generates itinerary
4	The itinerary is generated and is available to user

5	The Itinerary is saved to the database and associated with the user that generated it.

Failed Execution (Rainy Day Scenario)

Step	Action
Start	User loads application
1	User logs in
2	User generates itinerary
3	The itinerary failed to generate.
4	The application alerts the user that the itinerary failed to generate.
5	The user is prompted to enter trip information and try again.

2.3.5 Confirming with Ventures

General Characteristics

Intent	Confirm with all ventures (bookings and reservations)
Scope	Internet
Primary Actor	User
Secondary Actors	Database
Preconditions	An itinerary has been generated and is within the specified budget.
Assumptions	The user has committed to the trip and does not want to change the final itinerary.
Trigger	User has pressed the “confirm ventures” button.
Success Post Condition	Bookings and reservations have been confirmed, with receipts and confirmations saved to the database and sent to the user’s inputted email.
Failed Post Condition	The user is alerted to which ventures haven’t been confirmed; the application will ask the user to try again or if they want to change the venture that can’t be confirmed.

2.3.6 Scrape for data

General Characteristics

Intent	Scrape the internet for information used to generate itinerary
Scope	Internet
Primary Actor	User
Secondary Actors	Database and Internet
Preconditions	User has inputted trip details information
Assumptions	The user inputted complete information.
Trigger	User has pressed the "generate itinerary" button.
Success Post Condition	All information relating to the itinerary is found and used for the itinerary.
Failed Post Condition	User is alerted that the scraping of data was not successful and is prompted to re-input information about the trip.

2.3.7 **Add payment**

General Characteristics

Intent	Add a new form of payment from the user
Scope	System
Primary Actor	User
Secondary Actors	Database and bank
Preconditions	User has created and is logged into account
Assumptions	The form of payment is valid and accepted by our application.
Trigger	User presses the "add payment" button
Success Post Condition	A new form of valid payment can be used to confirm ventures

Failed Post Condition	The user is alerted that the form of payment is not valid/not accepted by the application and is directed to try again.

Successful Execution (Sunny Day Scenario)

Step	Action
Start	User loads up the application
1	User logs in
2	User goes to add a payment method
3	Banks verifies the validity of the payment method
4	The payment method is hashed for security purposes and saved to our database
5	The user now has a new form of payment.

Failed Execution (Rainy Day Scenario)

Step	Action
Start	User loads up the application
1	User logs in
2	User goes to add a payment method
3	Banks verifies the validity of the payment method but fails
4	The payment method is declined and the user is alerted.
5	The user is prompted to enter a new payment method,

2.3.8 Calculate individual budget breakdown

General Characteristics

Intent	Break down the costs of each itinerary component
Scope	System
Primary Actor	User
Secondary Actors	Database

Preconditions	An itinerary has been generated
Assumptions	N/A
Trigger	The “calculate individual budget breakdown” button is pressed
Success Post Condition	A detailed breakdown of the itinerary is created with costs associated with each component.
Failed Post Condition	The user is alerted that the breakdown was unsuccessful and is directed to try again.

Successful Execution (Sunny Day Scenario)

Step	Action
Start	User loads application
1	User initiates calculates individual budget breakdown via a button
2	Application starts in order of priority given by the user.
3	Multiplies percentage by budget to get an individual aspect budget.
4	New budget for remaining aspects. bud = bud - (aspect just calculated)Bud
5	Remaining given percentages of budget for given aspects are added up for a total (tot).
6	The new percentages of budget for each aspect are their original given percentage of budget divided by the tot calculated above.
7	Process is repeated for remaining aspects inputted by the user.
8	The breakdown is presented to the user with links to the sources.
9	The user is given the option to save the breakdown to the database or not

Failed Execution (Rainy Day Scenario)

Step	Action
Start	User loads application
1	User calculates individual budget breakdown via a button
2	The breakdown has failed because some of the information has not been found, but the information that was found is presented to the user.
3	The user is alerted that the entire breakdown is not available.

4	The user is given the option to save the incomplete breakdown to the database

3 Specific Requirements

3.3 System Features

The system software supports the Use Cases described in Figure 2 TripPlanner Pro Use Cases.

3.3.1 Validating Transactions

3.3.1.1 Introduction/Purpose of Feature

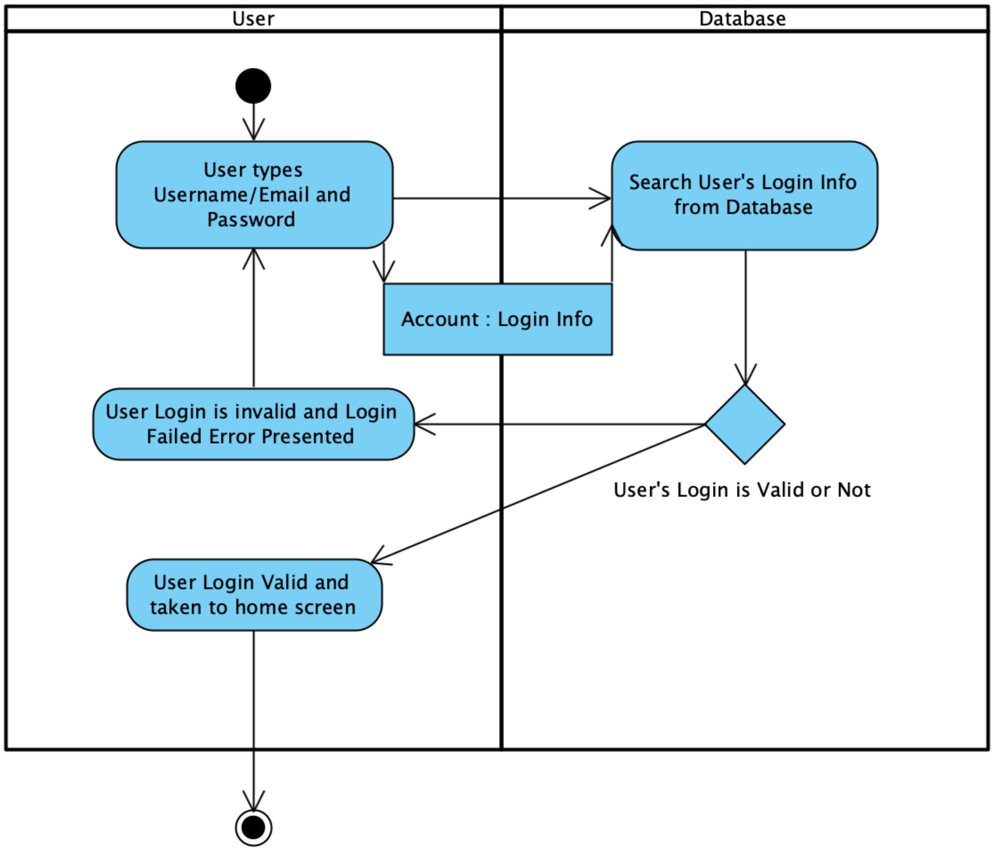
This feature is necessary to confirm the payment method from the user in order to book ventures, including flights, hotels, restaurants and activities.

3.3.2 **Login**

3.3.2.1 Introduction/Purpose of Feature

This feature will allow us to associate the users' data to the user in the form of a user account.

3.3.2.2 Stimulus/Response Sequence


User
Database
User types Username/Email and Password
Search User's Login Info from Database
Account : Login Info
User Login is invalid and Login Failed Error Presented
User's Login is Valid or Not
User Login Valid and taken to home screen

3.3.2.3 Associated Functional Requirements

- The database shall be searched for log-in info while user is signing in
- The user shall be alerted of an error if their login is invalid
- The user shall be taken to the home screen if login valid

3.3.3 Input Information about trip

3.3.3.1 Introduction/Purpose of Feature

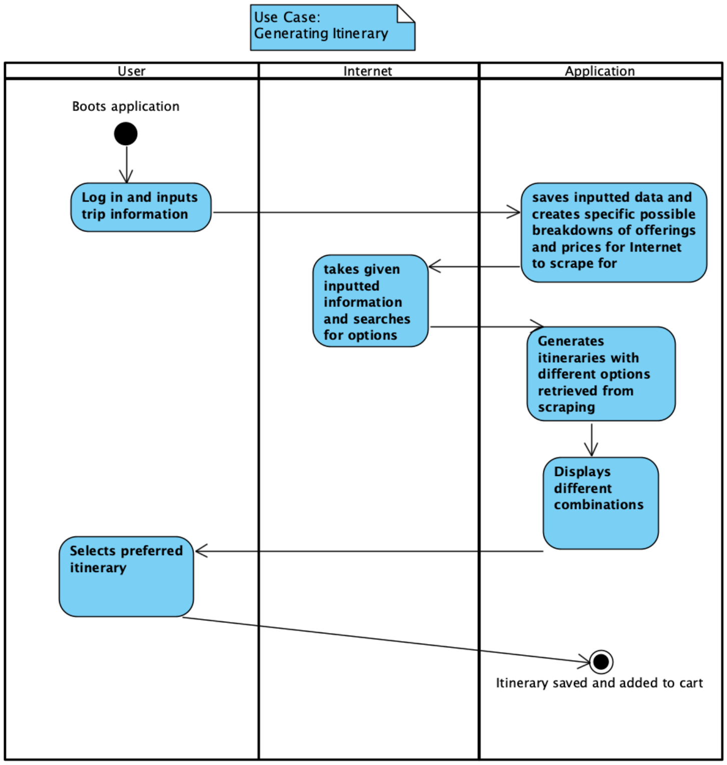
This feature will allow the user to input information about their desired trip so the application can generate an appropriate itinerary with the user's needs and wants in mind. Inputted information includes flights, destinations, budget and more.

3.3.4 **Generate Itinerary**

3.3.4.1 Introduction/Purpose of Feature

This feature is the core of this application, with all of the other features being a supplement to this one. Its purpose is to generate an itinerary based on user data that was inputted using a different feature while following constraints such as budget and location.

3.3.4.2 Stimulus/Response Sequence


Use Case:
Generating Itinerary
User
Internet
Application
Boots application
Log in and inputs trip information
saves inputted data and creates specific possible breakdowns of offerings and prices for Internet to scrape for
takes given inputted information and searches for options
Generates itineraries with different options retrieved from scraping
Displays different combinations
Selects preferred itinerary
Itinerary saved and added to cart

3.3.4.3 Associated Functional Requirements

- The application shall save the inputs of a user
- The application shall scrape the internet based off of inputted information
- The application shall generate itineraries with different options
- The application shall generate many different combinations of possibilities

3.3.5 Confirming with Ventures

3.3.5.1 Introduction/Purpose of Feature

This feature will automatically book all ventures for the user that were generated by the itinerary, including but not limited to flights, hotels, restaurants and other activities. It then sends the confirmations to the user via their email.

3.3.6 Scrape for Data

3.3.6.1 Introduction/Purpose of Feature

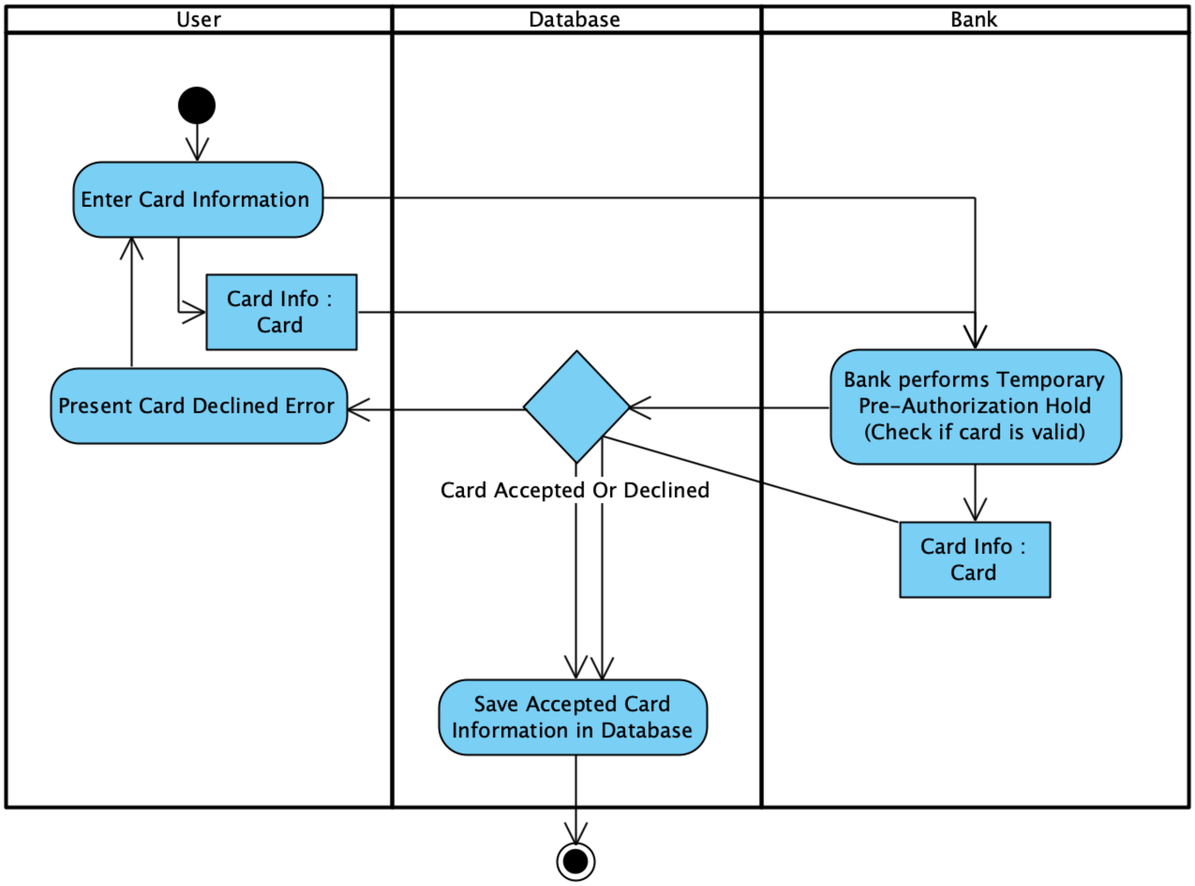
This feature is supplementary to the “Generate Itinerary” feature. To generate an itinerary for the user based on the information provided, this feature is used to scour the internet for potential ventures that fit the user’s criteria and build the itinerary from the ground up.

3.3.7 **Add payment**

3.3.7.1 Introduction/Purpose of Feature

The purpose of this feature is to add a payment method to the user’s existing account, which entails entering credit card information and a billing address.

3.3.7.2 Stimulus/Response Sequence


User
Database
Bank
Enter Card Information
Card Info : Card
Present Card Declined Error
Bank performs Temporary Pre-Authorization Hold (Check if card is valid)
Card Accepted Or Declined
Card Info : Card
Save Accepted Card Information in Database

3.3.7.3 Associated Functional Requirements

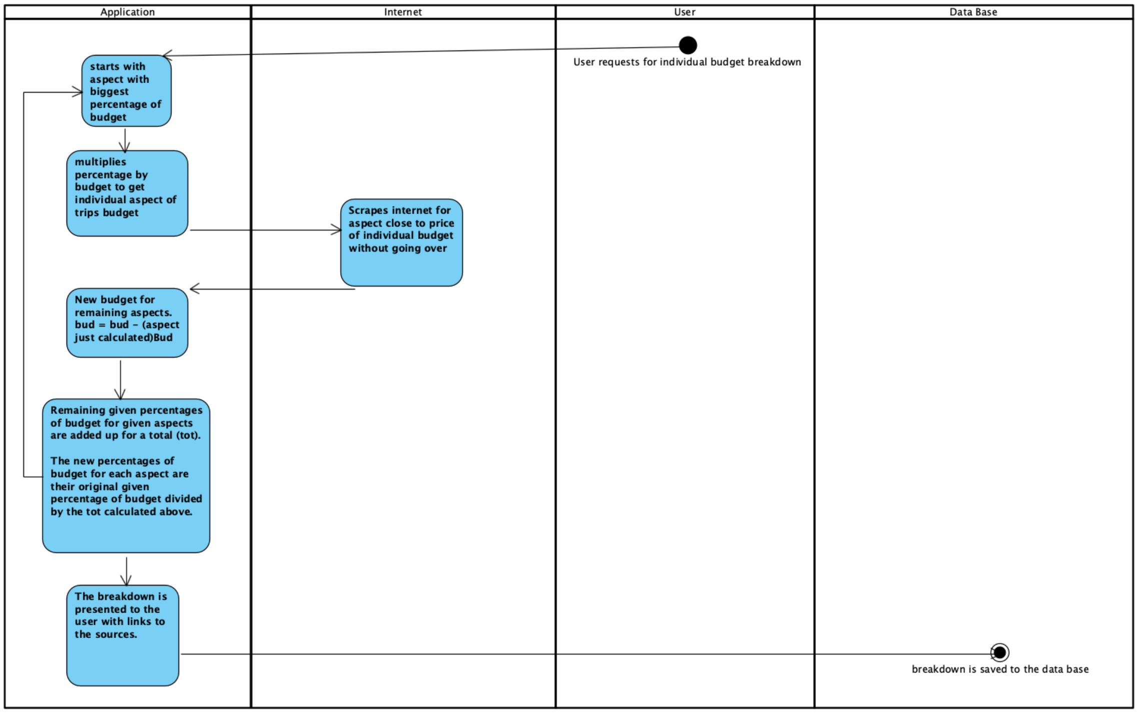
- The application shall provide a place to enter card information
- The application shall await an authorization from the bank on the card
- The application shall save the card in the database if valid
- The application shall show an error message if card declined
- THe application shall allow user to enter card information again if error

3.3.8 **Calculate individual budget breakdown**

3.3.8.1 Introduction/Purpose of Feature

The purpose of this feature is to break down the itinerary's features into their components and break them down by price.

3.3.8.2 Stimulus/Response Sequence


Application
Internet
User
Data Base
User requests for individual budget breakdown
starts with aspect with biggest percentage of budget
multiplies percentage by budget to get individual aspect of trips budget
Scrapes internet for aspect close to price of individual budget without going over
New budget for remaining aspects. bud = bud - (aspect just calculated)Bud
Remaining given percentages of budget for given aspects are added up for a total (tot).
The new percentages of budget for each aspect are their original given percentage of budget divided by the tot calculated above.
The breakdown is presented to the user with links to the sources.
breakdown is saved to the data base

3.3.8.3 Associated Functional Requirements

- The application shall calculate individual elements one by one
- The application shall calculate the budget for each element using percentages and taking into account amount already used
- The application shall recalculate percentages of the budget after each element is calculated
- The application shall only search for things below or on budget, never over
- The application shall link sources while presenting options to users