California State University, Sacramento

CSC 131-01: Computer Software Engineering

Fall 2020
December 15, 2020

Deliverable #3: Software Design Document (SDD)

FMZ:

Andersen Huey

Baljinder Saini

Justin Lieu

Seth Albrecht

Professor Ahmed Salem

Table of Contents

CSc 131
Computer Software Engineering

Fall 2020

Software Design Document (SDD)

Project Deliverable # 3

Due Date: ___12-15-20___

The Software Design Document (SDD) is a comprehensive software design model consisting of four distinct but interrelated activities: data design, architectural design, interface design, and component design. The following is a template that your team should use to complete the Software **Design Document (SDD).**

The SDD should include a table of content page and title page with the following: course title, course section, team name, team members, project name, due date, and deliverable 3.

NOTE: team members are expected to contribute equally to the development and the completion of the SDD.

Grading Criteria:

- ***SDD completeness (all sections are complete and well documented)***
- ***SDD accuracy (design quality and models)***
- ***SDD quality (quality of documentation)***

Software Design Document (SDD)

1. Introduction

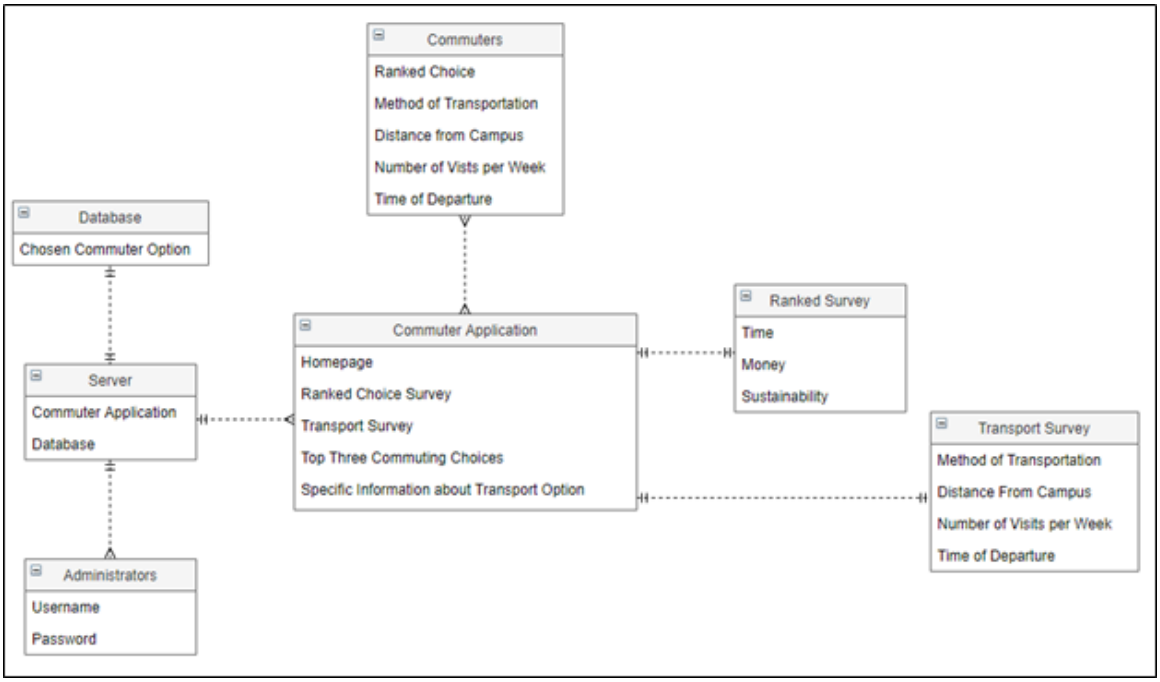
a. Project Overview
- Provides users information about other types of commuting options compared to their preferred commuting choice.

b. Major goals of the system
- Provide users a clear best-fit option using their answers from the survey
- Take in the option they choose and store it on a server to send to UTAPS
- Inform users of other viable options they can take to get to campus

2. Functional Requirements

a. List the updated list of functional requirements
- **FR1 -** Accessible to anyone visiting
- **FR2 -** Ranking priorities from a given list
- **FR3 -** Taking a survey
- **FR4 -** Give best option based on individual's needs
- **FR5 -** Provides information for transportation methods
- **FR6 -** Data collection
- **FR7 -** Color scheme should be in line with CSUS websites'

3. Data Design (optimal)



FMZ Commuter Application Entity Relationship Diagram (ERD)

The ERD diagram is composed of the relationships between the users and the different elements of our system. A brief overview of our system involves the commuter application being the focus of the diagram. Many commuters will interact with many instances of the application; However, for each application there will be two different surveys: Ranked Survey and Transport Survey. Regarding the backend, the application and user choice database will reside on the server where admins will have the ability to access and modify the application and database.

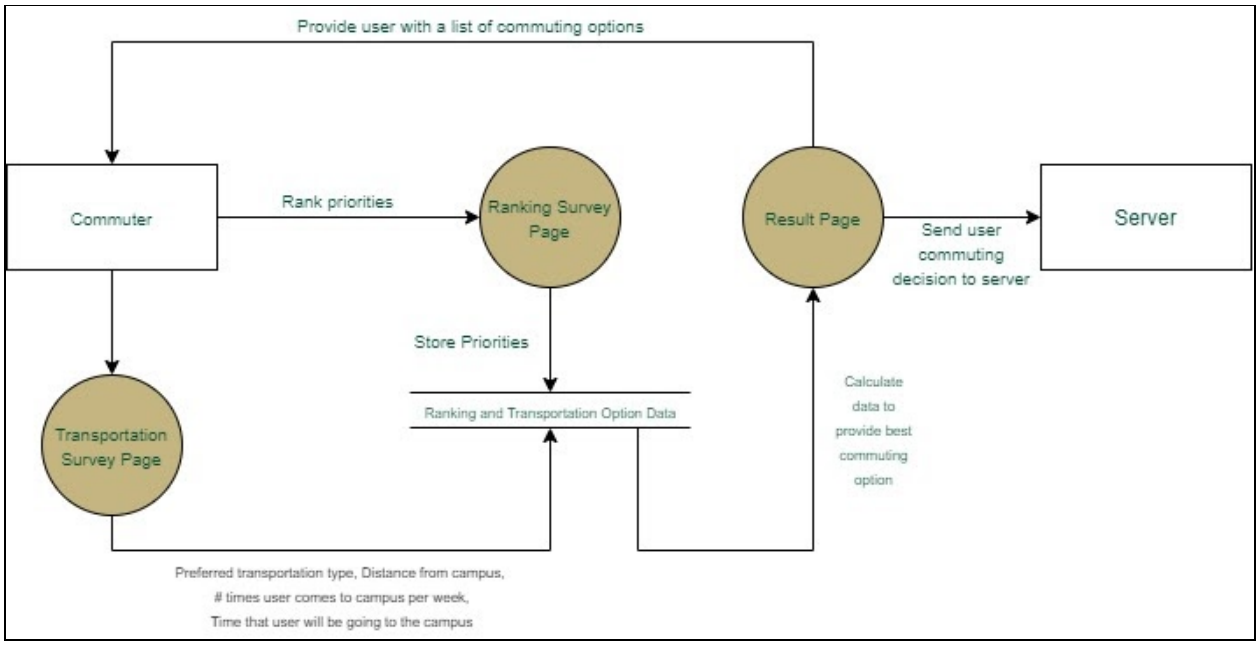
Data Dictionary

Name	Where Used	How Used	Description	Format
ranks	Homepage	Input, temporary storage	Most important ranking from user	String
ranks2	Homepage	Input, temporary storage	Second most important ranking from user	String
ranks3	Homepage	Input, temporary storage	Least important ranking from user	String
bsaferoute	Transportation Survey Page	Input, temporary storage	Have a safe route for biking.	Boolean
bHavePlannedRoute	Transportation Survey Page	Input, temporary storage	Have a planned route for taking the bus.	Boolean
bHaveCommuterSleeve	Transportation Survey Page	Input, temporary storage	Have a commuter sleeve for the bus.	Boolean
year	Transportation Survey Page	Input, temporary storage	Year of the car that will be driven.	Integer
cars	Transportation Survey Page	Input, temporary storage	Type of car that will be driven.	String
mpg	Transportation Survey Page	Input, temporary storage	Miles per gallon of the car that will be driven.	Integer
cpNumPeople	Transportation Survey Page	Input, temporary storage	Number of people that will be carpooling.	Integer
cpYear	Transportation Survey Page	Input, temporary storage	Year of the car that will be used for carpooling.	Integer
cpTypeOfCar	Transportation Survey Page	Input, temporary storage	Type of car that will be used for carpooling.	String
cpMpg	Transportation Survey Page	Input, temporary storage	Miles per gallon of the car that will be used for carpooling.	Integer
lHavePlannedRoute	Transportation Survey Page	Input, temporary storage	Have a planned route when taking the light rail.	Boolean
lHaveCommuterSleeve	Transportation Survey Page	Input, temporary storage	Have a commuter sleeve for the light rail.	Boolean
myear	Transportation	Input, temporary storage	Year of the motorcycle.	Integer

	Survey Page			
motorcycles	Transportation Survey Page	Input, temporary storage	Type of motorcycle that will be driven.	String
mmpg	Transportation Survey Page	Input, temporary storage	Miles per gallon of the motorcycle.	Integer
rNumPeople2	Transportation Survey Page	Input, temporary storage	Number of people that will be ridesharing.	String
yesTakeAgain1	Transportation Survey Page	Input, temporary storage	Will the user rideshare back with the same people?	Boolean
wsafeRoute	Transportation Survey Page	Input, temporary storage	Does the user have a safe walking route to campus?	Boolean
mi	Transportation Survey Page	Input, temporary storage	Distance in miles from campus	Integer
numOfDays	Transportation Survey Page	Input, temporary storage	Number of times user will go to campus	Integer
PlannedTime	Transportation Survey Page	Input, temporary storage	Time of departure to campus	Integer
choice1	Results Page	Output, temporary storage	Best choice calculated from survey choices	String
choice2	Results Page	Output, temporary storage	Second best choice calculated from survey choices	String
choice3	Results Page	Output, temporary storage	Third best choice calculated from survey choices	String
commuterChoice	Results Page	Output, permanent storage	Chosen commuting choice	String

4. Architectural Design

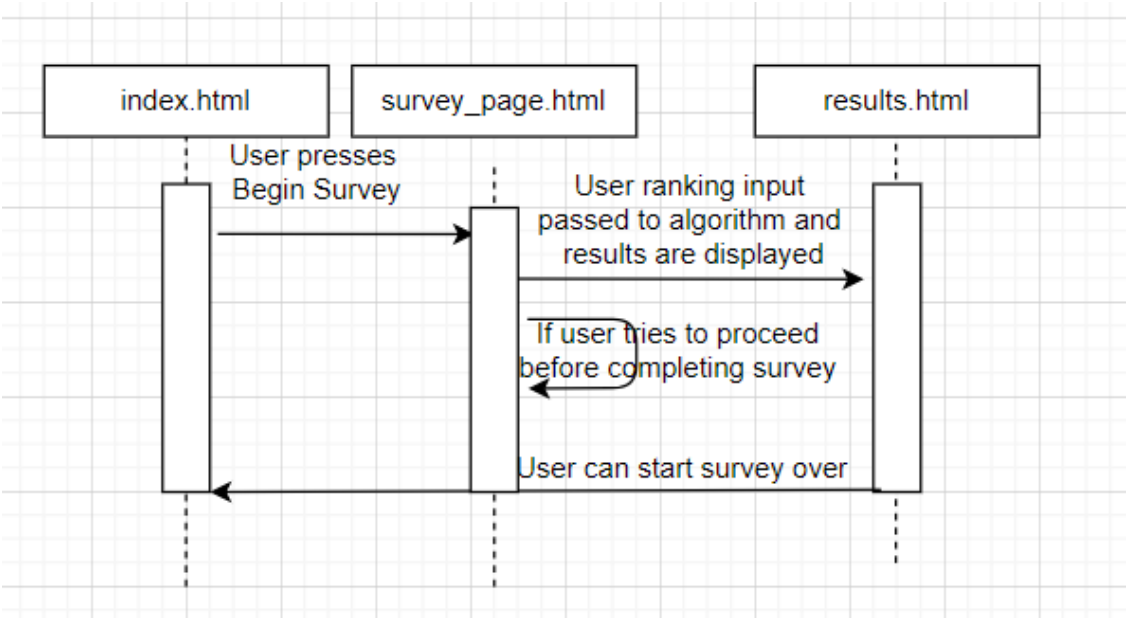
a. Provide a high-level overview of system and its major components **(High level view of how each major pieces interacts with each other)**



FMZ Commuter Application Architecture Design

5. Detailed Design

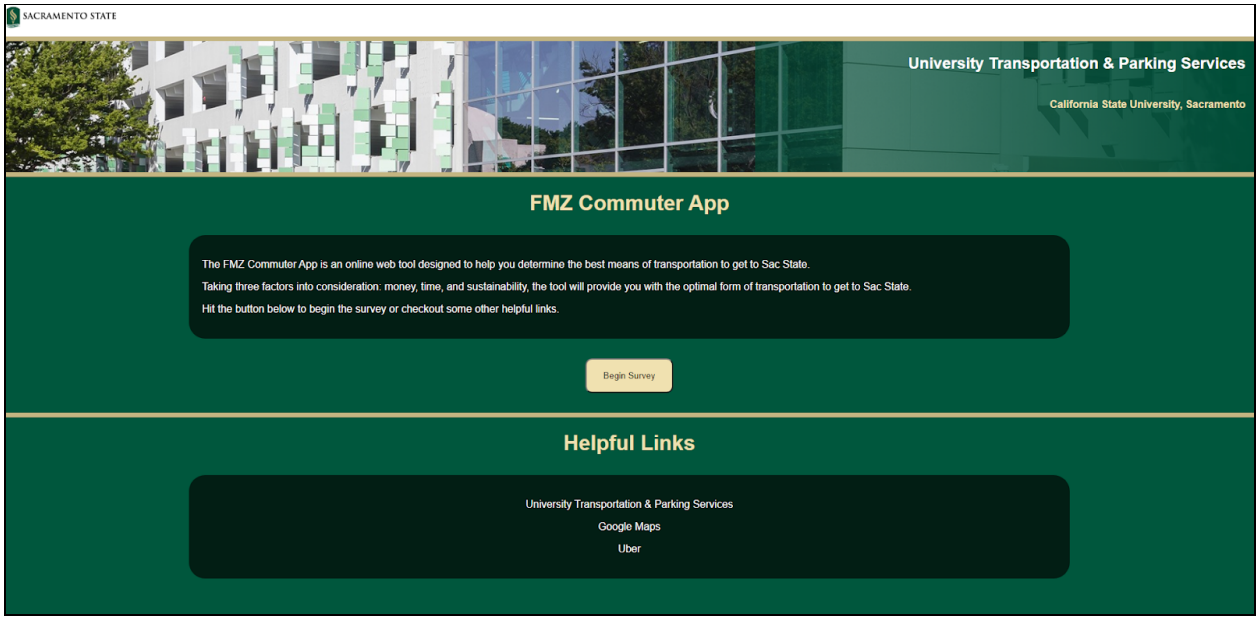
a. Create a set of sequence diagrams for the most critical Use Cases
UC1:



6. User Interface Design

The Interface Design describes internal and external program interfaces. Interface designs are based on the information obtained from the analysis models. Show menus, submenus, buttons, text boxes, check boxes, down drop lists, links, and tables,

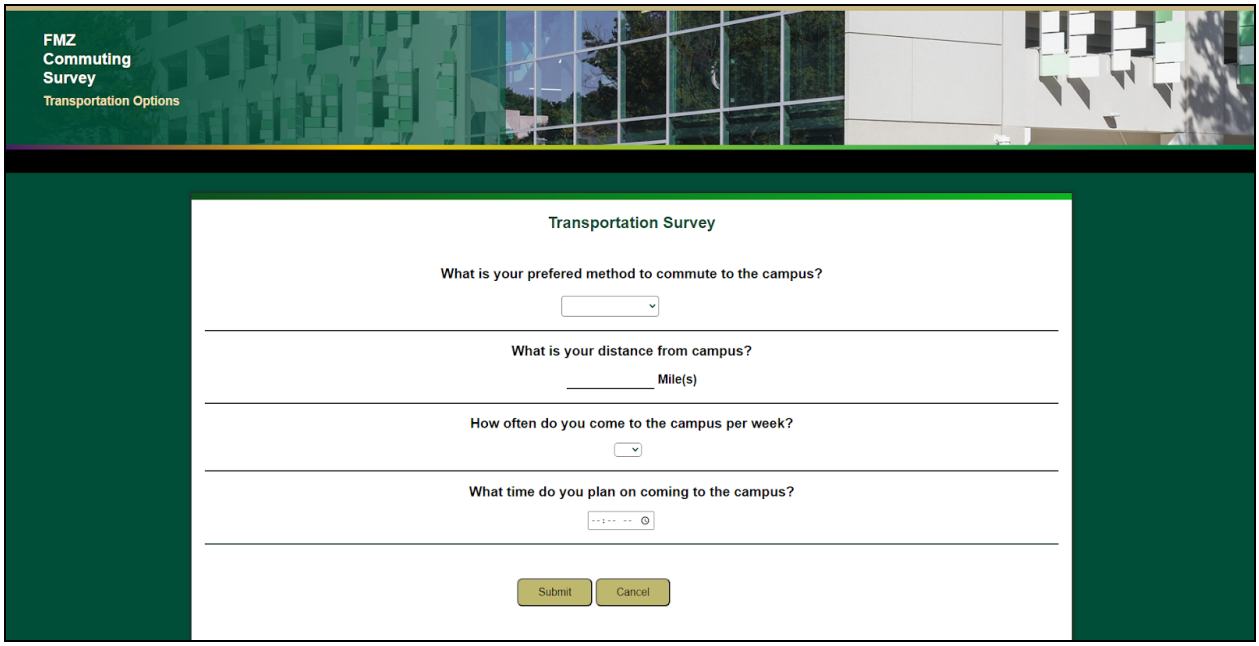
Landing Page - The first page that users will see upon coming to the website. The design was based off the UTAPS website and is intended to guide the user through a fast and easy experience.



FMZ Commuter Application Landing Page

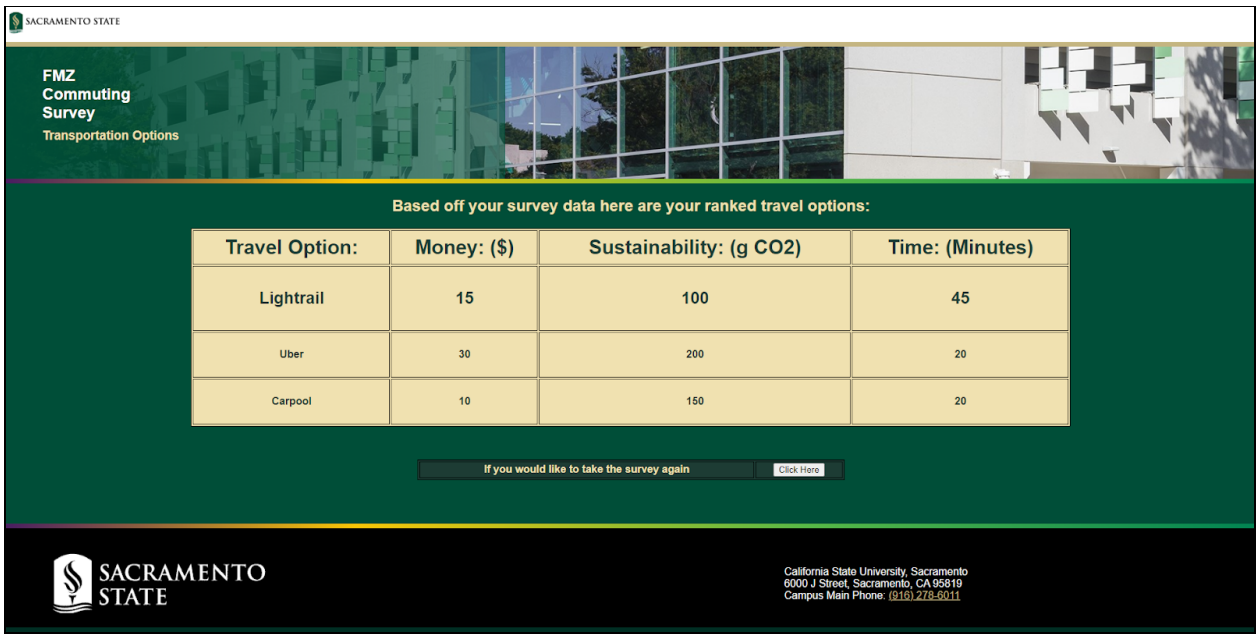
Ranking Survey - The ranking survey will be a very small part of the website but it will help greatly in determining what option is best suited for the user. The way they rank their options will go into our algorithm and influence the option that is chosen by it.

Survey Page - The survey page is where the bulk of questions will be. Asking the user how they plan on commuting to campus along with other questions that will help determine which option is best fit for them.



FMZ Commuter Application Survey Page

Results Page - The results page will be the final stop for users and give them a clear ranking of their options. Users will be able to choose from a list of 3 options that they think suits them best and will be given a more in-depth look at what they have chosen, detailing cost, time, and environmental impact.



FMZ Commuter Application Results Page

7. Technology and Tools

a. List the tools that will be used to build the system
- Visual Studio Code
- Atom
- Google Chrome
- Notepad++
- GitHub

b. List any “Third-party libraries”

8. Assumption and constraints

1. It is assumed that there will be a Google API key so that user addresses can be inputted into Google Maps to calculate their distance from campus.

2. Users are expected to use either Google Chrome, Edge, Safari, or Firefox

9. References Used

https://www.w3schools.com/

https://stackoverflow.com/

https://www.lucidchart.com/pages/er-diagrams

10. Team member's Roles and Approvals

Team member's roles in SDD

Andersen Huey - Part 3, 8, 7
Baljinder Saini - Part 1, 6, 7
Justin Lieu - Part 2, 4, 7
Seth Albrecht - Part 5, 7

Team member's signatures and date

Andersen Huey - Andersen Huey 12/15/2020

Baljinder Saini -  Baljinder Saini 12/15/2020

Justin Lieu - Justin Lieu **12/15/2020**

Seth Albrecht - Seth Albrecht 12/15/2020