SMU
SINGAPORE MANAGEMENT UNIVERSITY

School of
Information Systems

ANLY482 Analytics Practicum

Visualization of Consumer Satisfaction

Project Proposal

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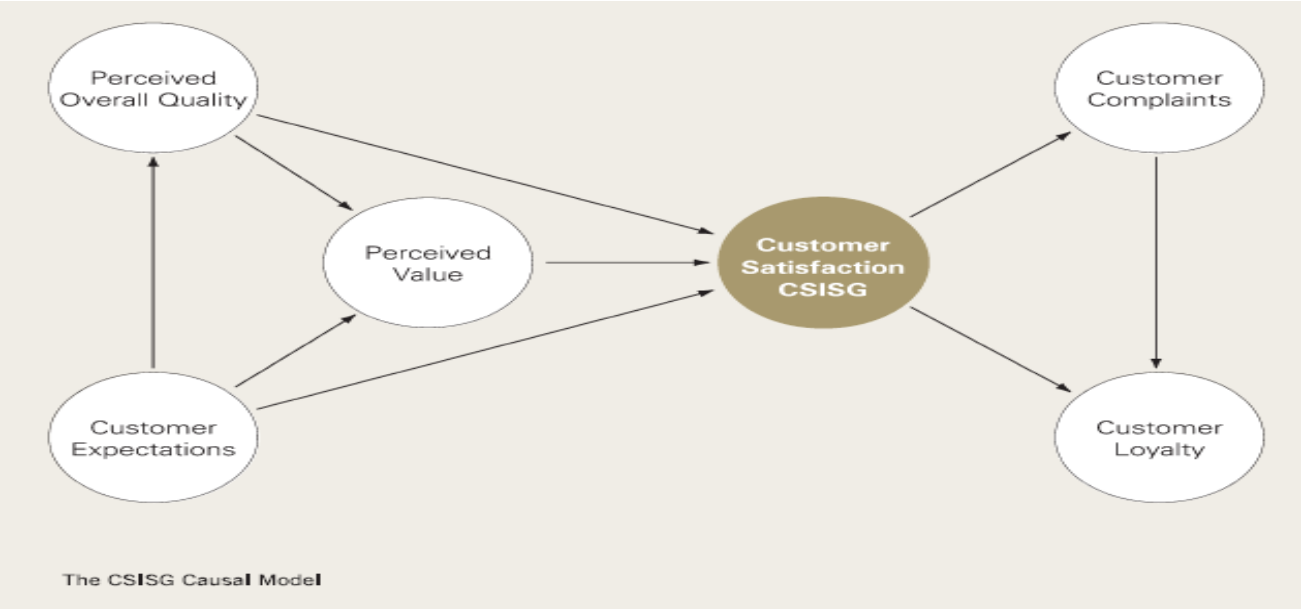
Project Proposal

Background

Consumer research has been a hot topic. Businesses and government agencies are interested to know the satisfaction levels of Singaporean consumers and effectively take actions that can create valuable and meaningful impact in the society. This project explores these satisfaction levels. It uses the respondent level data from the Customer Satisfaction Index of Singapore (2008-2013) for the following sub-sectors:

- MRT System
- Public Buses
- Taxi Services
- Supermarkets
- Hotels
- Budget Airlines

The metrics that measure satisfaction includes:



Note: Extracted from the CSISG Brochure

Motivation

The motivation for doing this project was based on our interest in presenting the data in an interesting way that will help users and business leaders derive fresh insights from the data. Through the visualizations, we hope to illustrate customer satisfaction in various measures as shown in the CSISG Causal Model above to provide the users with a better understanding of the data.

Objective

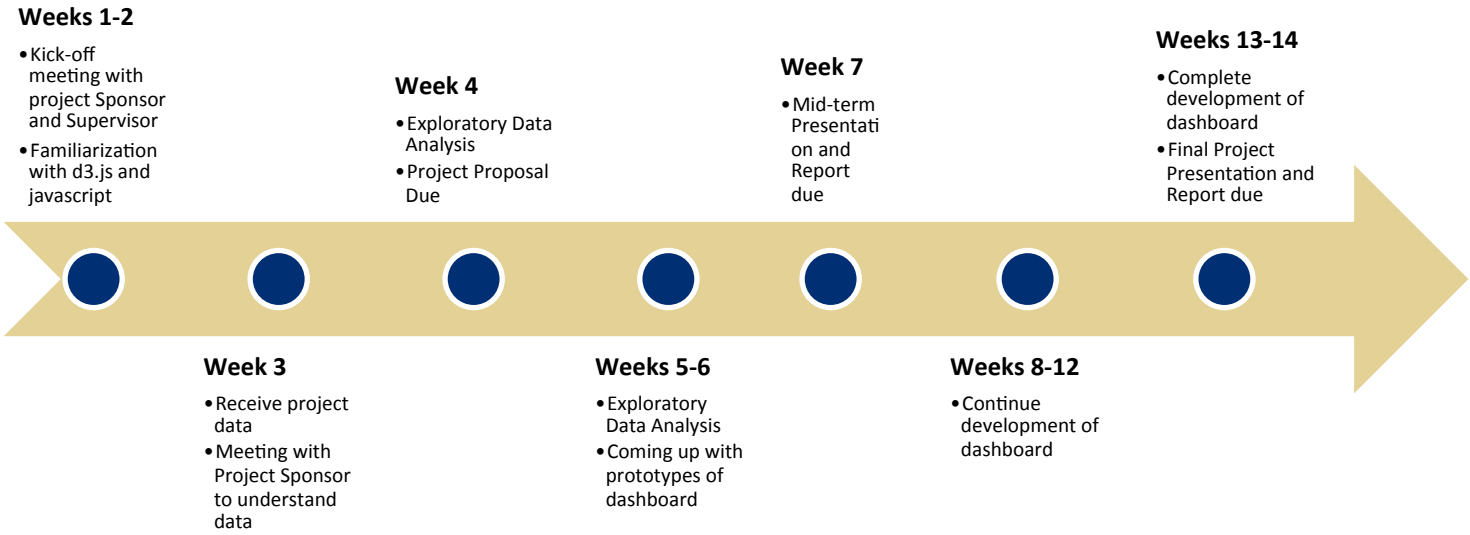
The objective of this project is to produce an interactive dashboard that shows market trends and customer satisfaction visually. We will try to incorporate a 'fun' element into the dashboard so that users and business leaders will be interested to play with it during events and roadshows organized by the Institute of Service Excellence.

Approach

We will be developing the dashboard using the d3.js library primarily. During the initial stages, we will be data analysis tool SAS Enterprise guide to conduct Exploratory Data Analysis to drill down on the more important information to be shown in the dashboard.

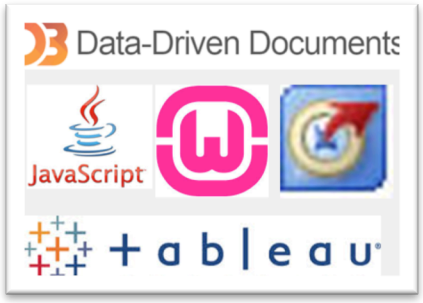
Next, we will use data visualization tools such as Tableau and to plot the data in different charts and decide on which charts are more suitable to present the data in. We will then proceed to come up with prototypes of our dashboard and consult our project sponsor and supervisor before continuing with the development of our dashboard finally.

Project Timeline



Technology and Tools

- D3.js
- Javascript
- WAMP server
- SAS Enterprise Guide
- Tableau software



Initial Data Analysis

Dataset

Data was provided by our project sponsor, Dr Marcus Lee, Academic Director of the Institute of Service Excellence. The initial dataset consists of the respondent level data from the Customer Satisfaction Index of Singapore (2008-2013) for the MRT System sub-sector. There are a total of 3,661 rows in the data set and the data columns are as follows:

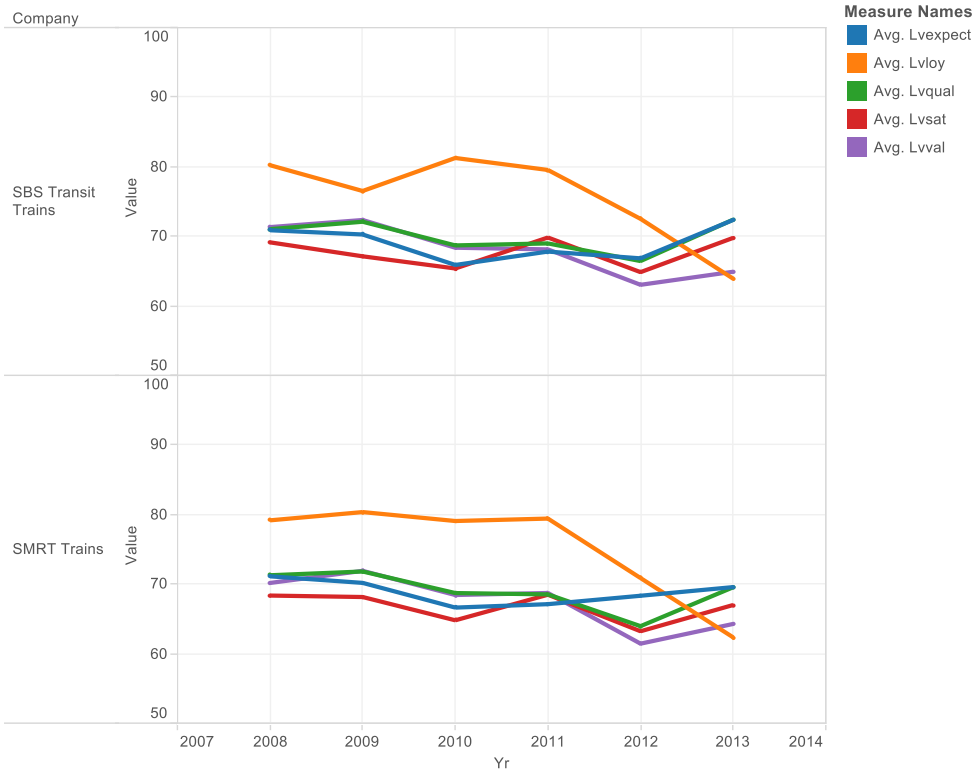
- Year
- Company
- CSISG model type
- **lvexpect** – expectation driver
    - **overallx** – expected overall quality (feeds into lvexpect)
    - **customx** – expected customization (feeds into lvexpect)
    - **wrongx** – expected reliability (feeds into lvexpect)
- **lvqual** – quality driver
    - **overallq** – perceived overall quality (feeds into lvqual)
    - **customq** – perceived customization (feeds into lvqual)
    - **wrongq** – perceived reliability (feeds into lvqual)
- **lvsqual** – service quality driver
    - **soverq** – perceived overall service quality (feeds into lvsqual)
    - **scustq** – perceived service customization (feeds into lvsqual)
    - **swrongq** – perceived service reliability (feeds into lvsqual)
- **lvpqual** – product quality driver
    - **poverq** – perceived product overall quality (feeds into lvpqual)
    - **pcustq** – perceived product customization (feeds into lvpqual)
    - **pwrongq** – perceived product reliability (feeds into lvpqual)
- **lvsat** – customer satisfaction driver
- **lvcomp** – customer complaints
- **lvloy** – customer loyalty
- **satis** – overall satisfaction
- **confirm** – ability to meet expectations
- **ideal** – similarity to ideal
- **comp** – complaint behaviour
- **repur** – repurchase intention
- **ptol** – price tolerance
- **lowptol** – price tolerance in repurchase intention
- **highptol** – price tolerance in repurchase intention
- **recomm** – willingness to recommend

The demographic variables are as follows:

- age range
- income range
- education level
- gender
- housing type

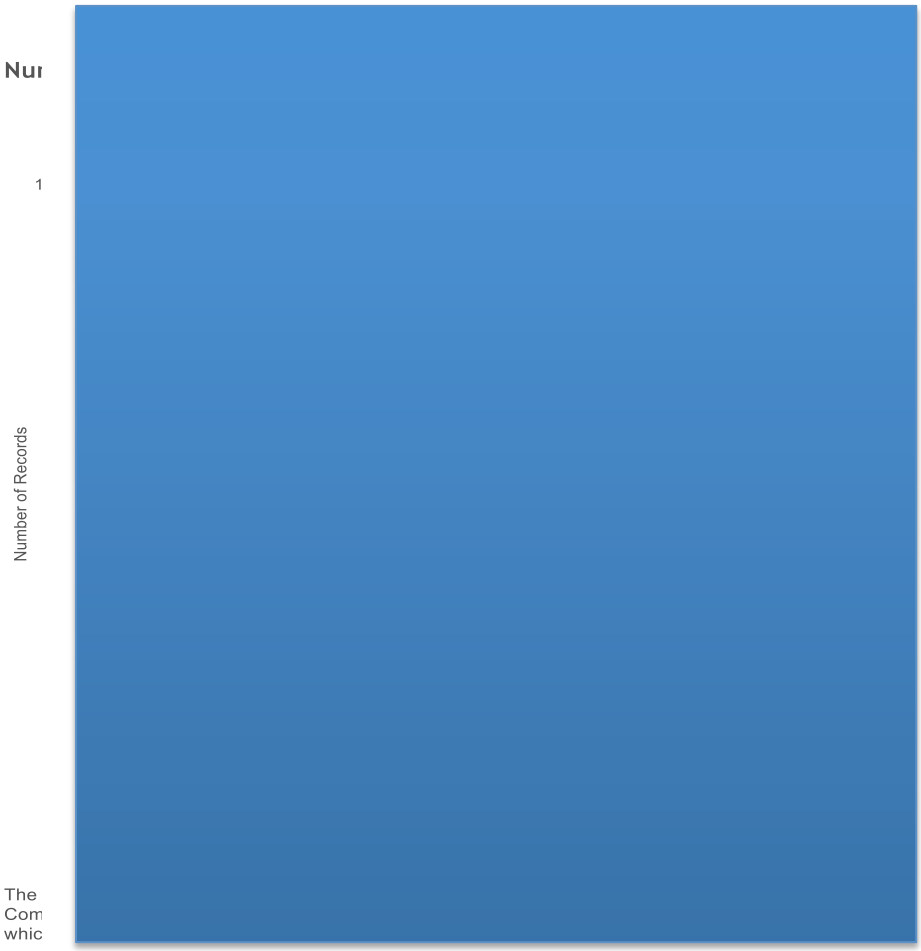
Exploratory Data Analysis

Trends



The trends of Avg. Lvexpect, Avg. Lvloy, Avg. Lvqual, Avg. Lvsat and Avg. Lvval for Yr broken down by Company. Color shows details about Avg. Lvexpect, Avg. Lvloy, Avg. Lvqual, Avg. Lvsat and Avg. Lvval.

This graph shows the trends of the various drivers. It is interesting to note that the customer loyalty value for both SBS and SMRT Trains have been steadily dropping since 2011. All the other values have seen an increase from 2012 to 2013, which might be due to the new policies introduced by the respective train operators.



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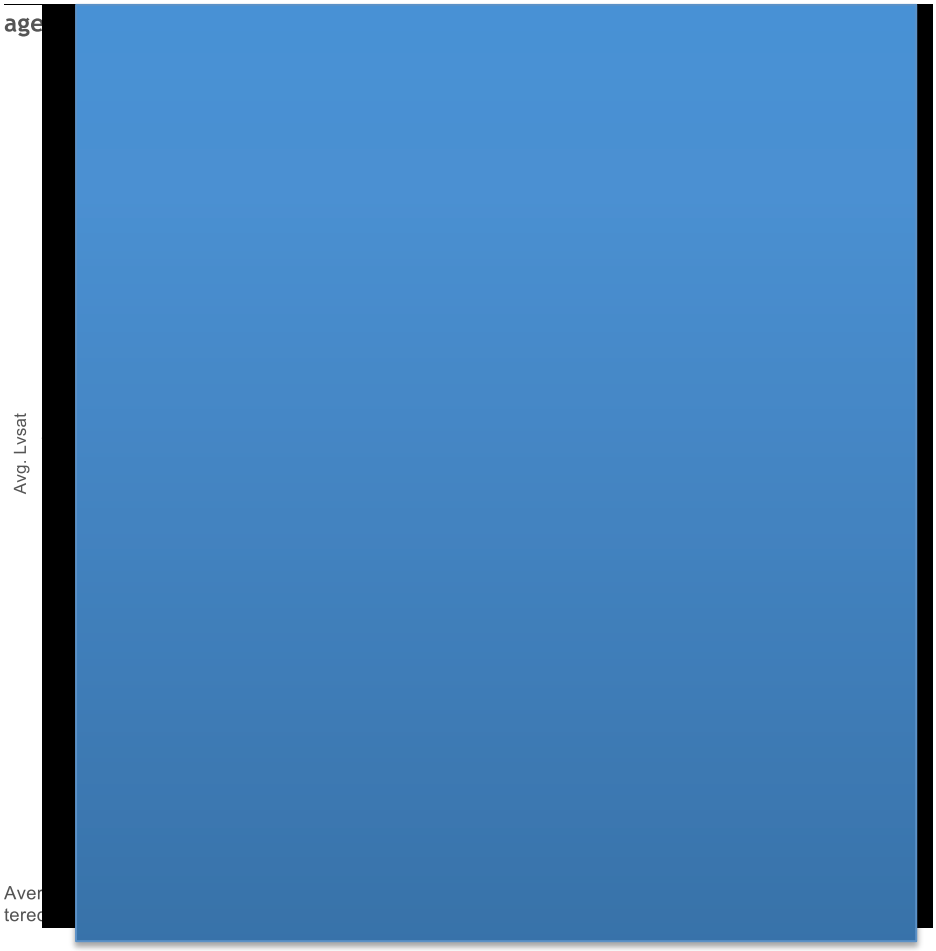

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