Software Design Document

<Project Name>

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# System Vision

## Problem Background

Excel sheets are widely used to store large sets of text data. Users face problems when trying to view these large sets of data. This can be due to there being many unnecessary sections of data. This makes it hard for a user to sort through the data for what they are looking for.

This applies to users trying to view data relating to Airbnb. Users want to pick a specific date and see information about different properties. This information includes the distribution of prices, listings by a specific suburb, records including user chosen keywords, and customers that commented on the cleanliness of the property.

It is recommended that a system is created to help these users view the data quickly and effectively.

## System Overview

This system should be able to complete the following:

* Create a user interface that has interactable buttons and input fields that change what is displayed on the interface.
* Read different CSV files.
* Display different data based on the

## Potential Benefits

This system will provide the following benefits for the users:

* View large sets of data through a smooth user-friendly interface.
* View this data in text form and graph form.
* Filter through the data for their specific chosen criteria.
* Speed up the process of analysing the data.

# Requirements

## User Requirements

* Run the GUI script.
* Select a specific date period.
  + See the information of all suburbs listed under this date.
  + Able to view a chart that is created, which shows the distribution of prices of properties.
  + Able to enter a specific keyword to view all records that contain that keyword.
* Able to view and analyse places where customers have commented on the cleanliness of the Airbnb.
* Another unnamed “insight” or analysis tool of our choice.

In this section you detail how a user is supposed to interact with or use your program. What do they ***need*** to be able to do? This should all be from the end users perspective. Can be a combination of narrative text and listing of needs.

**Assignment note: You have not been given a client/user, so you can make one up. Who do you think would be using your software?**

## Software Requirements

In this section you detail what the requirements for the software are. What functionality will it provide? This is usually a formal listing, with requirements often using the word ‘Shall’. IE:

R1.1 The program shall accept multiple file names as arguments from the command line.

R1.2 Each file name can be a simple file name or include the full path of the file with one or more levels.

etc …

Can be primarily functional requirements, though you may include other types if you think of them.

* The program shall be run as a single file in the command line.
* The script shall open to a GUI interface.
* The GUI interface shall have several buttons and other input fields that the user can interact with.
* These buttons shall trigger further actions and interfaces- a graph.

## Use Cases & Use Case Diagrams

In this section you provide some use cases showing how people may use your software.

|  |  |
| --- | --- |
| **Element** | **Description** |
| Use Case ID | 1.0 |
| Use Case Name | Pick Date |
| Primary Actor | User |
| Description | The user picks a date. |
| Pre-Condition | The user opens the GUI script. |
| Post-Condition | The user can open graphs?? |
| Success Scenario | Data is displayed for the picked date. |
| Abort Scenario | Data is not displayed. |

# Software Design and System Components

## Software Design

A block diagram/flowchart of how your software might work

## System Components

### Functions

Preliminary list of all functions in the software. For each function in the list the following information is provided:

* a brief description of what it does (1 or 2 sentences);
* a list of the input parameters, and their data types, and what they are used for;
* a list of any side effects caused by the function (ie change global or member variables, changes data passed by reference from calling function etc)
* a description of the function’s return value
* def readExcel()
  + A function that will be used to read the CSV files to grab the data.
  + Returns the dataframe of the data. This is a data representation of the CSV file.
* def selectdDate()
  + A function that will grab the date from the user-selected period.

### Data Structures / Data Sources

List of all data structures in the software (eg linked lists, trees, arrays etc) or eternal data sources. For each data structure in the list the following information is provided:

* Type of structure (tree, list etc),
* Description of where and how it is used
* List of data members, and what each one is for do
* List of functions that use it

### Detailed Design

Pseudocode for all non-standard / non-trivial algorithms that operate on data structures

# User Interface Design

This is your initial interface design. Describe the tools you used for this design stage and any key findings that informed your design. This introduction is descriptive and should explain what you have completed for the actual design work you will present in the sub-sections below.

## Structural Design

Structural design refers to the navigational and information structure of your product – the structure that supports the interface layout. How will you structure your product? How will you group your information? How will you navigate through your product? Why? This can take the form of a diagram showing structure and hierarchy, supported by a discussion and justification of your choices. Why have you made these design choices? Describe and outline the structure of your interface and of your information.

## Visual Design

Detail your visual design: Layout, visual elements, icons, graphics, style, colour, fonts general screen designs. This can be sketches, wireframes, mockups etc, supported by a discussion, explanation, and justification of your choices.