Software Design Document

New York Restaurant Inspection Results

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# System Vision

## Problem Background

## System Overview

## Potential Benefits

# Requirements

## User Requirements

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.

## Use Cases & Use Case Diagrams

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

# 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

### 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.

In this section, we will discuss in detail about the User Interface Design of the proposed software which is used to visualize the New York Restaurant Inspection Results dataset. The actual design is created using Canva, a graphic-design tooL and Microsoft Visio is used to design a low-fidlity wireframe and structure of the product. This section comprises of two sub-sections: 1) Structual Design, which will elaborate on the workflow of the product and a detailed analysis of the design and 2) Visual Design, which focuses only on the visual elements of the product.

## 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.

The product is designed in such a way that it is self-explanatory and is user-friendly. It consists of two main pages: 1) Home and 2) Dashboard. We will discuss in detail about each page in this section.

**Basic Structure**

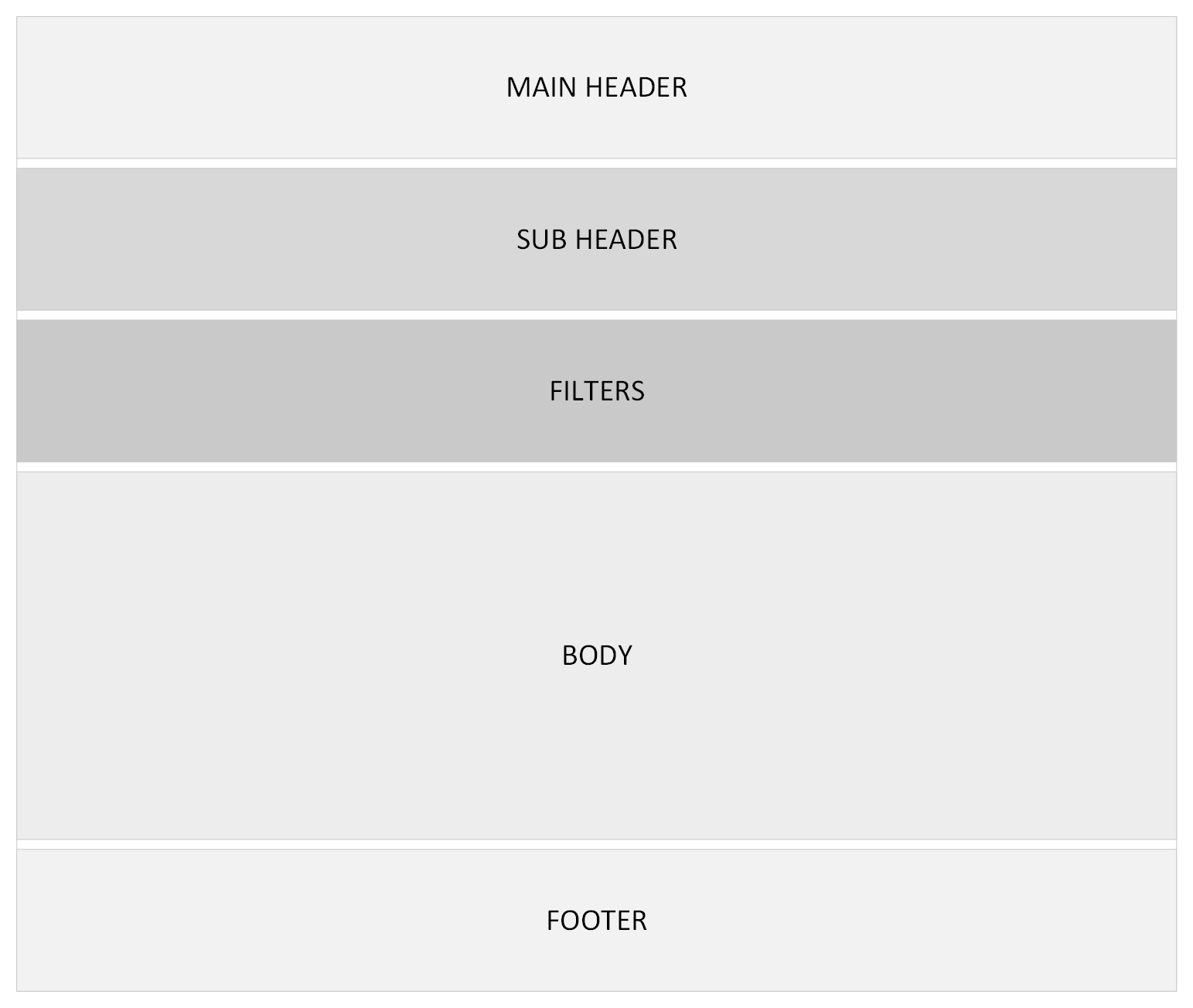


Figure 4a Basic structure of User Interface

Each page is divided into five sections as shown in figure 4a which are explained as follows:

* + Main Header: This section of the page contains the name of the product, the loggedin username and a dropdown-menu for the user ( The dropdown-menu will not be developed in this project as there is no requirement for a user login)
  + Sub header: This part contains the navigation tabs to toggle between pages. It displays the title of the dataset used.
  + Filters: This section contains any filtering options used to filter the dataset as per the user requirements. In addition, it also contains the export option to export the filtered dataset.
  + Body: This section contains the dataset displayed in the form of table or charts.
  + Footer: It contains copyright information and any other additional contact information.

**Detailed Structure**

**Home Page**

****

Figure 4b Structure of Home Page

Figure 4b shows the detailed structure of the main or home page of the product that the user will see initially. The first section will contain the logo and/or the product name on the top left corner and the user icon will be displayed on the right for the loggedin user. Below that is the sub header section, which will comprise of two tabs: Home and Dashboard to toggle between the two pages. On the right side of this section, the title of the dataset will be displayed.

The thrid section will feature any filters that are applied on the dataset. On the left side, there are two date fields which will enable the user to select a start date and an end date from a datepicker, based on which the dataset will be filtered. A view button is provided next to the date fields to initiate the search action. On the right side of the same section, an input box is provided. The dataset will be filtered and displayed based on keyword entered in this section. It also contains an export button which can be used to download the filtered dataset.

The fourth section contains the actual data that is displayed as a table. The table comprises a header ( column headings ), body ( values ) and footer ( pagination ). The table will display only important information related to any search to make it presentable and avoid data congestion that may occur with long text data. Since an export option is provided the user will be able to view all columns by exporting the data. The fifth section will display copyright information and any other contact information.

**Dashboard Page**

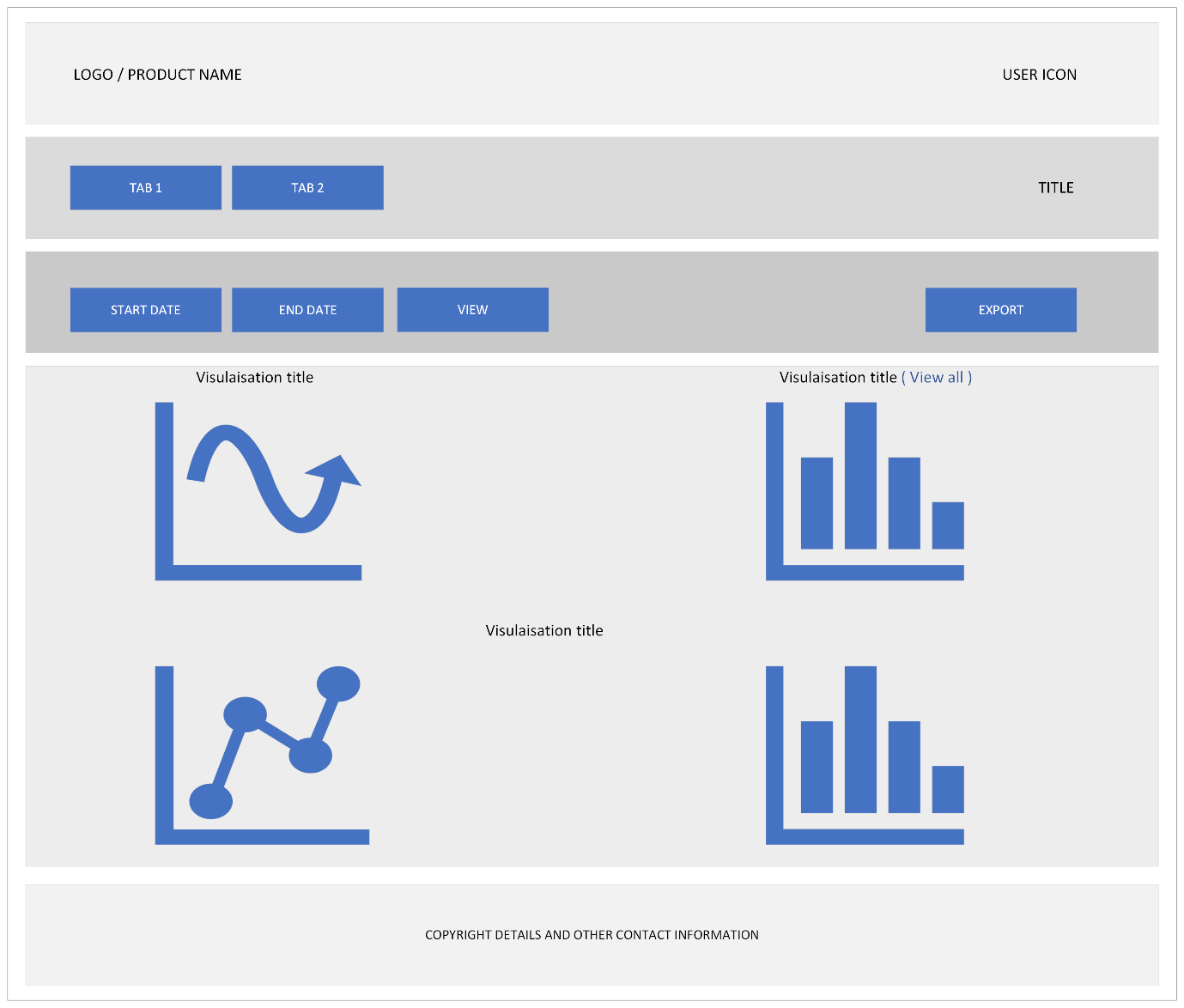


Figure 4c Structure of Dashboard Page

Figure 4c shows the dashboard page which will be displayed when the user selects tab 2. This page will feature all visualizations for the dataset in the body section of the page. The same header, subheader, filter and footer sections are retained. But this page does not have the keyword search option since we have 4 different visualizations and the parameters for each one differs.

* Visualisation 1: Violation Distribution over Suburbs

This plot will visualise the violations across different suburbs. The suburbs will be listed along the x-axis with the numerical values listed along the y-axis. This will be a box and whisker plot.

* Visualisation 2: Violation count per cuisine ( Additional visualization / Inisight )

This plot will visualise the violations across different suburbs based on the cuisine. The data will be plotted as a clustered column chart. The violation will be plotted along the bottom x-axis and the cuisines will be clustered along the upper x-axis. The y-axis will denote numerical values or count of violations. There are numerous violation codes so the initial visualization will feature only a few. The “View all” link next to the visualization title will redirect to a new page where all the violation code will be plotted.

* Visualisation 3: Violation related to animals

There are two visualisations in this part. Firstly, the violation cases related to animals and their trend over time is plotted as a line chart. Each line will indicate an animal. The x-axis will denote time period ( months/years ) and the y-axis will denote numerical values to represent count of cases over time. Secondly, the violation cases related to animals over different suburbs will be displayed as a histogram with suburbs listed along the x-axis and the numerical values denoted along the y-axis.

**Conceptual Model**

A diagram of a process

Description automatically generated with medium confidence

Figure 4d Workflow Diagram

## 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.

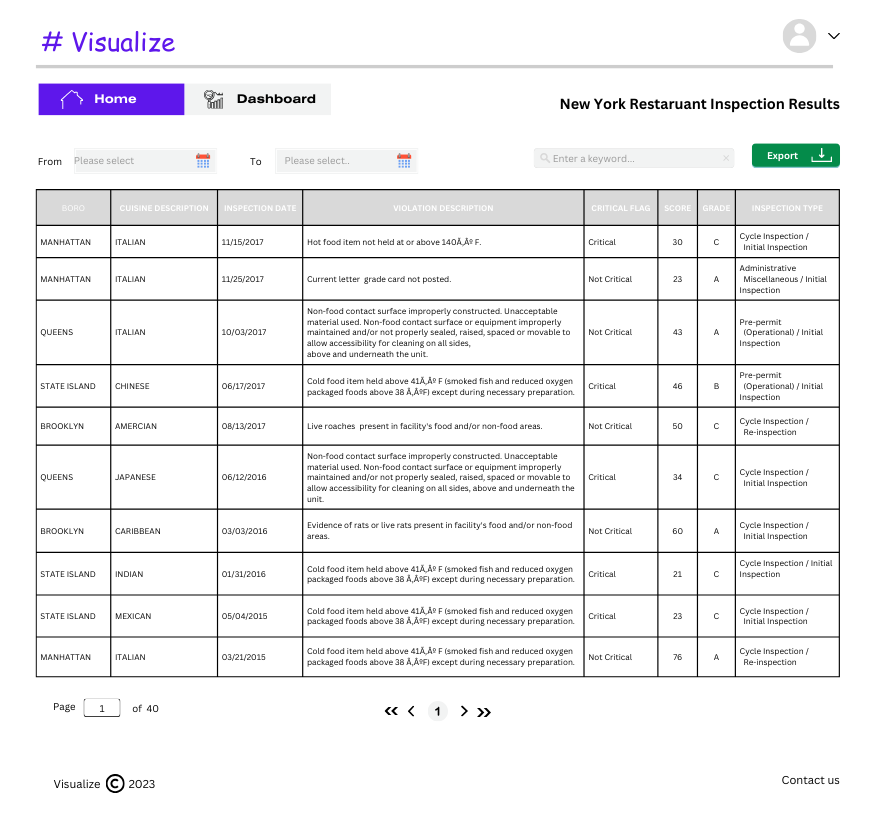


Figure 4e UI Design of Home Page

Figure 4e shows the design of home page. It replicates the structural design as described in figure 4b. It shows 10 records by default arranged in a tabular form with only the most important columns sorted in reverse chronological order.

A screenshot of a graph

Description automatically generated

Figure 4f UI Design of Dashboard Page

Figure 4f follows the basic strutural design of the product. This page will shows 4 insights for the New York Restaurant Inspection Results. The color codes, fonts and icons used for the home page and dashboard page are listed below.

**Color:**

|  |  |  |
| --- | --- | --- |
| **Color Type** | **Color Code** | **Example visual representation** |
| Primary color | #5E17EB |  |
| Secondary color | #F2F3F3 |  |
| Black | #FFFFFF |  |
| White | #000000 |  |

Table 4g Product colors

Table 4g represents the colors used in the product. The product has one primary and one secondary color. In addition, one shade of black and white is used through the entire product. The colors are kept minimal to enhance the user experience.

**Fonts:**

|  |  |
| --- | --- |
| **Font Type** | **Font Name** |
| Primary font | Canva Sans |
| Secondary font | Comic Sans |
| Product font | Helios Extended |

Table 4h Product Font

Table 4h represents fonts used in the product. The product uses one primary and one secondary font. Variations of the font like bold and regular are used at relevant places.

**Icons**

|  |  |
| --- | --- |
| **Icon** | **Description** |
| A person in a circle  Description automatically generated | This is the user icon. This can also be replaced with the user’s profile picture(which is not implemented in this case) |
| A black outline of a house  Description automatically generated | This icon is used for the home page navigation tab. It is used in white color for an active tab and in black color for an inactive tab |
| A graphic of a graph and a magnifying glass  Description automatically generated | This icon is used for the dashabord page navigation tab. It is used in white color for an active tab and in black color for an inactive tab |
|  | This icon is used for the datefield |
| A black arrow pointing down  Description automatically generated | This icon is used inside the export button |
|  | This icon will be used to display a dropdown menu next to the user icon(which is not implemented in this case) |
| A black arrows on a white background  Description automatically generated | These icons are used to navigate to the previous page and next page in the table |
| A black arrows pointing to the left  Description automatically generated | These icons are used to navigate to the first and last page of the table |
|  | This icon is used for copyrighting |

Table 4i Product Icons

Table 4i represents the icons used in the product. It displays the icons with a usage description of each icon.

**Element Description**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Element** | | **Description** | **Color** | **Style** |
| Product color | | General color of the product / Brand color | #5E17EB |  |
| Background color | | Overall background color of the software | #FFFFFF |  |
| Title | | Color used for the logo or title of the software | #5E17EB |  |
| Font color | | Color used for all the text/fonts in the software | #000000 |  |
| Button color | | Color used for buttons | #048B4A |  |
| Navigation Tab | Font Style | Font style used for navigation tab | Helios Extended Bold | **Sample** |
| Active Navigation Tab | Font Color | Color of font used for active navigation tab | #FFFFFF |  |
| Background Color | Background color used for active navigation tab | #5E17EB |  |
| Inactive Navigation Tab | Font Color | Font color used for inactive navigation tab | #000000 |  |
| Background Color | Background color used for inactive navigation tab | #F2F3F3 |  |
| Date field | Background color | Color used for the background of date field | #F2F3F3 |  |
| Font Color | Color used for the font of date field | #000000 |  |
| Font Style | Color used for the font of the date field | Canva Sans Regular | Sample |
| Input field | Background color | Color used for the background of the input or search field | #D9D9D9 |  |
| Font Color | Color used for the font of the date field | #000000 |  |
| Font Style | Font style used for the input field | Canva Sans Regular | Sample |
| Table | Table Header Color | Color used for the background of table header | #D9D9D9 |  |
| Header Font Style | Font style used for table | Canva Sans Bold | **SAMPLE** |
| Table Body Color | Color used for the background of the table body | #FFFFFF |  |
| Body Font Style | Font style used for table body | Canva Sans Regular | SAMPLE |

Table 4j Product Elements and Description

Table 4j represents colours, fonts and style of each element in the home page and the dashboard page.