

Mathew Barber

APPLICATION development  
Design Document

Harveys of Stretton

Contents

[Purpose 2](#_Toc97709785)

[Problem Statement 2](#_Toc97709786)

[Risks 2](#_Toc97709787)

[Navigation Board 3](#_Toc97709788)

[Navigation Key 3](#_Toc97709789)

[Navigation Definition 4](#_Toc97709790)

[Mood board 4](#_Toc97709791)

[Wire Frame/ Mock-up 5](#_Toc97709792)

[Wire Frame/ Mock-up Definition 9](#_Toc97709793)

[Functional Requirements and Non-Functional 10](#_Toc97709794)

[Functional Requirements 10](#_Toc97709795)

[Non-Functional Requirements Harveys of Stretton 10](#_Toc97709796)

[Data Dictionary 10](#_Toc97709797)

[Customer Table 10](#_Toc97709798)

[Car Table 11](#_Toc97709799)

[Time Scale Gantt Chart 12](#_Toc97709800)

[Design Testing Table 13](#_Toc97709801)

[Design Summary 15](#_Toc97709802)

[Critical Review 15](#_Toc97709803)

[References 16](#_Toc97709804)

# Purpose

The purpose of the design document for Harveys of Stretton is to help in the critical analysis of the problems that have been found within their current system and the proposed solution, while also communicating the priority, time and effort, and impact of the problems. There have been several areas that have been identified as requiring modernization, but we will concentrate on the main problems.

# Problem Statement

The areas that have been identified as complications on the current software are the car details are not logged on to the system correctly and the customer details are not being verified.

By creating an application in which the fields are required to be filled in to ensure all the details are logged correctly and are verified.

If the situation is to stay the same for Harveys of Stretton with the car details not being logged correctly this will lead to not being able to find the details, meaning poor customer service and loss of revenue and reputation. With the customer details if they are not verified it means the inability to have effective marketing and again poor customer service leading to loss of revenue and reputation.

The application will record all of the vehicle details and store them to the database allowing them to be searched for when needed, it shall also record customer details correctly and store to the same database for ease of access and to allow better marketing.

# Risks

There are many risks that need to be assessed for application development. First you need to decide what the risks are and then you will need continually vigilance to ensure you don’t encounter them or know what to do if you do. Some of the risks for Harveys od Stretton are but not limited to:

* **Scope creep** - Changing project scopes can cause risks in the development of an application or software. Scope creep refers to a project's scope morphing into something completely different than it was initially, in simple terms going outside of the problem statement. Scope creep can cause risks when it causes application developments to miss deadlines and extend timeframes.
* **Budget issues** - Another application development risk is budget issues. Application and software development budgets can change as project scopes change, but it's important to monitor projects so that they don't go over budget.
* **Poor risk management** - Poor risk management can be a risk in itself. Good risk management is crucial for an applications development team to enable them spot risks and effectively respond to them. risk management can be improved by:
  + - Identifying potential risks
    - Calculating the likelihood of each risk
    - Creating risk mitigation plans
    - Carefully monitoring risks
* **Procedural risks** - Day-to-day operational activities might impede progress due to improper process implementation, conflicting builds, or a lack of clarity and responsibilities.
* **Unavoidable risks -** These include changes in government policy, the obsolescence of software or other risks that cannot be controlled.

As the development of the application or software becomes more complex, the risks associated with it have increased. It is vital that development teams concentrate on strategic planning to mitigate such risks.

# Chart Description automatically generatedNavigation Board

## Navigation Key

|  |  |
| --- | --- |
| **Icon** | **Page** |
|  | Login Page |
|  | Home page/Grid |
|  | Add Car Page |
|  | Search Car Page |
|  | Search Customer Page |
|  | Add Customer Page |
|  | Reports Page |
|  | Car Location Page |
|  | Key register |

## Navigation Definition

Application navigation covers a range of functions in application/web development. The linking of content is done from one page to another for example from the home page to the sales page and back again, is an essential local navigation tool.

# Mood board

A mood board is a digital collage or group of elements that helps define the focus for the design of the application. As shown below with the logo and colour scheme make it easier for the client to see the idea.

Graphical user interface, application

Description automatically generated

# Wire Frame/ Mock-up

|  |  |  |  |
| --- | --- | --- | --- |
| BI APP Page Wireframe | | Project Name: | Harveys of Stretton |
| Page Title: | Home Page/Grid | Relative URL: |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | Background: background-colour: #2F2F2F | | | | | | |
| **Text** | | | | | | |
| Name | | Font | Size | Colour | Attribute | |
| Heading 1 | | Garamond Pro |  | #EAEAEA |  | |
| Heading 2 | |  |  |  |  | |
| Heading 3 | |  |  |  |  | |
| Paragraph | |  |  |  |  | |
| **Media Element** | | | | | | |
| Graphics: | | | | | | |
| Sounds: N/A | | | | | | |
| Animations: N/A | | | | | | |
| Video: N/A | | | | | | |
| Interactive:  Navigation Grid | | | | | | |
| BI APP Page Wireframe | | Project Name: | | Harveys of Stretton | | | | |
| Page Title: | Add Car Page | Relative URL: | |  | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Background: background-colour: #2F2F2F | | | | |
| **Text** | | | | |
| Name | Font | Size | Colour | Attribute |
| Heading 1 | Garamond Pro |  | #EAEAEA |  |
| Heading 2 |  |  |  |  |
| Heading 3 |  |  |  |  |
| Paragraph |  |  |  |  |
| **Media Element** | | | | |
| Graphics: | | | | |
| Sounds: N/A | | | | |
| Animations: N/A | | | | |
| Video: N/A | | | | |
| Interactive: | | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| BI APP Page Wireframe | | Project Name: | Harveys of Stretton |
| Page Title: | Search Car Page | Relative URL: |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Background: background-colour: #2F2F2F | | | | |
| **Text** | | | | |
| Name | Font | Size | Colour | Attribute |
| Heading 1 | Garamond Pro |  | #EAEAEA |  |
| Heading 2 |  |  |  |  |
| Heading 3 |  |  |  |  |
| Paragraph |  |  |  |  |
| **Media Element** | | | | |
| Graphics: | | | | |
| Sounds: N/A | | | | |
| Animations: N/A | | | | |
| Video: N/A | | | | |
| Interactive:  Search Bar | | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| BI APP Page Wireframe | | Project Name: | Harveys of Stretton |
| Page Title: | Add Customer Page | Relative URL: |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Background: background-colour: #2F2F2F | | | | |
| **Text** | | | | |
| Name | Font | Size | Colour | Attribute |
| Heading 1 | Garamond Pro |  | #EAEAEA |  |
| Heading 2 |  |  |  |  |
| Heading 3 |  |  |  |  |
| Paragraph |  |  |  |  |
| **Media Element** | | | | |
| Graphics: | | | | |
| Sounds: N/A | | | | |
| Animations: N/A | | | | |
| Video: N/A | | | | |
| Interactive: | | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| BI APP Page Wireframe | | Project Name: | Harveys of Stretton |
| Page Title: | Search Customer Page | Relative URL: |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Background: background-colour: #2F2F2F | | | | |
| **Text** | | | | |
| Name | Font | Size | Colour | Attribute |
| Heading 1 | Garamond Pro |  | #EAEAEA |  |
| Heading 2 |  |  |  |  |
| Heading 3 |  |  |  |  |
| Paragraph |  |  |  |  |
| **Media Element** | | | | |
| Graphics: | | | | |
| Sounds: N/A | | | | |
| Animations: N/A | | | | |
| Video: N/A | | | | |
| Interactive:  Search bar | | | | |

## Wire Frame/ Mock-up Definition

Wireframes are not the final design they are quick and easy as to put together meaning that customer feedback can easily be integrated into the idea as no code has been written at this point to make them.

# Functional Requirements and Non-Functional

## Functional Requirements

A Functional Requirement describes the service the software must offer. Harveys of Stretton have stated what they ‘must have.’

* System shall have record of customers details.
* System shall have search of customer records
* System shall have record of car details.
* System shall have search of car records.
* When the information is entered, the system shall confirm the database has been updated.

## Non-Functional Requirements Harveys of Stretton

* Records shall be received within 5 seconds.
* The system user interface shall be easy to use.
* The system shall store data in accordance with the DPA (Data Protection Act).
* The system shall be fully supported.

# Data Dictionary

A Data Dictionary is the names, data types, and attributes about data elements that are being used or captured within a database.

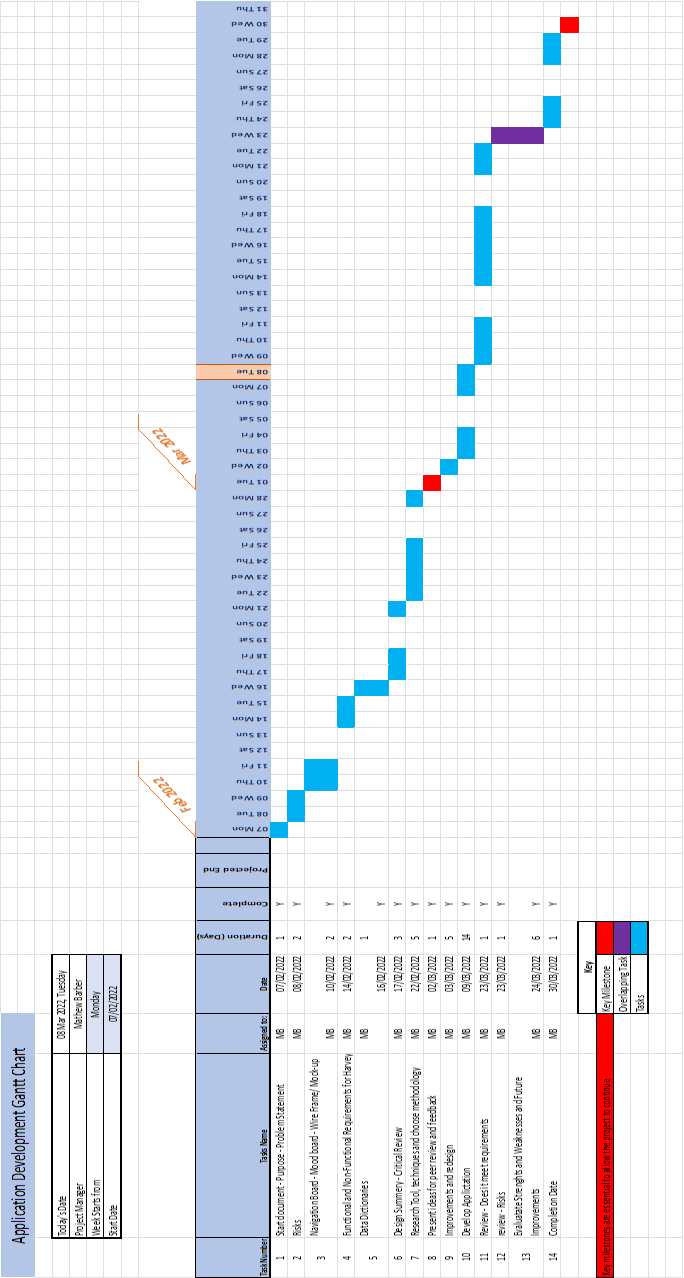
## Customer Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Field Size | Null | Validation |
| Customer Id | AutoNumber (Long Integer) |  | 0 | Primary Key |
| Title | Lookup (Mr, Mrs, Ms, Miss, Dr, Other) | 6 | 0 | Required |
| Forename | Varchar | 15 | 0 | Input mask<L> for Capital letter Required |
| Surname | Varchar | 15 | 0 | Input mask<L> for Capital letter/ Required |
| House Name/Number | Varchar | 10 | 0 | Required |
| Street Name | Varchar | 15 | 0 | Input mask<L> for Capital letter - Required |
| Town | Varchar |  | 1 | Required |
| County | Varchar | 15 | 0 | Input mask<L> for Capital letter |
| Postcode | Varchar | 10 | 0 | Required |
| Phone Number | Varchar | 15 | 0 | Not number as international code (+44) can’t be entered as a number - Required~~.~~ |
| Email | Varchar | 100 | 0 | Required |
| Notes | Varchar |  | 1 |  |

## Car Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field Name | Data Type | Field Size | Null | Validation |
| Vehicle Id | AutoNumber (Long Integer) |  | 0 | Primary Key/ Required |
| Vehicle Style | Lookup (Estate, Hatchback, 4x4) | 10 | 0 | Required |
| Vehicle Make | Lookup (Ford, Fiat, Mazda) | 10 | 0 | Required |
| Vehicle Model | Varchar | 20 | 0 | Input mask<L> for Capital letter - Required |
| Vehicle Registration | Varchar | 10 | 0 | Input mask<L> for Capital letters - Required |
| Transmission | Lookup (Manual, Automatic, Semi-Automatic) | 15 | 0 | Required |
| Engine Size | Lookup (Under 1, 1-1.6, 1.8-2, 2+) | 8 | 0 | Required |
| Vehicle Mileage | Number | 7 | 0 | Required |
| Colour |  | 10 | 0 | Required |
| Price | Int | 7 | 0 | Required |
| Notes | Varchar |  | 1 |  |

# Time Scale Gantt Chart



# Design Testing Table

|  |  |  |
| --- | --- | --- |
| Page | Test + ref | Purpose |
| index.htlm = 1.1.0 |  |  |
|  | 1.1.1 = Button Add Customer | To take you to the addCustomer.html form |
|  | 1.1.2 = Button Search Customer | To take you to the searchCustomer.html form |
|  | 1.1.3 = Button Add Vehicle | To take you to the addVehicle.html form |
|  | 1.1.4 = Button Search Vehicle | To take you to the searchVehicle.html form |
|  | 1.1.5 = Button Reports | To take you to a sales.html page |
|  | 1.1.6 = Button Add New Tile | To active a pop-up as feature isn’t yet available |
|  | 1.1.7 = W3C Validation. | To ensure the coding use is correct and its validity |
| styles.css = 1.2.0 |  |  |
|  | 1.2.1 = W3C Validation CSS | To ensure the CSS coding is correct and its validity. |
| addCustomer.htlm = 2.1.0 |  |  |
|  | 2.1.1 = Input field required Customer ID | To ensure a number is used and is unique in the customer ID field |
|  | 2.1.2 = Input field required Title | To ensure the customers title is recorded |
|  | 2.1.3 = Input field required First Name | To ensure the customers first name is recorded |
|  | 2.1.4= Input field required Last Name | To ensure the customers last name is recorded |
|  | 2.1.5 = Input field required Street Address | To ensure the customers house number and street name is recorded |
|  | 2.1.6 = Input field required County | To ensure the customers county is recorded |
|  | 2.1.7 = Input field required Post Code | To ensure the customers postcode is recorded |
|  | 2.1.8 = Input field required Phone Number | To ensure the customers phone number is recorded |
|  | 2.1.9 = Input field required Email | To ensure the customers email is recorded |
|  | 2.1.10 = Input field not required Second line of Address | To ensure this field doesn’t need to be completed but the form will still record customer details |
|  | 2.1.11 = Input field not required Notes | To ensure this field doesn’t need to be completed but the form will still record customer details |
|  | 2.1.12 = Button Submit | To active addCustomer.php to save the details to the database |
|  | 2.1.13 = Button Reset | Clear the form |
|  | 2.1.14 = Button Home Page | Returns user back to the index.html |
|  | 2.1.15 = W3C Validation | To ensure the html coding is correct and its validity |
| stylesCustomer.css = 2.2.0 |  |  |
|  | 2.2.1 = W3C Validation CSS | To ensure the CSS coding is correct and its validity. |
| addCustomer.php = 2.3.0 |  |  |
|  | 2.3.1 = connection to database | To allow a connection between html and database |
|  | 2.3.2 = connection from html page to php | To allow data on forms to be read by database |
|  | 2.3.3 = error message if not connected to database | warning |
|  | 2.3.4 = completion message is successful | Success message |
| searchCustomer.html = 3.1.0 |  |  |
|  | 3.1.1 = input field not required | To ensure you can search the whole database |
|  | 3.1.2 = input field | Any entry can produce multiple results if not specific. |
|  | 3.1.4 = Submit Button | To active the searchOptionCustomer.php |
|  | 3.1.4 = W3C Validation | To ensure the html coding is correct and its validity |
| searchOptionCustomer.php = 3.2.0 |  |  |
|  | 3.2.1 = connection to database | To allow a connection between html and database |
|  | 3.2.2 = connection from html page to php | To allow data on forms to be read by database |
|  | 3.2.3 = error message if not connected to database | warning |
|  | 3.2.4 = completion message is successful | Success message |
|  | 3.2.5 = Edit Button | To open a new tab to edit form to allow referencing after search |
|  | 3.2.6 = Delete Button | To open a new tab to delete form to allow referencing after search |
|  | 3.2.7 = W3C Validation | To ensure the html coding is correct and its validity |
| addVehicle.htlm = 4.1.0 |  |  |
|  | 4.1.1 = Input field required Vehicle ID | To ensure a number is used and is unique in the Vehicle ID field |
|  | 4.1.2 = Input field required vehicleStyle | To ensure the vehicle style is recorded |
|  | 4.1.3 = Input field required vehicleMake | To ensure the vehicle make is recorded |
|  | 4.1.4= Input field required vehicleModel | To ensure the vehicle model is recorded |
|  | 4.1.5 = Input field required vehicleRegistration | To ensure vehicle registration is recorded |
|  | 4.1.6 = Input field required year | To ensure the vehicle age is recorded |
|  | 4.1.7 = Input field required transmission | To ensure the transmission is recorded |
|  | 4.1.8 = Input field required engineSize | To ensure the engine size is recorded |
|  | 4.1.9 = Input field required vehicleMilage | To ensure the vehicle milage is recorded |
|  | 4.1.9 = Input field required colour | To ensure the colour is recorded |
|  | 4.1.9 = Input field required price | To ensure the price is recorded |
|  | 4.1.11 = Input field not required Notes | To ensure this field doesn’t need to be completed but the form will still record customer details |
|  | 4.1.12 = Button Submit | To active addCustomer.php to save the details to the database |
|  | 4.1.13 = Button Reset | Clear the form |
|  | 4.1.14 = Button Home Page | Returns user back to the index.html |
|  | 4.1.15 = W3C Validation | To ensure the html coding is correct and its validity |
| addVehicle.php = 4.2.0 |  |  |
|  | 4.2.1 = connection to database | To allow a connection between html and database |
|  | 4.2.2 = connection from html page to php | To allow data on forms to be read by database |
|  | 4.2.3 = error message if not connected to database | warning |
|  | 4.2.4 = completion message is successful | Success message |
| searchVehicle.html = 5.1.0 |  |  |
|  | 5.1.1 = input field not required | To ensure you can search the whole database |
|  | 5.1.2 = input field | Any entry can produce multiple results if not specific. |
|  | 5.1.4 = Submit Button | To active the searchOptionVehicle.php |
|  | 5.1.4 = W3C Validation | To ensure the html coding is correct and its validity |
| searchOptionVehicle.php = 5.2.0 |  |  |
|  | 5.2.1 = connection to database | To allow a connection between html and database |
|  | 5.2.2 = connection from html page to php | To allow data on forms to be read by database |
|  | 5.2.3 = error message if not connected to database | warning |
|  | 5.2.4 = completion message is successful | Success message |
|  | 5.2.5 = Edit Button | To open a new tab to edit form to allow referencing after search |
|  | 5.2.6 = Delete Button | To open a new tab to delete form to allow referencing after search |
|  | 5.2.7 = W3C Validation | To ensure the html coding is correct and its validity |

# Design Summary

The design has been customized to be user friendly by following user interface (UI) rules and being consistent throughout the pages with the button placements like the home button at the top of the page and submit and reset buttons placed within the forms themselves making clear for the users.

The buttons have also been made recognisable by having them the same on every page along with have all the forms in a similar format for ease of use and for quick familiarity. I have also taken user experience (UX) into consideration when putting the design together by focusing on the user and what they need, and with the consistency of the page layouts within the parameters of the problem statement. By using simplified layout, it has made the design more accessible to all users regardless of ability. Lastly, if you look to the navigation page and the future improvement you will see that hierarchy will come in to play though the key register and car location being added to the car search page possibly in a similar way in which the edit and delete are added through buttons.

# Critical Review

Looking through this design document, it covers some of the Harveys of Stretton’s requirements while also leaving room for future improvements. The areas that can be looked at in the future are the login page to secure the site a html page has been designed just not connected at this time. The reports page is another future improvement currently its just take you to a html page with buttons for the reports for speed and ease of access but also areas as shown in the navigation board, such as, a key register, and the car location both of these can either be added as individual pages or you can link them to the car search results page again for ease of access.

I also found that it is easier to build a design document if you know all the facts and have a clear understanding of what is happening on the back end, what databases they already have in place. A sale page wasn’t used in this design document as it was outside of the problem statement, but I think including one in the future is a must, as it be more reliable for showing sales reports for the manages.

The colour pallet I have chosen for this site was based on the logo with the off slightly lighter black/charcoal wood style background running through every page and the gradient buttons for the theme. I believe it give a stylish and professional finish without being too dark and straining the user’s eyes.

# References

Amit, 2018. *All You Need to Know About UML Diagrams: Types and 5+ Examples.* [Online]   
Available at: https://tallyfy.com/uml-diagram/#sequence-diagram  
[Accessed 08 02 2022].

Anna, 2017. *Is Microsoft Power BI The Right Visualization Tool For You?.* [Online]   
Available at: https://blog.openbridge.com/is-microsoft-power-bi-right-for-you-10-point-checklist-to-make-the-right-decision-c99eb9673405  
[Accessed 05 10 2021].

Cass, J., 2021. *Top 10 Fonts Used By Professionals In Graphic Design.* [Online]   
Available at: https://justcreative.com/professional-fonts-graphic-design/  
[Accessed 05 10 2021].

Crowley, L., 2017. *WHAT IS THE BEST COLOR TO USE FOR CALL TO ACTION BUTTONS?.* [Online]   
Available at: https://www.eyequant.com/resources/what-is-the-best-color-to-use-for-call-to-action-buttons/  
[Accessed 05 10 2021].

Guilizzoni, P., 2022. *What Are Wireframes?.* [Online]   
Available at: https://balsamiq.com/learn/articles/what-are-wireframes/#:~:text=A%20wireframe%20is%20a%20schematic,or%20website%20you're%20building.  
[Accessed 08 02 2022].

Indeed Editorial Team, 2021. *12 Risks in Software Development.* [Online]   
Available at: https://www.indeed.com/career-advice/career-development/risks-in-software-development  
[Accessed 08 03 2022].

Lockley, S. K., 2021. *Making Your Employee App a Success in 3 Steps.* [Online]   
Available at: https://staffbase.com/blog/making-your-employee-app-a-success/  
[Accessed 05 10 2021].

Marrs, M., 2020. *17 Best Practices for Crazy-Effective Call-To-Action Buttons.* [Online]   
Available at: https://www.wordstream.com/blog/ws/2015/02/20/call-to-action-buttons  
[Accessed 05 10 2021].

Pupius, D., 2019. *How to write a better technical design document.* [Online]   
Available at: https://www.range.co/blog/better-tech-specs  
[Accessed 08 02 2022].

QRA, 2021. *Functional vs Non-Functional Requirements: The Definitive Guide.* [Online]   
Available at: https://qracorp.com/functional-vs-non-functional-requirements/  
[Accessed 07 10 2021].

Singleton, A., 2019. *What Is a Mood Board, and How Can It Influence My Website Design?.* [Online]   
Available at: https://www.smartbugmedia.com/blog/what-is-a-mood-board-and-how-can-it-influence-my-website-design#:~:text=A%20mood%20board%20is%20a,the%20direction%20of%20a%20website.&text=The%20mood%20board%20can%20be,actual%20visual%20and%20UI%20elements.  
[Accessed 08 02 2022].

Tkachenko, I., 2021. *FUNCTIONAL VS NON-FUNCTIONAL REQUIREMENTS.* [Online]   
Available at: https://theappsolutions.com/blog/development/functional-vs-non-functional-requirements/  
[Accessed 07 10 2021].

toolshero, 2021. *MoSCoW Method.* [Online]   
Available at: https://www.toolshero.com/project-management/moscow-method/  
[Accessed 07 10 2021].

trajectory, 2021. *Website Navigation Design: Everything You Need to Know.* [Online]   
Available at: https://www.trajectorywebdesign.com/blog/website-navigation-design-guide/  
[Accessed 08 02 2022].

ucmerced, 2021. *What Is a Data Dictionary?.* [Online]   
Available at: https://library.ucmerced.edu/data-dictionaries  
[Accessed 07 10 2021].

Warner, J., 2018. *How have UK car sales performed in early 2018?.* [Online]   
Available at: https://www.ig.com/au/trading-opportunities/how-have-uk-car-sales-performed-in-early-2018--180410  
[Accessed 06 10 2021].