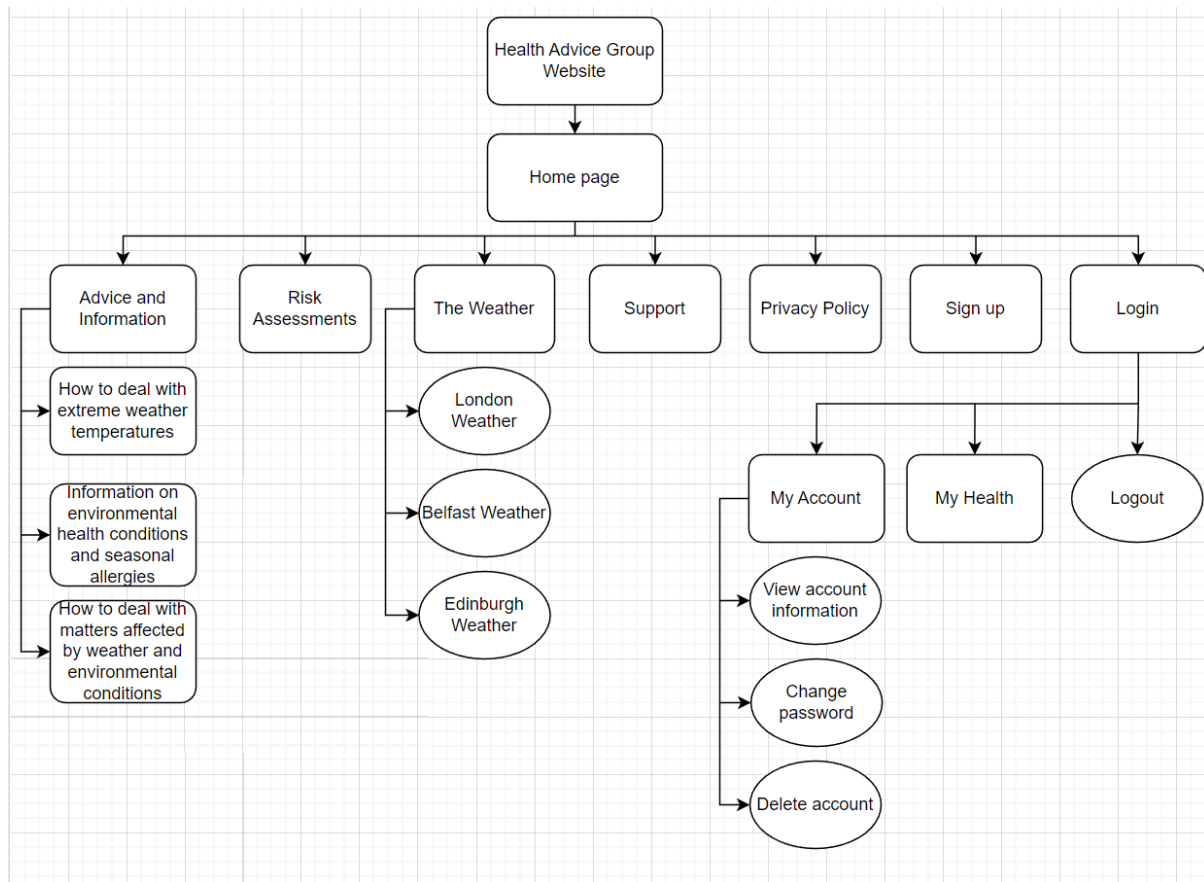


# Health Advice Group - Designs

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## Visual Hierarchy Diagram



There will be 7 main pages: the “Home” page, “Advice and Information” page, “Risk Assessments” page, “The Weather” page, “Support” page, “Sign up” page and “Login page”. These 7 pages will be the main focus and implemented first as they have higher priority. The weather page will allow users to select a city, for example London, and view its weather details and air quality. The advice and information page will contain a list of subpages that the user can select and be redirected to. I will attempt to build on these subpages and the privacy policy page if there is enough time after implementing the main pages. Logged in users will have access to 2 additional pages, these being “My Health” and “My Account”. The my health page will contain personalised health advice and a personal health tracking tool and the my account page will allow the user to make changes to their account. Some of these account functions are shown as ovals in the diagram.

## Typography and Colour Scheme

To make the website more accessible, I will be using Sans-Serif fonts for the text within the website as they are easier for users such as those with Dyslexia to read. The font style that will be used for headings will be Trebuchet MS and body text will use the font style Tahoma. Arial and sans-serif will be fallback fonts in case the main font style is not found on the user’s device; these backup fonts will be displayed instead. Additionally, to differentiate headings from normal text, headings will have a larger font size and/or be bolded. This makes it easier for the user to distinguish when a new section begins.



The colour scheme that will be used within the website is shown above with their hex codes. It was decided with the idea to accommodate those with colour blindness. Blue and Brown were chosen as those with colour vision deficiency, such as red-green colour blindness, will not find it difficult to differentiate them from each other. The colour blue also invokes feelings of trust for the charity as it will provide reliable advice and information and brown for the environment as the charity will give environmental information and weather forecasting. The primary colour for the website will be blue, with brown being the secondary colour. Black and white will also be used within the website to add contrast as additional colours.

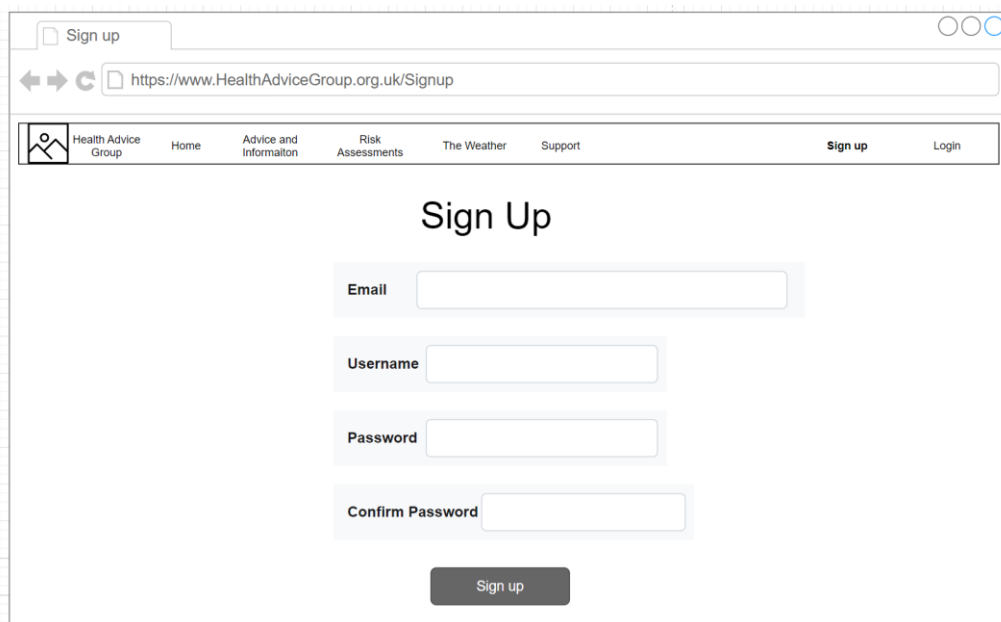
## Visual Interface Designs

### Home Page



This is the home page for users who open the website for the first time. The navigation bar is at the top of the page, with the charity's logo on the top left and the sign up and login pages to the top right. This layout was chosen as it is a common layout for websites, this means users will have a sense of familiarity and navigate with ease. The navigation bar will stay consistent for each page but users who are logged in will notice a change in their navigation bar – the sign up and login options will change to my account and my health. The page that the user is currently on will be emphasised on the navigation bar by making it bold and the title on the page will be large. The home page's content will be simple and contain some information on what the charity does with an image to the right to portray the charity.

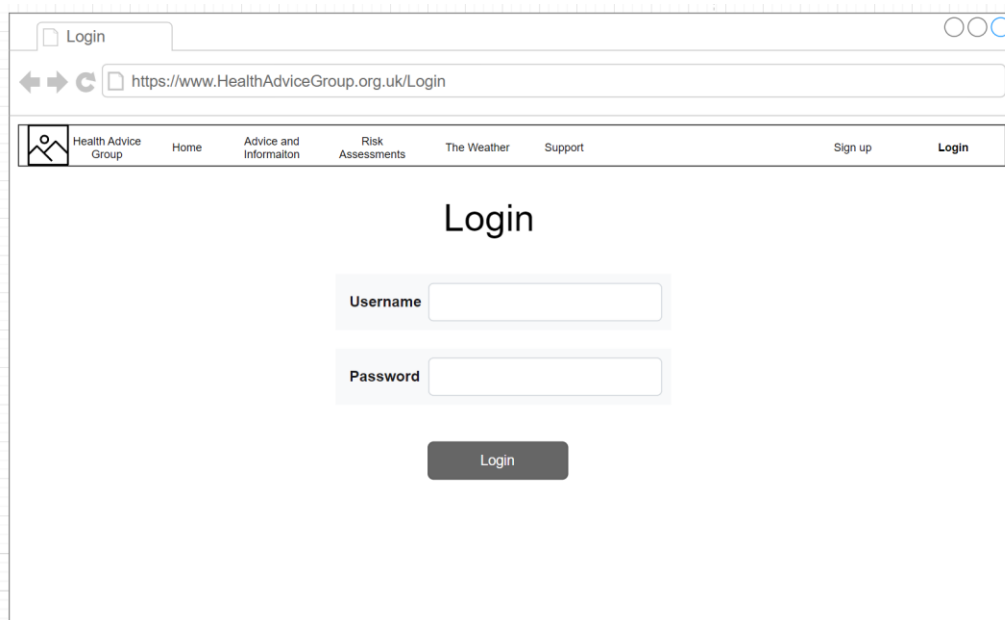
## Sign up Page



The screenshot shows a web browser window with the title 'Sign up' and the URL 'https://www.HealthAdviceGroup.org.uk/Signup'. The navigation bar includes links for Home, Advice and Information, Risk Assessments, The Weather, Support, Sign up, and Login. The main content area is titled 'Sign Up' and contains four input fields: Email, Username, Password, and Confirm Password. A 'Sign up' button is located at the bottom of the form.

This is the sign up page for users who want to create an account. They will be able to input their email, the username they wish to use and a strong password. There is a confirm password on the page to make sure that the user wants to use the inputted password. Once all information is filled in, the user can press the sign up button and the password will be checked and validated before the account is created.

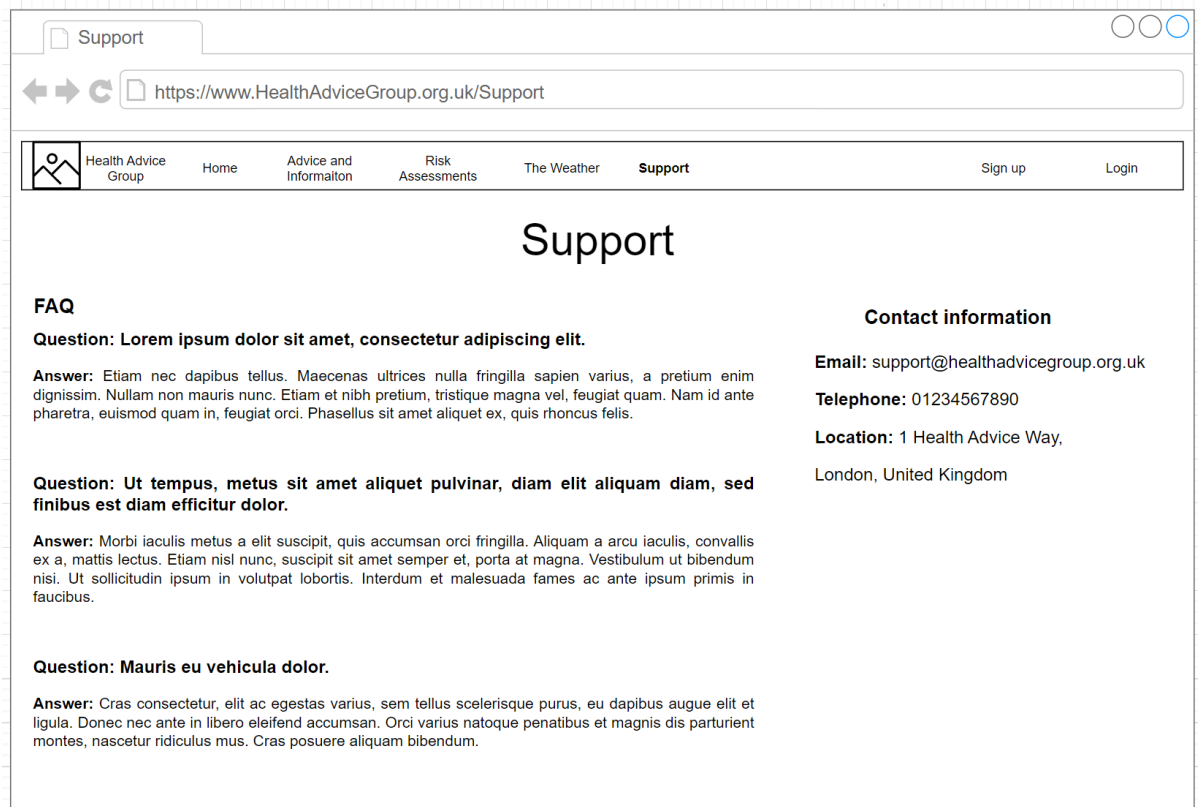
## Login Page



The screenshot shows a web browser window with the title 'Login' and the URL 'https://www.HealthAdviceGroup.org.uk/Login'. The navigation bar includes links for Home, Advice and Information, Risk Assessments, The Weather, Support, Sign up, and Login. The main content area is titled 'Login' and contains two input fields: Username and Password. A 'Login' button is located at the bottom of the form.

This is the login page for users that have already created an account and want to access it. The user will be able to input their username and password that they used to sign up to the website with and then press the login button. If the username and password matches in the database then the user will have successfully logged in, if not then an error will be displayed, informing the user that the username or password was incorrect.

## Support Page



This is the support page for users who have a question about the website or charity. There will be a Frequently Asked Questions (FAQ) section to the left that contains answers for common queries that the user may have. If the user has a different question that is not mentioned in the FAQ, or have noticed something wrong with the website, then they may use the contact information provided on the right side of the page.

## Weather Page

The screenshot shows a web browser window with the title 'The Weather' and the URL 'https://www.HealthAdviceGroup.org.uk/Weather'. The page has a navigation bar with links: Home, Advice and Information, Risk Assessments, **The Weather**, and Support. There are also links for Sign up and Login. The main content area is titled 'The Weather' and is divided into three sections:

- Select City:** A dropdown menu showing 'London' as the selected city. Below it, a list of cities is shown: CITIES, London, Belfast, and Edinburgh.
- Weather Forecast:** Displays the following information:
  - Weather Condition: Rainy
  - Chance of rain: 50%
  - Temperature: 8°C
  - Wind Speed: 9 mph
  - Humidity: 90%
- Air Quality:** Displays the following information:
  - Enjoy your usual outdoor activities
  - Air Pollution Banding: Low
  - Value: 2

The date and time 'Friday 24 March 2023 10:00' are displayed at the bottom right of the page.

This is the weather page for users who want to view the weather or air quality for a city. There will be a selection tool to the left where a user can select a city. Once the city is selected then the data on the weather and air quality to the right will be updated with the relevant information. This data informs the user of the current weather so that they can make decisions like whether they need an umbrella or a coat. The weather condition was added to explain simply what the weather is like for those that want to quickly know the weather without needing to look at the data. The air quality will show the air pollution value and a short health message to inform the user of whether going outdoors may affect their health. The date and time will also be displayed to the bottom right so that the user knows when the data was retrieved.

## Data Requirements

### Beneficiary

tblBeneficiary				
Attribute Name	Data Type	Length	Key	Comments
BeneficiaryID	int		Primary	IDENTITY(1,1)
CityID	int		Foreign	tblCity
Username	nvarchar	20		Required
Password	nvarchar	20		Required
Email	nvarchar	100		Required
FirstName	nvarchar	20		Mask = >L<????????????
LastName	nvarchar	20		Mask = >L<????????????

### City

tblCity				
Attribute Name	Data Type	Length	Key	Comments
CityID	int		Primary	IDENTITY(1,1)
CityName	nvarchar	30		Required

### Weather

tblWeather				
Attribute Name	Data Type	Length	Key	Comments
WeatherID	int		Primary	IDENTITY(1,1)
CityID	int		Foreign	tblCity Required
WeatherType	nvarchar	50		Required
Temperature	int			Required
PrecipitationChance	int			Required
WindSpeed	int			Required
Humidity	int			Required
wDateTime	datetime			Required

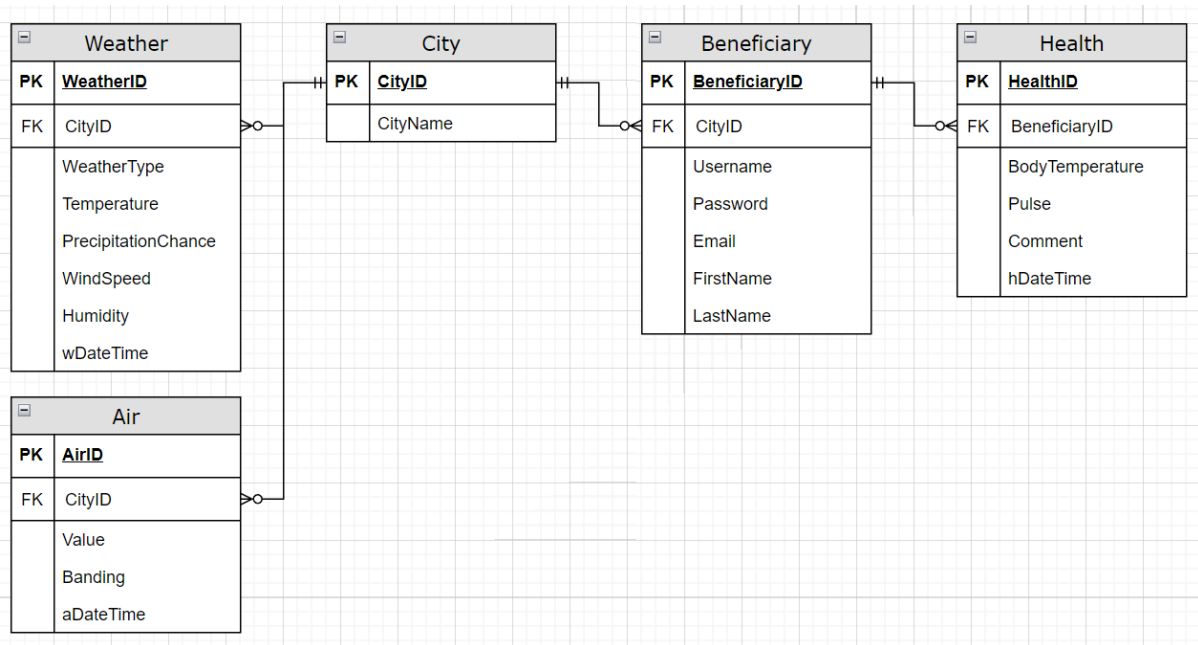
### Air

tblAir				
Attribute Name	Data Type	Length	Key	Comments
AirID	int		Primary	IDENTITY(1,1)
CityID	int		Foreign	tblCity Required
Value	int			Required
Banding	nvarchar	15		Required
aDateTime	datetime			Required

## Health

tblHealth				
Attribute Name	Data Type	Length	Key	Comments
HealthID	int		Primary	IDENTITY(1,1)
BeneficiaryID	int		Foreign	tblBeneficiary Required
BodyTemperature	float			Required
Pulse	int			Required
Comment	nvarchar	255		
hDateTime	datetime			Required

## Entity Relationship Diagram

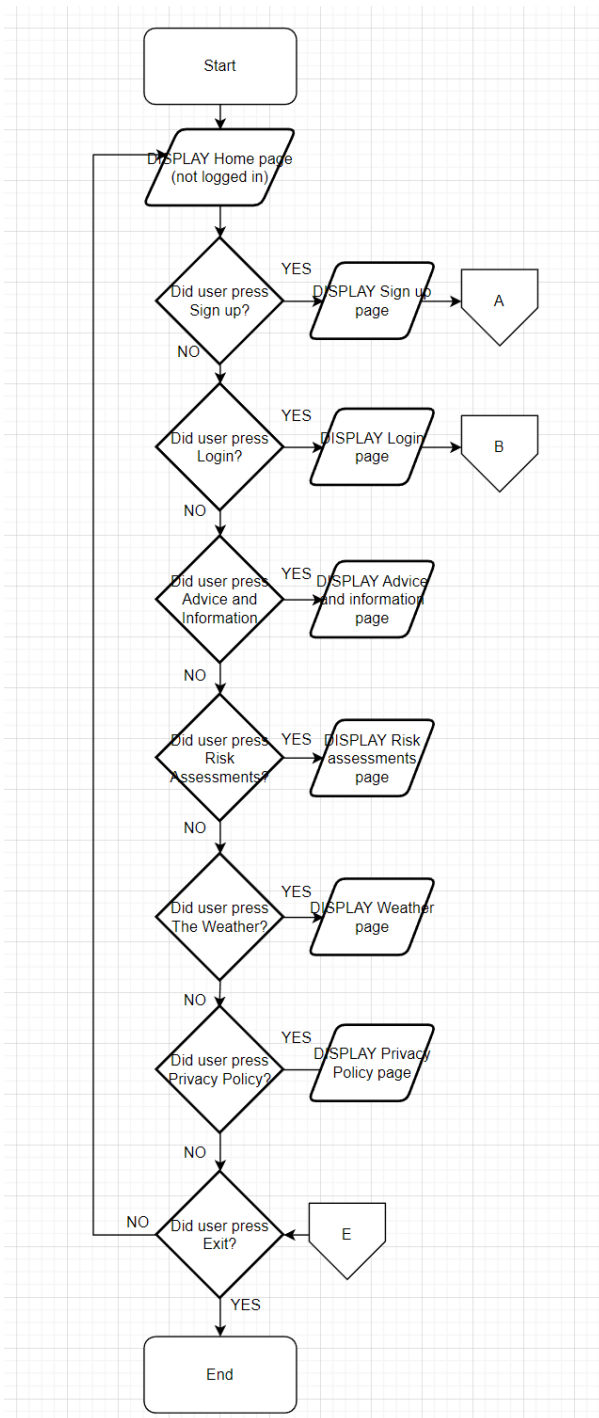


This describes the structure and relationships of the main entities within the relational database. These entities being: “Beneficiary”, “City”, “Weather”, “Air”, and “Health”. The attributes between these entities are mainly linked through one-to-many relationships. This is because, for example, one city will have multiple records of weather as the data will change in real time.



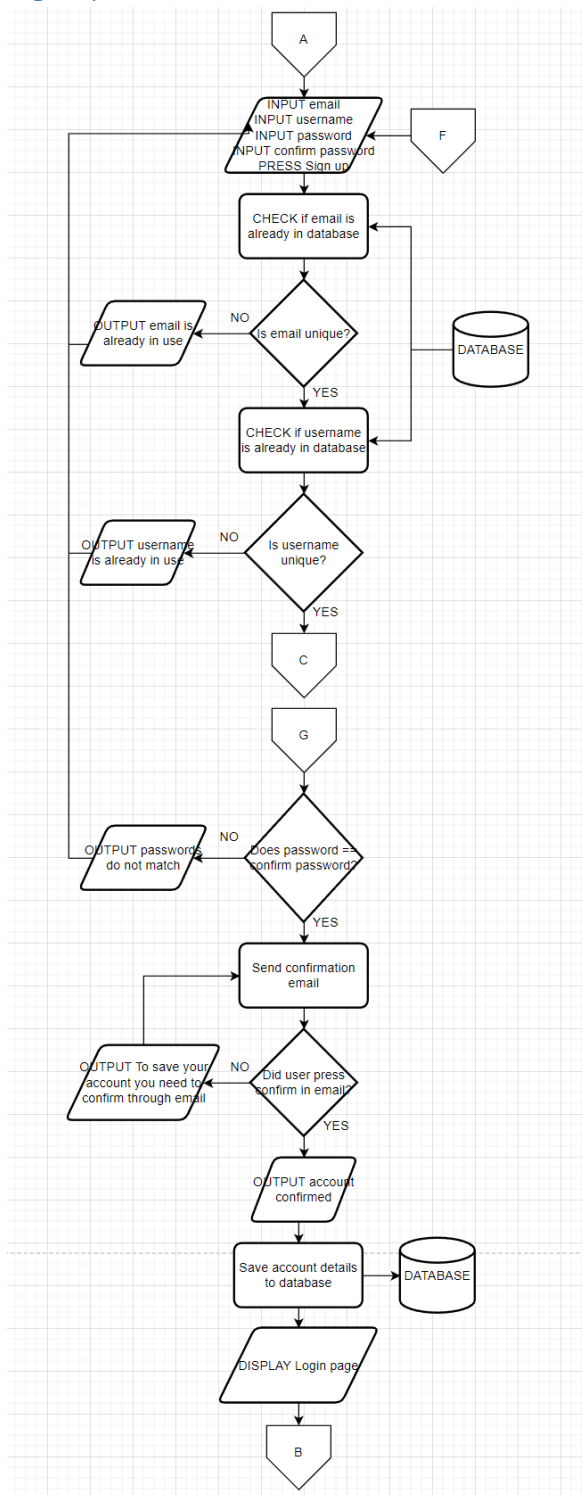
## Algorithm Designs

### Navigation Flowchart



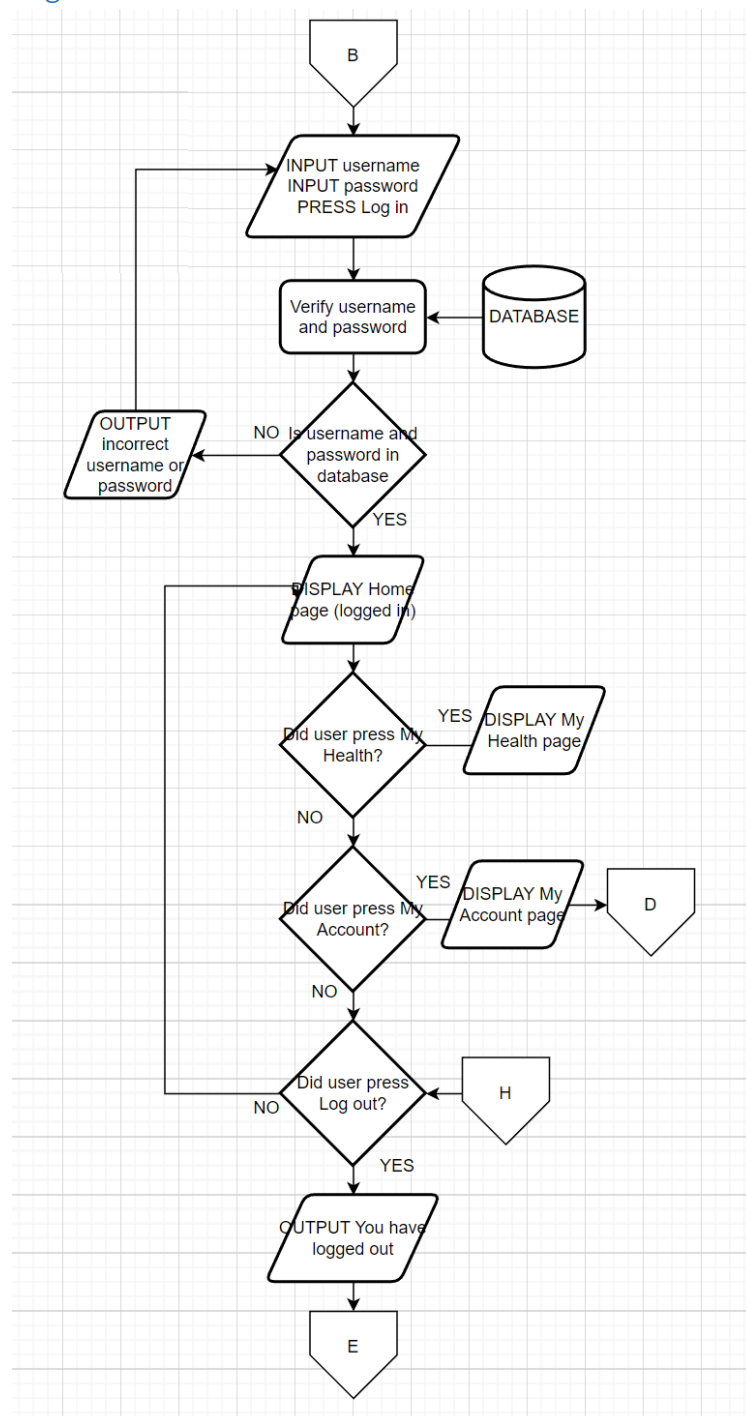
This flowchart explains how the navigation bar will redirect the user. When the user presses sign up, the user will be redirected to the sign up page. The sign up functionality is continued and explained further in the sign up flowchart. Similarly, the login flowchart explains the login functionality further. For the other pages, when the user presses a page, the corresponding page will be displayed. An exit function is also included at the end of this flowchart which will end the application when pressed, closing the website.

## Sign up Flowchart



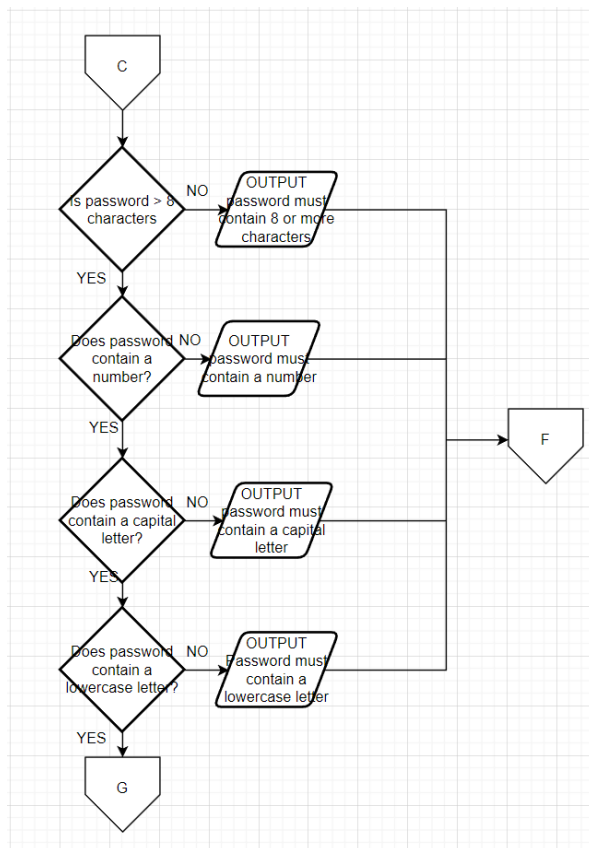
This flowchart explains the sign up process in detail. The user will input their email, a username, a password and the same password in confirm password. The email is checked to make sure that it is unique and then the password is validated which is explained in the password validation flowchart further. Once the password has been confirmed to be valid and the password and confirm password are the same, then a confirmation email will be sent to the email the user provided in order to make sure the email is working. The account details in the database will be saved and the user will then be redirected to the login page when the account has been confirmed so that the user can log in.

## Login Flowchart



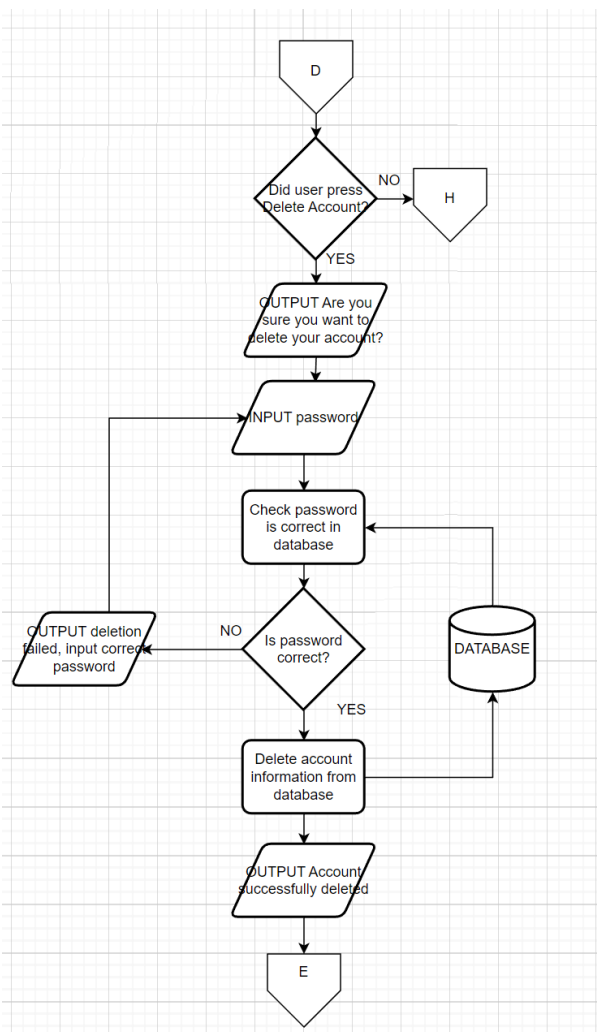
This flowchart explains the login process when a user wants to input their account details. Once the user has inputted their username and password and has pressed login then the username and password is verified and checked within the database to see if it matches. If it is a match then the user will have successfully logged in and will be able to access the My Health page and My Account page, otherwise an error is displayed and the user will have to input their username and password again. The user will also be able to log out by pressing the log out button. Once pressed, if the logout was successful, then it will output a message informing the user that they have logged out.

## Password validation Flowchart



This flowchart explains the password validation process when the user is signing up. The password will be required to have at least 8 characters through length check and contain at least 1 number, capital letter and lowercase letter with presence check. If it does not meet the requirements, then the corresponding error message will be displayed to warn the user that the password is not strong enough. These checks make sure that the password is difficult to crack and prevents hackers from accessing their personal information.

## Account deletion Flowchart



This flowchart explains the account deletion process for when a logged in user wants to remove their account and information from the website. Once the user is logged in and is on the My Account page, they will be able to delete their account by pressing the delete account button. The website will then display a warning to the user that the account will be deleted and that a password is needed to successfully delete their account. This will prevent accidental deletions from happening. If the password is correct, then the account will be deleted from the website's database and a message is outputted to the user that the account has been successfully deleted. Otherwise, a message is displayed that the password entered was incorrect and that the user would have to input the password again.

## Test Strategy

Black box testing will be carried out throughout development to test the frontend of the website such as the inputs and outputs. The website will also be put through white box testing to test the backend of the website like the code and database. Testing will be carried out after each section is completed and at the end of development the website will go through a full system test to make sure the website is functional and that there are no changes needed. Additionally, the actual results of the tests will be compared to the expected results to see whether it is working as intended or if any changes need to be made to the website.

Date of test	Component to be tested	Type of test to be carried out	Prerequisites and dependencies
06/03/2023	<b>Home page:</b> website should successfully direct user to home page on first launch	Black box testing Unit testing	Computer Access to website Home page
07/03/2023	<b>Database:</b> should be password-protected	White box testing Security testing	Computer Database
08/03/2023	<b>Navigation bar:</b> all pages should display on navigation bar and successfully redirect the user to the corresponding page	Black box testing Integration testing	Computer Access to website All pages
10/03/2023	<b>Support page:</b> the FAQ and contact information should be displayed	Black box testing Unit testing	Computer Access to website Support page
14/03/2023	<b>Risk assessments page:</b> The types of risks and management strategies should be displayed	Black box testing Unit testing	Computer Access to website Risk assessment page
15/03/2023	<b>Advice and information page:</b> hyperlinks should successfully redirect user to the relevant sub page	Black box testing Integration testing	Computer Access to website Advice and information page
17/03/2023	<b>Weather page:</b> Select a city and view weather data successfully	Black box testing Functional testing	Computer Access to website Weather page
21/03/2023	<b>Signup page:</b> password validation when signing up gives warning when requirements are not met	Black box testing Functional testing	Computer Access to website Signup page
21/03/2023	<b>Signup page:</b> when a new account is created it should be stored on the database	Black box testing Integration testing	Computer Access to website Signup page
24/03/2023	<b>Login page:</b> logging in and logging out of account successfully	Black box testing Functional testing	Computer Access to website Login page
24/03/2023	<b>Login page:</b> inputting incorrect password should display error message	Black box testing Functional testing	Computer Access to website Login page
28/03/2023	<b>My Account page:</b> changing the account password when logged in	Black box testing Functional testing	Computer Access to website My Account page

28/03/2023	<b>My Account page:</b> deleting the account when logged in	Black box testing Functional testing	Computer Access to website My Account page
31/03/2023	<b>Website:</b> website should be viewable on all devices	Black box testing Compatibility testing	Computer / Laptop / Phone / Tablet Access to website
03/04/2023	<b>Website:</b> website should be functional and not have any errors	Black box testing System testing	Computer Access to website
10/04/2023	<b>Website:</b> users should be able to comfortably view and use the website	Black box testing Usability testing	Computer / Laptop / Phone / Tablet Access to website Users