

# [05-630] Programming Usable Interfaces

Final Project Documentation - 2022 Fall

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## Part 1 - Design Initiatives

The HomePet project was envisioned as an assistant web platform serving as the agency to facilitate connection between users and their animal friends. At times when users are occupied by their daily errands, they have the ease of access to apprehend daily lives of their pets remotely through our online platform - easing the mental process of monitoring the pet's behavioral condition while fostering users' understanding of their pet's dynamic behaviors.

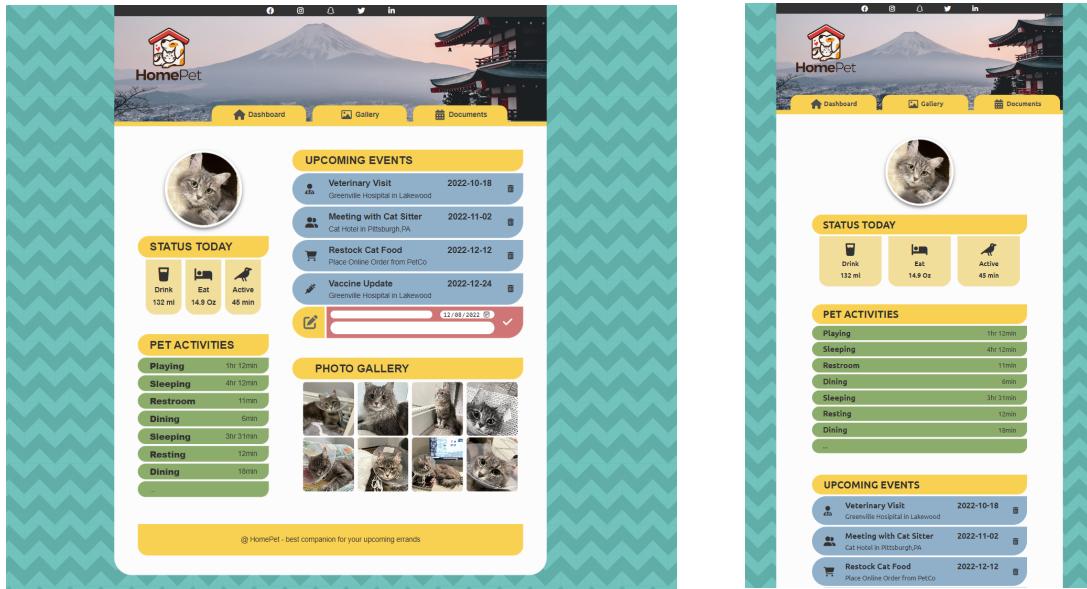
Primarily, this web platform is prepared for future incorporation of interactivity with I.O.T - based (Internet of Things) wearable devices, which will serve as the sensor for gathering data for the pets. The data will eventually be translated into daily events such as 'sleeping, playing, dining, and etc' to inform the owners of the pet's status in realtime, which also provides readily available analysis data to help users understand their pets' habits in the long run.

Development effort of this project primarily focuses on supplemental features of the web tools, which includes:

- (1) **An event notebook** feature to help owners document events on agenda related to their pets, such as future veterinary visits, food supply restock, and grooming services.
- (2) **A document repository** for uploading and downloading pet-related PDF documents, such as medical history, and insurance license cards.
- (3) **A dynamic photo gallery** for owners to gather and showcase favorite photos of their pets - keeping the most memorable moments readily accessible to the owners.

As a whole, the website provides users with a channel to proactively engage with their pets through the combination of digital and physical computing approaches - shaping the future of technologies as a channel to enhance humanity embedded in the built environment of ours.

## Part 2 - Interactive Features



HomePet - Adaptive Website Design (Homepage)



Navigation Tab - Magnified on activation

With the navigation bar being located at the top of the page, they are the primary features that help users to navigate around the three primary branches of elements in this project - 'Homepage', 'Gallery', and 'Documents'. Each one of them is animated to be gently magnified when activated to provide the user with a sensible response in the interaction process.

The screenshot shows a list of four scheduled events:

- Veterinary Visit (Greenville Hospital in Lakewood) on 2022-10-18
- Meeting with Cat Sitter (Cat Hotel in Pittsburgh, PA) on 2022-11-02
- Restock Cat Food (Place Online Order from PetCo) on 2022-12-12
- Vaccine Update (Greenville Hospital in Lakewood) on 2022-12-24

A yellow button on the left labeled 'Events' is highlighted. Below it is a red input field containing 'New Event Title' and '12/08/2022', with a date picker icon. A text area below says 'This is description of the new event.' and has a checkmark icon.

**Interactive Feature - Events notebook**



**Events Icon - Sample Variants**

A blue confirmation message box displays:

- New Event Title
- Date: 2022-12-08
- Description: This is description of the new event.
- A trash can icon for deletion.

**Interactive Feature - New Event Added**

Within the homepage, an interactive feature named 'upcoming events' provides users with an event notebook to document scheduled events for their pets. From the left hand side of the 'create event' tab, users can click through to pick an icon that best represents their event from the button highlighted in yellow, and then input parameters to add details to the event. Eventually, users can click on the check mark on the right side to submit new events to the website. Once created, the added event will be prompted on the homescreen to help users manage their upcoming agendas.

Along with the events agenda, a **dynamic photo gallery** adjacent to it provides users with an interactive gallery to document and share photos of their pets in an effective way. As an accessibility consideration, users can **hover/hold over the image to magnify it for enhanced clarity**.

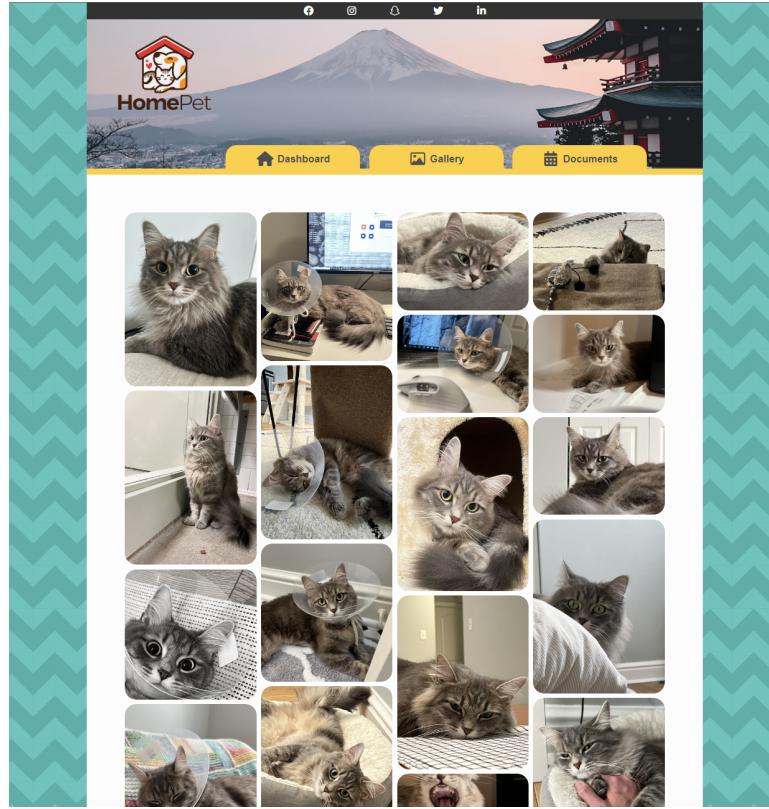


Interactive Gallery - Home Page View



Interactive Gallery - Home Page View (magnified)

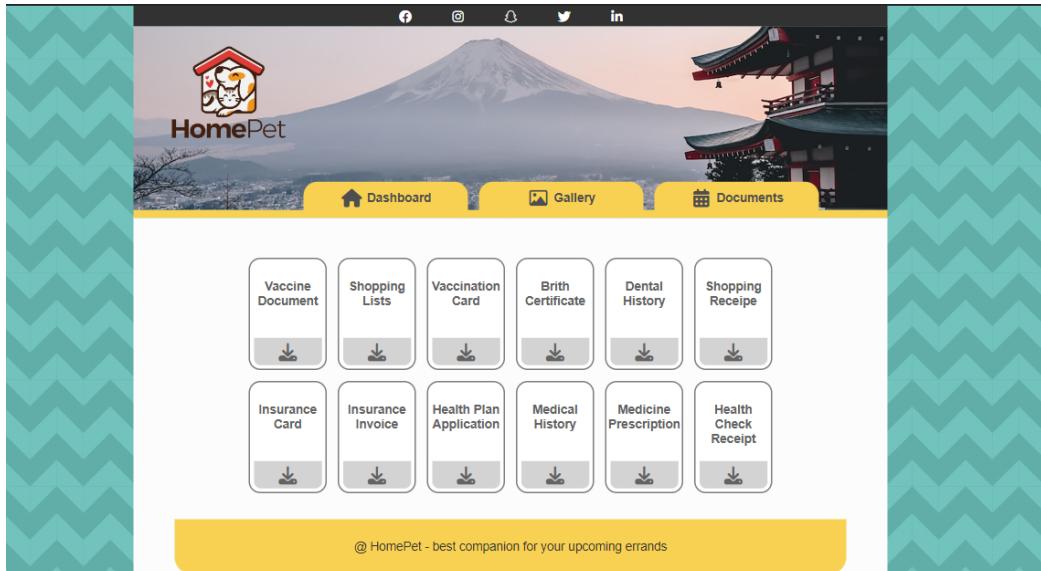
In the meantime, users can also dive into the **full-page gallery view** by clicking on the title (or navigation bar), where all the photos in galleries will be displayed in a responsive manner. As a result, users will be able to access their photos equally on both desktop and mobile screens. In this project, **desktop screens are designed for screens with higher than 1200px in horizontal aspect**, while mobile screens will automatically apply when it's **below 1200px**.



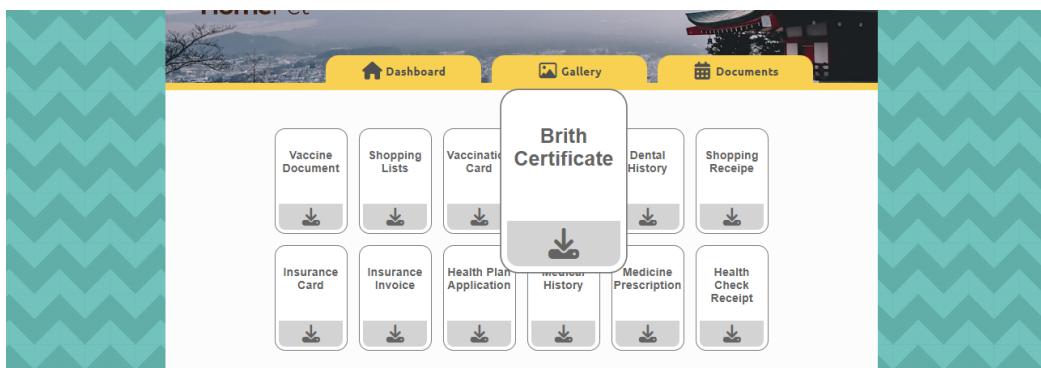
Fullscreen Gallery - Desktop View



Fullscreen Gallery - Mobile View



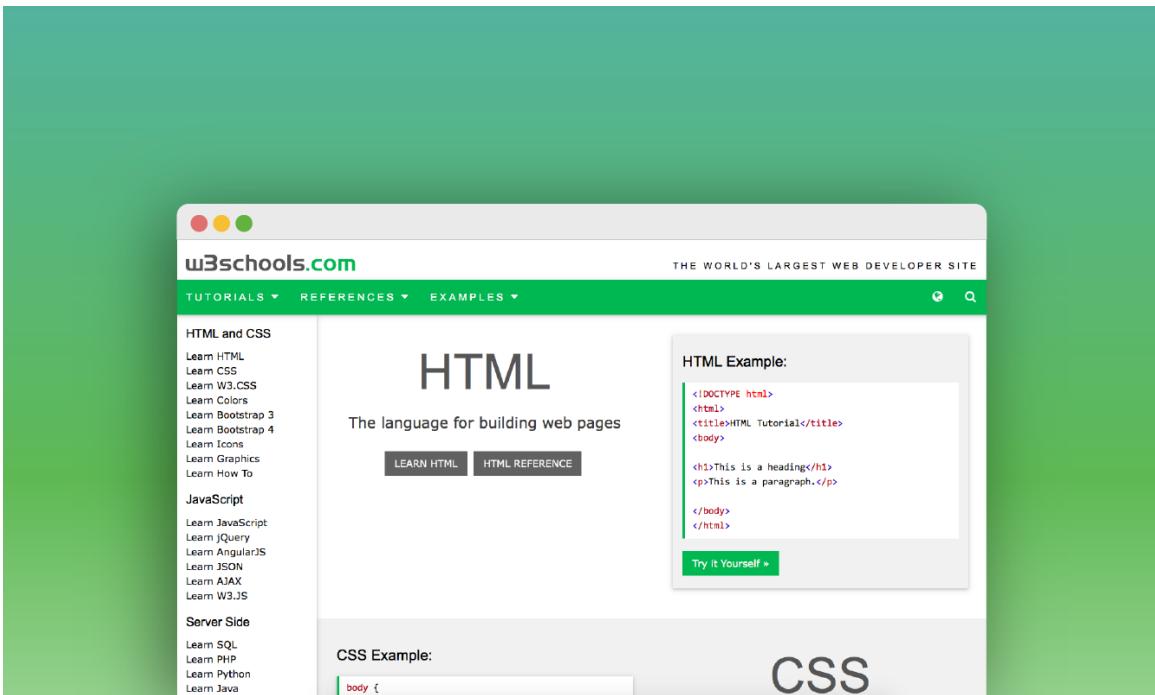
Downloadable Documents - Desktop View



Downloadable Documents - Desktop View (on magnified)

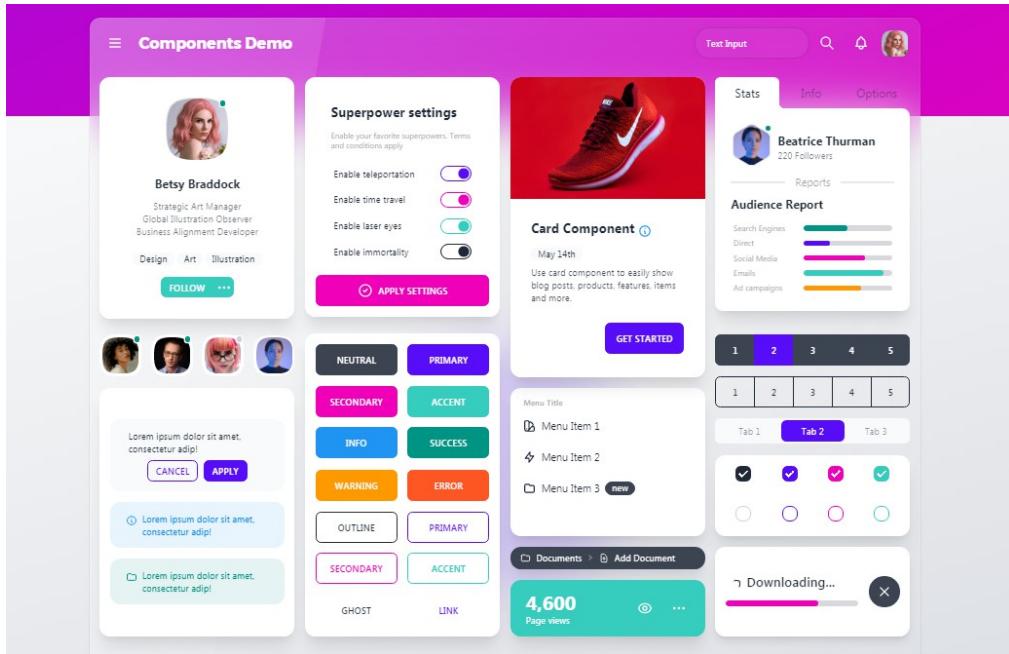
In addition, the project also incorporates a **PDF document archive** feature to provide users with a readily accessible place to **store and download pet-related PDF documents**. With the enlarged download button, users of different cases can conveniently access the download with ease in mind - bringing the documents they need to engage with their events related to the pets.

## Part 3 - External Resources



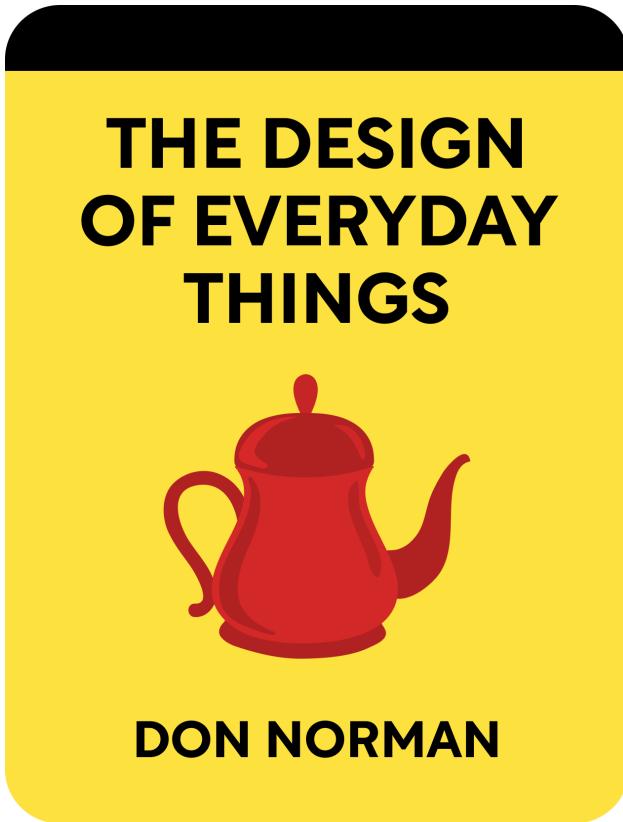
### [ Website - 'W3schools.com' ]

- **W3schools.com** is a key resource I used for this project
- The resource provides **generic yet well-articulated tutorials** for an enormous variety of functionalities, such as HTML syntax, javascript functions, and CSS animation guides. Having the capabilities to **test run and implement** a sample of code from their website helped me learn additional features in programming beyond class materials.
- **Implementation of animations** in my project were primarily based on tutorials provided by w3schools.com; whereas a variety of formatting and styling guides were also implemented into the project
- Application involves animation, formatting, and styling.



## [ UI Library - 'Daisy UI' ]

- **Daisy UI** is an external UI library I reference for production.
- The library provides **readily available examples** and **resources** for varieties of user interfaces.
- Based on the complexity of **formatting and graphic style** in this project, Daisy UI was not directly imported in production, but referenced as a guide for examples of conventional UI design of certain features. It helps with the project in terms of **diversified means of interactivities**.
- Application involves hierarchy of information, and UI layout.



## [ Publication - 'The Design of Everyday Things' ]

- The book '**The Design of Everyday Things**' is a elemental guide I used for this project
- The publication provides thorough insights in design of graphics, accessibility, and interactivity features; which helps **generate guiding principles in creativity** for this project. A good design does not necessarily mean complexity, but well-articulated details in response to the most genuine demands by designated users.
- Carrying out readings in this book during the production of this project efficiently helps me gain insights into the **intrinsic relationship between creativity and engineering considerations** within the production of designs.
- Application primarily involves **design thinking, accessibility evaluation, and considerations in interactivity**.

## Part 4 - Design Iteration Process

Within this project, the design scheme has been iterated multiple times before programming efforts were implemented. In a nutshell, the process primarily involves: **conceptual design**, **prototyping design** in further detail, generating **feedback based on use cases**, and evaluation of projects in terms of **selective methods in programming**. A few of the features initially proposed were once appealing, but were later found realistically challenging to implement from a programming standpoint. The design process was **challenged to think of alternative methods to address design needs** without being constrained in engineering effort.

## Part 5 - Challenges in Production

During the production of this project, a handful of processes were particularly challenging, which primarily involves the **programming of responsiveness of interfaces** and maintaining **graphic compelling-ness without sacrificing accessibility**. In addition, **management of timeframe in production** is also a critical factor to be considered as it constantly dictates the outcome of design products.

# Appendix - Accessibility Evaluation

The screenshot shows the WAVE web accessibility evaluation tool interface. The address bar indicates the URL is <https://dongtaobi.github.io/PUI-Assignment>. The Styles switch is turned ON. The Summary section shows 0 Errors, 0 Contrast Errors, 3 Alerts, 11 Features, 9 Structural Elements, and 20 ARIA. A message at the bottom says: "Congratulations! No errors were detected! Manual testing is still necessary to ensure compliance and optimal accessibility." The Details tab is selected, displaying the following findings:

- 3 Alerts**
  - 1 X Orphaned form label
  - 1 X Missing first level heading
  - 1 X Redundant link
- 11 Features**
  - 9 X Alternative text
  - 1 X Linked image with alternative text
  - 1 X Language
- 9 Structural Elements**
  - 7 X Heading level 2
  - 1 X Navigation
  - 1 X Footer
- 20 ARIA**
  - 3 X ARIA label
  - 17 X ARIA hidden

If an icon does not appear within the page, turn off Styles above to view it.

## PetHome | HomePage - Accessibility Validation

The screenshot shows the WAVE web accessibility evaluation tool interface. The address bar indicates the URL is <https://dongtaobi.github.io/PUI-Assignment>. The Styles switch is turned ON. The Summary section shows 0 Errors, 0 Contrast Errors, 2 Alerts, 34 Features, 2 Structural Elements, and 8 ARIA. A message at the bottom says: "Congratulations! No errors were detected! Manual testing is still necessary to ensure compliance and optimal accessibility." The Details tab is selected, displaying the following findings:

- 2 Alerts**
  - 1 X No heading structure
  - 1 X Redundant link
- 34 Features**
  - 32 X Alternative text
  - 1 X Linked image with alternative text
  - 1 X Language
- 4 Features**
  - 2 X Alternative text
  - 1 X Linked image with alternative text
  - 1 X Language
- 2 Structural Elements**
  - 1 X Navigation
  - 1 X Footer
- 8 ARIA**
  - 8 X ARIA hidden

If an icon does not appear within the page, turn off Styles above to view it.

## PetHome | Gallery Page - Accessibility Validation

The screenshot displays two side-by-side reports from the WAVE web accessibility evaluation tool.

**Summary Report:**

- Address: <https://dongtaobi.github.io/PUI-Assessment/>
- Styles: ON
- Summary tab selected.
- Counts:
  - Errors: 0
  - Contrast Errors: 0
  - Alerts: 18
  - Features: 2
  - Structural Elements: 2
  - ARIA: 20
- Congratulations! No errors were detected! Manual testing is still necessary to ensure compliance and optimal accessibility.

**Details Report:**

- Details tab selected.
- 18 Alerts:**
  - 1 X No heading structure
  - 5 X Redundant link
  - 12 X Link to PDF document
- 2 Features:**
  - 1 X Linked image with alternative text
  - 1 X Language
- 2 Structural Elements:**
  - 1 X Navigation
  - 1 X Footer
- 20 ARIA:**
  - 20 X ARIA hidden

If an icon does not appear within the page, turn off Styles above to view it.

## PetHome | Documents Page - Accessibility Validation