

My website development project started with the basics: building a strong database structure and adding necessary data to it. After setting up the database, I started creating the first HTML webpages, giving more consideration to functionality than appearance at first. As I developed, I learned how to use tools like the Bootstrap package to improve the design and leverage the power of CSS styling to turn these simple pages into ones that are visually appealing. As the frontend took shape, I moved on to the backend and worked on establishing a connection between the webpages and the database. This required creating a web application that could manage routes to and from the database, enabling the 'get' and 'post' methods for data submission and retrieval. In order to, build a unified and completely working website, I finally combined the frontend user interface and web app capabilities with the backend scripts. The website was successfully developed through an iterative process of creating, improving, and integrating components, blending form and function to provide an engaging user experience.

During the first part of my project, I concentrated on building the database, which is the main component. Since my database is the backbone of my website, building a strong database was essential to its functionality. By utilising MySQL as the database management system and XAMPP for local development, I made sure that database activities were seamlessly integrated into the project. Knowing how important database normalisation is for maximising effectiveness and reducing redundancy, I took great care when designing the system. The main table, appropriately called "card," was created to include the majority of the characteristics found on a Pokémon Trading Card, guaranteeing an extensive collection of card information. Considering the possibility of growth in the future, I designed the table to be scalable. For example, even if the original data might not have included things like weaknesses, I made sure the database was flexible enough to accommodate the addition of additional qualities by just adding new rows when needed, (Carew, 2017) tells us that, 'a scalable database means your database can grow at the same pace as your business'. This method demonstrated how the database could grow and adapt to new requirements with ease. Foreign key tables were also linked to the primary 'card' table in order to create linkages and preserve data integrity. For example, relationships with different expansion sets were made easier by the 'expansion\_id' column, which allowed card data to be dynamically categorised

and organised. In addition to providing a solid framework for the project, this strategic design demonstrated the database's flexibility, guaranteeing its effectiveness even in the event that larger datasets are added down the road. Navigating SQL's complexity was a significant difficulty, though. A comprehensive understanding of SQL syntax and capabilities as well as painstaking attention to detail were necessary when crafting the ideal queries to carry out specific functions. However, once I had the queries working well within the webapp the project had a great structure that was easily understood.

Since, 'A well-designed user interface is crucial to ensuring a good user experience.' (Stevens, 2022), I began the creation of the landing page, the subsequent development of HTML pages marked a significant expansion of the website's functionality and user interface. Building upon the foundational layout established by the landing page, I adopted a consistent design approach across all pages to ensure coherence and ease of navigation. This involved maintaining uniformity in the placement of elements such as headers, navigation bars, and content sections, fostering a sense of familiarity for users as they explored different parts of the website.

One key aspect of the design was the implementation of a responsive navbar with dropdown menus, enhancing accessibility and intuitiveness. For instance, within the 'how to play' page, the navbar acted as a comprehensive guide, presenting each step of playing the Pokémon TCG as clickable options. This intuitive navigation system empowered users to seamlessly navigate between different sections of the page, facilitating a smoother learning experience.

Furthermore, to enhance user engagement and convenience, I integrated a scroll-up button into each webpage. Positioned discreetly in the bottom right corner, this feature enabled users to effortlessly return to the top of the page with a single click, eliminating the need for tedious scrolling. By prioritizing user convenience and accessibility in the design process, I aimed to create a website that not only provided valuable content but also delivered a seamless and enjoyable browsing experience for visitors of all levels of expertise.

Although the html is powerful, alone it can only do so much, so I turned to CSS, 'CSS offers developers flexibility and customization options that are not available with HTML alone.' (Pranav,

2024). In designing the website, I employed a comprehensive approach to styling and layout to ensure a visually appealing and user-friendly interface. Essential to this was the utilization of a large '.css' file named 'styles.css' which served as the backbone for applying consistent styling across all webpages. This file was meticulously crafted to target specific elements such as text, buttons, containers, backgrounds, navbars, footers, and various functional implementations, ensuring a cohesive aesthetic throughout the site.

To further enhance the visual appeal and responsiveness of the interface, I integrated Bootstrap as a CSS framework. This allowed for the implementation of pre-designed components and layouts, streamlining the styling process and ensuring a polished and professional appearance. Bootstrap's features were particularly prominent in styling the containers used to fetch card data from the database and display relevant information, providing a visually engaging and organized presentation of content.

Moreover, recognizing the importance of adaptability in today's digital landscape, I prioritized responsiveness in the website design. By implementing responsive design principles, the website seamlessly adjusted its layout and styling to accommodate changes in browser size or device type. Whether viewed on a desktop computer, tablet, or mobile device, the website dynamically resized and repositioned elements to optimize the user experience, ensuring accessibility and usability across various platforms. This commitment to responsive design further displayed my dedication to creating a website that not only looked visually appealing but also provided a seamless and engaging experience for users across different devices and screen sizes.

The 'Create Account' page of my website serves as a gateway for users to establish their presence and access exclusive features. Through this page, users can register for an account or log in with existing credentials, facilitating personalized interactions and access to restricted content. Upon submission, the details provided by users are securely stored in the database under the designated user table. Access to this information is restricted to administrators, ensuring confidentiality and privacy. To further enhance security measures, advanced features such as password hashing, and session timeout are implemented. Password hashing ensures that user passwords are encrypted, safeguarding them against unauthorized access. Additionally, login sessions are timed, automatically logging out users after a period of inactivity, mitigating the risk of unauthorized access in shared environments.

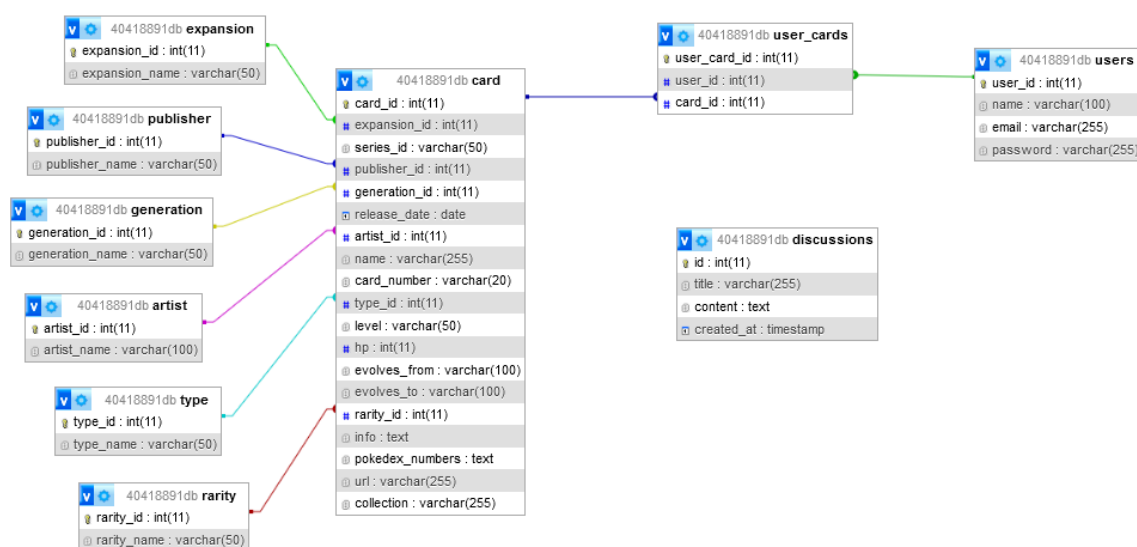
Moreover, the implementation of user accounts unlocks access to exclusive features and content, incentivizing user registration. Certain functionalities, such as accessing specific pages, managing card collections, and participating in discussion boards, are reserved exclusively for registered users. This not only encourages user engagement but also fosters a sense of community and ownership within the platform. By associating actions and contributions with user accounts, messages and interactions can be attributed to specific individuals, facilitating meaningful exchanges, and fostering a sense of accountability. Overall, the 'Create Account' page plays a pivotal role in enhancing user engagement, security, and personalization, laying the groundwork for a vibrant and interactive online community.

The Collections page of my website serves as a centralized hub for organizing and displaying card collections sourced from the database, while the Expansions page offers a similar functionality focused on expansion sets. This feature enables users to conveniently access and manage their collections or explore expansions, providing a seamless and intuitive browsing experience. Upon accessing the Collections or Expansions page, users are presented with a comprehensive list of collections or expansion sets sourced from the database, categorized and labelled according to their respective owners or expansion names. This clear labelling system ensures easy identification and navigation, allowing users to quickly locate and explore their own collections or desired expansions. By centralizing collections and expansions within a single page, users can efficiently manage and showcase their card portfolios or explore different sets, fostering a sense of ownership and exploration. Additionally, both pages may feature sorting and filtering functionalities, enabling users to customize their viewing experience based on criteria such as card type, rarity, or expansion set. Overall, the 'Collections' and 'Expansions' pages enhance user engagement and satisfaction by providing a user-friendly platform for organizing and accessing card collections or exploring expansion sets, thereby enriching the overall browsing experience for enthusiasts and collectors alike.

The 'All Cards' page on my website offers users a comprehensive catalogue of every card stored in the database, providing a comprehensive resource for enthusiasts and collectors. Each card entry is accompanied by detailed information sourced directly from the card table, ensuring a comprehensive overview of each card's attributes. To enhance usability and accessibility, a search function has been implemented, allowing users to quickly locate

specific cards by name. Upon entering a search query, the page dynamically filters the results, displaying only the relevant card and its corresponding data from the database. Additionally, to enrich the user experience, all card entries are presented with accompanying image URLs, allowing users to visually browse through the collection. This integration of visual elements not only enhances the aesthetic appeal of the page but also facilitates easier identification and exploration of cards. Overall, the ‘All Cards’ page serves as a valuable resource for users, providing a comprehensive inventory of cards along with intuitive search functionality and visual aids, thereby enhancing the overall browsing experience.

## Designer Tab of 40418891db.sql:



## Instructions for running website:

- Download XAAMP for use of Apache and MySQL, for mac MAMP would be best suited.
- The database I used must be imported into an SQL database, and its name must be “40418891db”, this can of course be changed, if the back end code is changed accordingly to match. It is also able to handle any dataset as long as it fits the correct headings.

- The database must run on the port of 3306, as is typical for an XAAMP SQL database. The host is to be set as “localhost”, the user as “root”, the password kept blank, and the database set with the same name. If the database is changed, the ‘.env’ will also need to be changed in order to connect properly.
- NPX ‘nodemon’ must be downloaded and then ran within a terminal of software such as VS Code. To start the sever you must enter ‘node index.js’ this uses the node feature and runs the ‘index.js’ Javascript file to put up the server which handles the back end routes between the web application and database.
- There is no need to install the different requirements because they will be included with the file. This report will include a list of the dependencies that were used.
- The website itself is hosted on ‘http://localhost:3000/’, with the landing page on, ‘http://localhost:3000/cards/landing.html’ which I would recommend navigating to in order to begin browsing the website.
- From there the navbar will take you to any page within the website you would like to visit, and the dropdowns will take you to that specific section.

## Dependencies:

- [axios@1.6.8](#)
- [body-parser@1.20.2](#)
- bootstrap@5.3.0-alpha1
- [cookie-parser@1.4.6](#)
- [cors@2.8.5](#)
- debug@2.6.9
- dotenv@16.4.5
- ejs@3.1.10
- express-session@1.18.0
- express@4.19.2
- mysql@2.18.1
- mysql2@3.9.7
- nodemon@3.1.0

## External Sources:

- <https://getbootstrap.com/docs/5.3/getting-started/introduction/>
- <https://www.npmjs.com/package/body-parser>
- <https://www.npmjs.com/package/express-session>
- [https://developer.mozilla.org/en-US/docs/Web/API/Document/DOMContentLoaded\\_event](https://developer.mozilla.org/en-US/docs/Web/API/Document/DOMContentLoaded_event)
- <https://csc7062-2023-24.gitbook.io/lab10>
- <https://csc7062-2023-24.gitbook.io/lab08>
- <https://csc7062-2023-24.gitbook.io/lab-01>
- <https://csc7062-2023-24.gitbook.io/lab-02>

## References

- Carew, F. (2017). *The importance of a scalable database*. Retrieved from DSP:  
<https://content.dsp.co.uk/importance-scalable-database>
- Pranav, A. (2024). *Unleashing the Importance of CSS in Web Development*. Retrieved from Antino: <https://www.antino.com/blog/importance-css-web-development>
- Stevens, E. (2022). *What is UI design? A complete introductory guide*. Retrieved from UX Design Institute : <https://www.uxdesigninstitute.com/blog/what-is-ui-design/>

## GitHub repo URL:

<https://github.com/ecrawford26/TradecardWebsite>