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Professor Durant

Database Design (CS3200)

10 December 2021

Final Project – Report

1. **README**

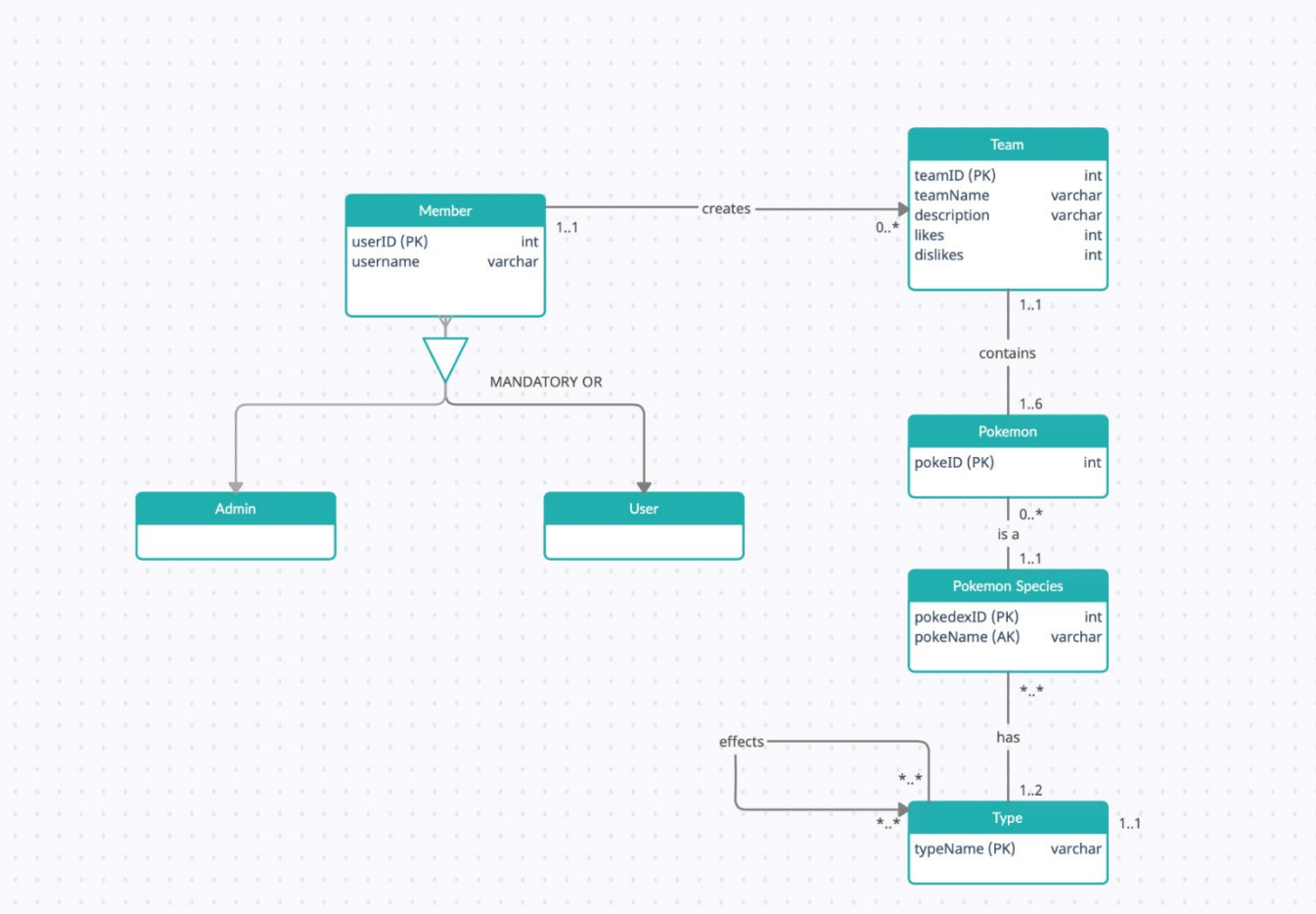
The README for this project can me found in the root directory at ./README.md.

2. **Technical Specifications**

The purpose of our web application is for users to brainstorm creative Pokemon teams and see how they fair against the type advantages and disadvantages of Pokemon. Originally, we were also intending on implementing some sort of team versus team comparison (as that would more accurately represent the current state of competitive Pokemon battles), but we did not have enough time to complete that part of the project (though, we do intend on continuing this project over winter break). As of submission, this project does offer a way for people to create and save teams that they can readily analyze at any moment.

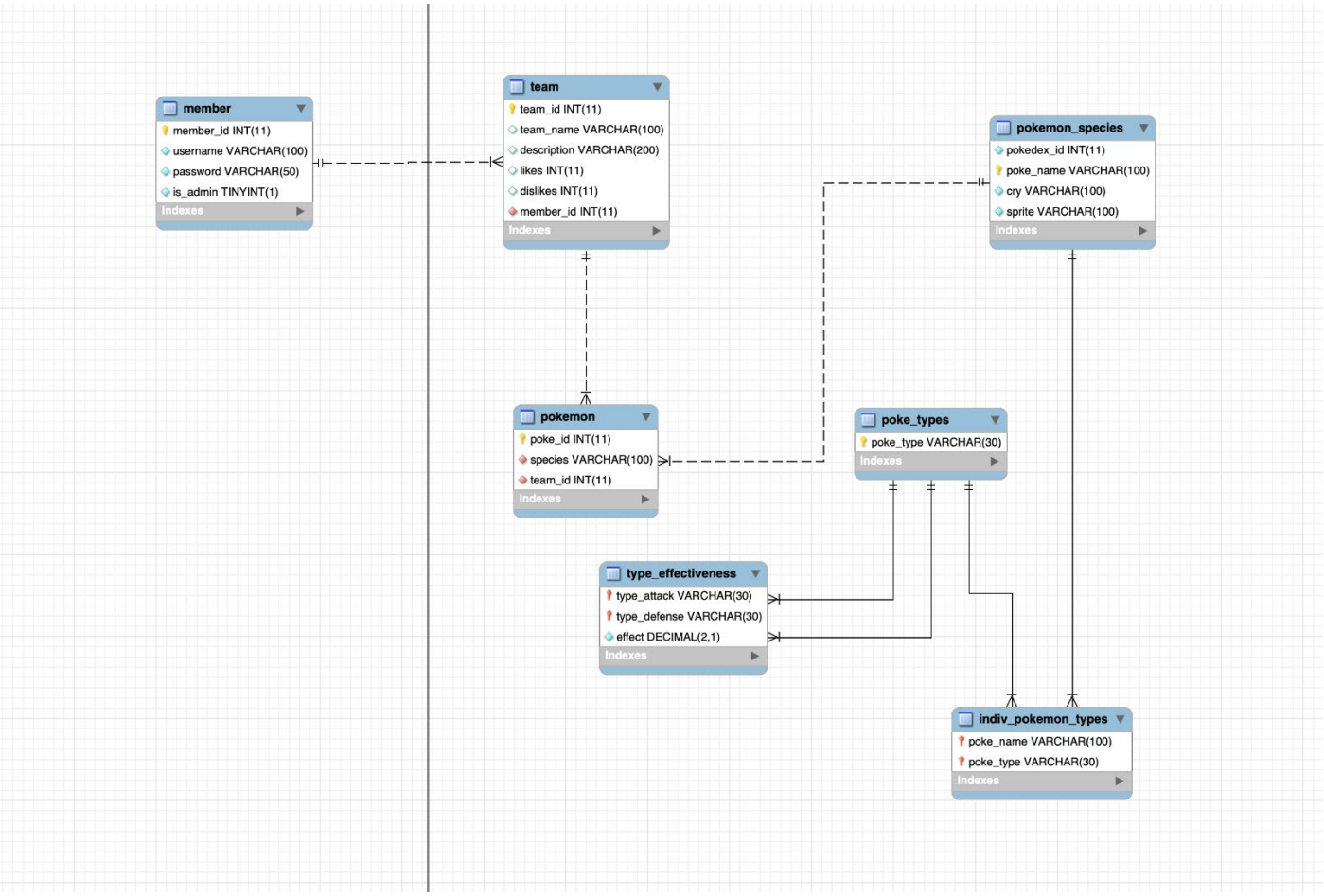
From a more technical perspective, this project should be runnable on anything that can run NodeJS. Regarding browsers, anything modern should work fine (Chrome, Firefox, Safari, Edge, and not Internet Explorer).

3. **UML Diagram**

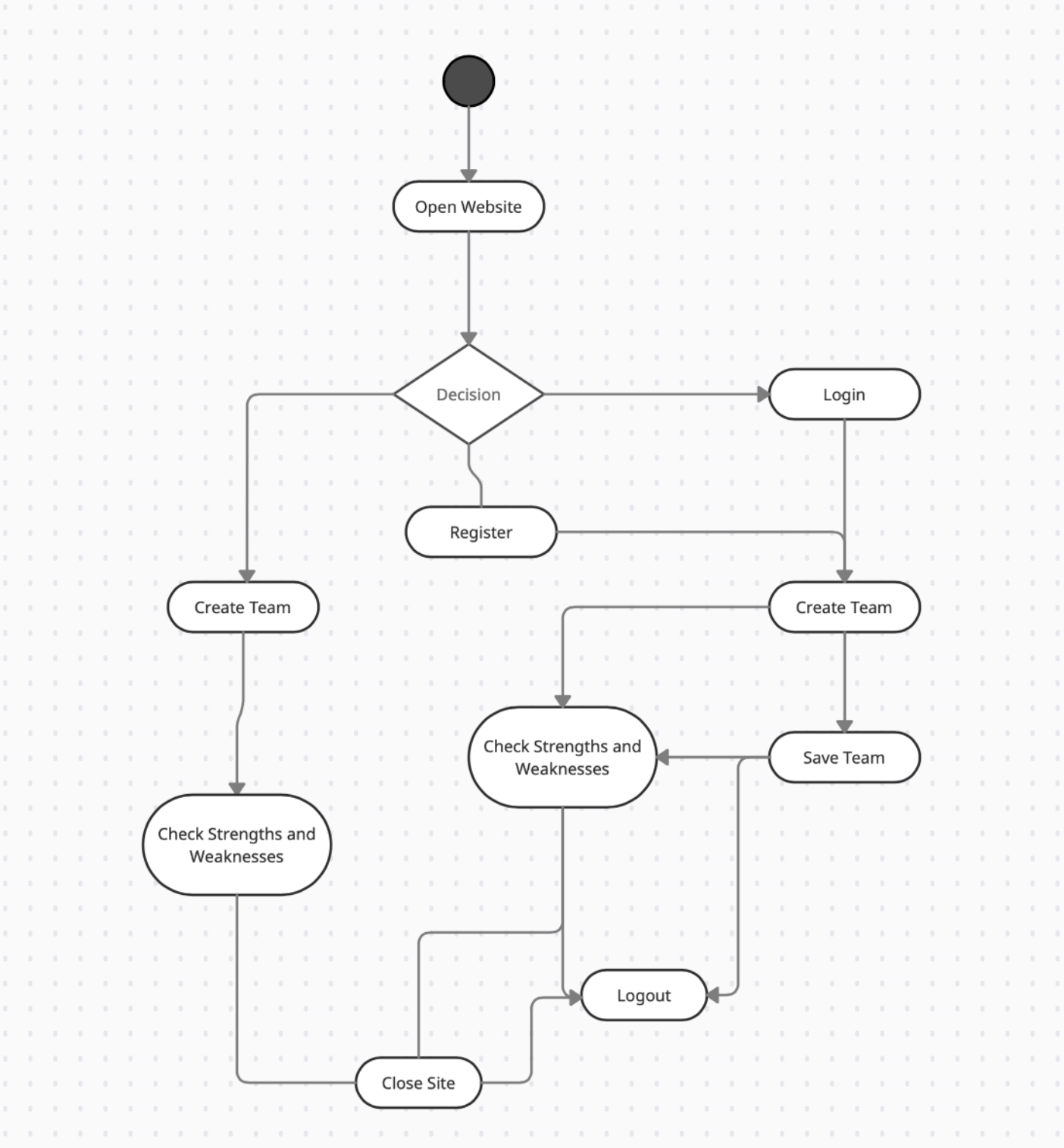


4. **Logical Design**

The submitted database schema was created to be in third normalization form and in a way that data could easily be accessed with simple WHERE and JOIN commands. This drastically changed how we designed our procedures, making them much easier to understand and create.



5. **Final User Flow**



6. **Lessons Learned**

For the couple of weeks that we worked on this project, we would definitely say it was quite the endeavor. That is mainly because, prior to this project, my partner and I had zero web development experience! We thought to ourselves that this would be a perfect project to showcase our ability to learn new technologies. In addition, having a full-fledged website would be an amazing resume booster (as not just a project, but the languages and keywords we can put on our resume as well).

Suffice it to say, learning an entire stack and developing a website in virtually two weeks was stressful and tiring. The project started off with us understanding how NodeJS and ReactJS communicated to each other. We compared it to a Model-View-Controller system where ReactJS would visualize all its components to the user and NodeJS would control the flow of data between MySQL (Model) and ReactJS. Understanding it in these abstractions drastically helped us better grasp how the entire framework and data flow worked.

For example, one common issue was trying to pass data between components, whether they be child to child, parent to child, or child to parent. In these types of relationships, my partner and I learned about props which were ways to "pass" data between components by calling them in their own respective component. This sort of relationship immediately reminded us of inheritance relationships which we well understood from our struggles through Object Oriented Design (CS3000).

Ultimately, after countless nights of barely sleeping, we can confidently say that we understand how React components and Express HTTP methods work to a decent extent. Obviously, one project won't make us masters at a framework. However, the exposure and need to troubleshoot / learn things the "hard way" really tested our prior knowledge of computer science principles applied to these new concepts.

In regards to time management, I don't think we would say we were procrastinating or wasteful in our time (there were many days where we worked on the project for 5+ hours at a time). I think the main issue was that we proposed for too much at the beginning which ultimately led to us overworking each other and being disappointed that our end result wasn't as fully-fledged as we hoped it would be. Nonetheless, we still have a product that we are confident in and that we know still has real-world impact.

Most of the code we wrote is fully functional. One section that does not "fully" work is the profile section. Everything is functional beside for the fact that the user's profile name is not displayed on the profile page due to unforeseen last-minute errors.

7. **Future Work**

For our database we plan to keep it running to keep the website running so that people can create teams and save them for their convivence. We will most likely plan to further extend the database as we add functionality that may require additional data storage, such as maybe Pokémon moves and special Pokémon forms that we simply ignored for the scope of the project.

For additional functionality we would like to add the ability for people to do team versus team comparisons where every Pokémon would have moves. Also, we might add some sort of forum like feature for people to discuss their various teams. We could also add a search bar to search for users and see their public profiles. We also could implement features for administrators to the site as that value in the table is simply not used. Along with many other options we could do a wide variety of things to add functionality in the future.