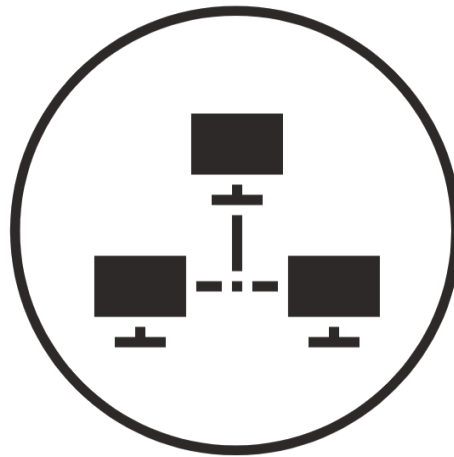


# Website application for a business organization

Local Area Nerds



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# Introduction

## Research Question or Problem that will be Addressed

### Aims

The main aim of this project is to be able to provide a clean and easy to use website to provide accurate reports on the population with a clean interface so users can interpret what they're reading.

Another aim is being able to provide quick updates on the reports, for example we want users to easily switch between reports without any delays in retrieving or displaying the data.

The design of the webpage should be sleek and tidy. Users should be able to access the data, and have a clear view, for what they are searching for.

The website should offer a wide amount of filters, and ways to sort the data while being smooth in work for the end-user.

### Objectives

One of the objectives was to keep the website clean and easy to use. In order to achieve this as a team we tested a few of our designs and kept the one we all agreed was the best to use.

We wanted our website to be as user-friendly, as possible, so that contents available are clear and understandable for the end-user. Users are able to use various filters, to see the results of the search in a specific order.

Another objective was to make the website not overly complicated so that it would do its job, but also, the code for it wouldn't be that much hard to understand. In order to achieve that, we only used the most necessary methods, listed in the specification.

## Legal, Social, Ethical and Professional Considerations

Everything regarding legal, social, ethical, and professional considerations has been listed in the code of conduct, which clearly explains which actions are appropriate and which are not. The whole work process and rules regarding it, have been stated in this document.

## Report overview

In this report we will be discussing the overview of the project and what technologies we've used, how we approached the project and finally how we worked as a team. Upcoming in the report we will be discussing our technology that we used as a team and how it impacted our project. Following that the report will discuss how we designed the project. Finally the last thing this report will discuss is how we worked together as a team and what conclusions we came to.

## Technology Review

### Technology Review

The coursework specification defines a few strict requirements to the tech stack of the project. These requirements include:

- Using a MySQL database
- Using Express for backend code
- Using Pug for frontend code

Aside from these requirements, we were free to pick other tools and packages that could help us complete the project.

These are the additional tools and libraries we've used on top of the requirements:

- Prisma
- Bulma

- Jest
- Nodemon

## **Prisma**

The problem that Prisma solves is communication with the database via code.

The traditional approach in this project would be to use a package such as mysql2, connect to the database and send pre-written or generated SQL queries to execute. With Prisma, developers are not writing any queries manually. Moreover, JavaScript types and classes are generated automatically, based on the schema of the database.

## **Bulma**

Bulma is an open-source CSS library that allows us to care less about designing individual components of the website, while still ensuring a comfortable, intuitive experience.

The stylesheet comes with built-in styles for inputs, tables, buttons and much more.

# Design

## Design

The overall design we had was to have everything to be its own page and the layout be super simplistic with that but there was a huge issue with this type of page due to this being heavy on resources but also would take so much time to develop each page and process that it would be simpler to just create a whole new layout that would do everything this would do but in a more simplistic way than creating whole pages for just simple filters.

This was the 2nd design it had a decent homepage layout and gave an opportunity for a lot of ideas but the overall design we found was very resource heavy and time constraining since it would require multiple pages for each option this idea was a step closer to an optimal design but we thought it would be better to be using fewer pages and focus on just giving the user the main information than making a site that just goes for looks over capability.

This was the design we felt was the most fitting to what we wanted it did change a lot overall but that was fine since the design wasn't finalized it was more of a guide to help create a layout of

what we wanted the page to achieve this was an important step to ensure the page was as easy to use and quick to navigate as possible and because of that little changes was made as the page was created.

## Alternative Approaches

Due to the tech stack requirements, there were some concrete design choices that we could not change. Using Express and Pug implies a server-side rendered approach to the website.

An alternative approach would be to use a different javascript library for rendering the pages, specifically a client-side focused one. Libraries that allow this and make the developer experience much better are Svelte/SvelteKit, React and Vue. Although they require a bit more learning to get started, the developer experience is worth it. Things like fetching data client-side, transforming that data or working with DOM elements through JavaScript are greatly improved in comparison to vanilla JavaScript.

A big choice that was completely up to us was picking the way of working with the MySQL database which is required for the project. We picked Prisma, because it ensures that our queries are secure and performant, and even more importantly - written automatically based on our database. Thanks to Prisma we had more time to focus on the functionality of the website, rather than debugging and writing queries, which can get very complex with nested relational operations. Using Prisma meant added complexity to other scenarios, such as unit testing. While it took us a fair amount of time to figure out unit testing with Prisma, it didn't require much additional work in comparison to writing unit tests for a standard NodeJS application.

## Implementation or Results

### Evaluation

When looking at the overall work ethics of the team the dedication to the backend and code that Max and Adam gave was one of the biggest parts of the team they pushed a lot of the team forward. Tom did amazing when given a task it was always completed and Danny was an ideal

person with setting up Trello. Overall the team worked well and was strong in many important areas. We had a person for each type of task and this pushed us forward and areas that were short fallen, such as code, Adam and Max were always willing to spend the time to teach people how and what they need to do. There were of course drawbacks like medical issues, or other unplanned events, that were disrupting our group work, but overall the team made sure to get what was needed to be done.

## Conclusion

### Reflection

This project gave us a little better perspective on how the group project in modern IT companies can work. We acknowledged that working as a team is very important, and we need to listen and think about the needs of other team members, in order to make the whole project work correctly and smoothly. This module taught us that communication in the team is crucial, to ensure that the work is being done properly. Due to the lack of organization, some of our aims couldn't be satisfied on time, which would cause a serious problem with the project. Finally, we managed to handle this situation as a team, and finished the project, with a satisfying result. If we'd have a chance to start the project again from the scratch, with the knowledge we have right now, we would obviously give more importance to the overall organization of the group work, we would set more strict rules for meetings, so we would be sure, that everyone is keeping up with the project, and knows what objectives must be met for the next sprint. We would also aim for a better task distribution between the members of the group. The most important thing, that took us down, was the lack of communication, so that's the field that needs improvements in our future projects.

### Future Work

In the future our team needs to be more established in terms of management of the project. During the time of the project we had had issues with managing our tasks and issues. Our main issue is that we haven't had someone with a dedicated role to manage our tasks, because of this as a team we have been unorganized with keeping track of tasks. This has led to some



errors such as almost missing a deadline, and work not being completed to its full potential. If our team had an assigned role of keeping track of tasks these errors wouldn't occur so frequently if at all.

The next suggestion would have been to create a rule stating tasks are to be completed by the sprint deadline. A few times as a team we failed to complete tasks by a set deadline and this caused concerns at times. Work was being completed last minute and because of this we couldn't make adjustments at the last minute as a result of this quality of work wasn't as good as it could have been.

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## Declaration

I hereby certify that this report constitutes my own work, that where the language of others is used, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of others.

I declare that this report describes the original work that has not been previously presented for the award of any other degree of any other institution.

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22/04/2022

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