

Preliminary Report

Web Application for Guidance in Education and Career

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Dated: January 21, 2020

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1 Summary

Develop a web application for guidance in education and career, aimed at students entering higher education. The website will meet the newest standard for Universal Design and the main part of the intended web application will have informative text about educational opportunities and act as a video library where various students and employees share their experiences within their fields of study and careers. The application will be developed with Django (Python framework) for back-end and with Gatsby for front-end.

2 Introduction

This Bachelor project is made possible by the company JobDirection in Oslo. JobDirection is a newly established company, and their aim is to have a web application with real-time updated information on education and career possibilities in Norway for people to access. Our group were given this project by the end of November (2019), and our task is to develop a web application with focus on both the back-end and the front-end of the system.

Internal supervisor: Roza Abolghasemi, PhD candidate in artificial intelligence

Employer/ contact person: Daniel Alexander Sørensen, CEO of JobDirection

Technical Advisor: Andreas Jacobsen, MSc Universal Design

2.1 Members of the group

The group consists of four students. Following is a brief description of each of the members. Arqam Sajid is studying computer engineering at OsloMet. He is happy to work with databases and the back-end structure of bigger systems. Gauseeban Iyathurai is also studying computer engineering at OsloMet, and he is a front-end developer and loves to experiment with JavaScript. Amund Kringen Samuelsen is studying Applied Computer Sciences, and likes designing interfaces. Lars Vidar Amundsen Lien is also studying Applied Computer Sciences, and he is a back-end developer who likes to test systems.

There are four different type of developers in this group. We did not know each other much before the creation of the group in November 2019, but we believe our compatibility is good as we have had meetings a few times and have talked in great detail about what we know, what we want, what we expect from each other and so on.

2.2 Brief description of the project

The project is to develop a web-based application for present and upcoming students in Norway which will contain relevant and up-to-date information on fields of study, requirements of universities, careers and such.

3 Goals & conditions

The main goal with this project is to develop a web-based application which will contain information for current students and upcoming students about the options and possibilities they have when they will be going into higher education. This website will serve as a video and information library where current and former students, as well as potential employees, will share their experiences and first-hand information on the fields of study and careers they have chosen.

The web application will automatically update with relevant information for the various study and career paths from proper and official sources, such as grades requirements, school costs, salary statistics and the percentage of graduates going directly into employment.

Conditions

- Must uphold the newest standard for Universal Design.
- The development process must be well planned and documented for the entire development period
- The code must be simple to understand and well documented so that further development by a third party is possible
- The development phase is expected to be complete by mid-April
- This solution will be responsive, and function on different devices like mobile, tablets and pc
- We will use an agile approach

3.1 Technologies/Tools

Front end

- Gatsby
- JavaScript

Back end

- Django - Python framework
- Django RESTful framework

Tools

- Wordpress - With plugins:
 - Gatsby
 - ACF
- GitHub
- Trello
- VirtualBox

Both the chosen frontend and backend technologies are relatively new for us. Among the four of us, three have some experience with Python and none with Django, and two of us have some experience with React (Which Gatsby is based on).

4 Solutions & alternatives

4.1 Solution

The solution presented by our employer is to create a web application which will inform future students about the options and choices they have when looking for the right education. We have chosen to use Python for backend and Gatsby for frontend to solve the problem. We are aware of possible alternatives considering chosen technologies and will further explain this in the next section.

4.2 Alternatives

Considering that the technologies are relatively new for us, we have chosen some alternative technologies in case the chosen technologies didn't turn out all that great. Express and Node.js framework could be an alternative for backend. And Next.js, which is similar to Gatsby, for frontend. There are of course several other options here, but none of which we consider with equal value.

5 Consequence analysis

Both Django and Express are frameworks based on python and Node.js respectively, which we have little to none experience with. With the knowledge about different programming languages we have accumulated over the past years, we believe we should be able to produce acceptable results in both alternatives. The same goes for Gatsby and Next.

If this is not the case, we should be able to expose this problem early in the process by consulting our external advisors.

6 Project timetable and workflow

Description	Expected start	Expected finished/ (Date finished)	Details
Preliminary Project	07.01.20	17.01.20 (17.01.20)	-Thesis is further defined
Data collection	18.01.20	26.01.20	-Collecting information from employer -Find and evaluate existing external APIs (SSB, etc.)
Data analysis	18.01.20	26.01.20	-Analyse the data most relevant for our development
Requirements specification	18.01.20	26.01.20	-Define requirements, capacity and expected results for the end product
Initial design	26.01.20	01.02.20	-Define the appearance of the page using paper prototypes and images -Evaluate system architecture and find good setups for the development environment
Preparations for development	18.01.20	31.01.20	-Explore and figure out the chosen technologies (Set up project, virtual environment, learn) -Find out where to start -Plan development phase -Git Hub training
User stories	01.02.20	02.02.20	-«Hva skal være mulig å gjøre på nettsida?»
Back-end development	01.02.20	31.03.20	-TDD/BDD (Unit testing) -Integration testing
Front-end development	01.02.20	31.03.20	-Use chosen front end technologies to design the architecture of the web application. The app must hold up to the newest standard of universal design. The user must easily be able to find the desired information.
System- and acceptance testing	01.04.20	15.04.20	-System testing: -Acceptance testing: Showing the results to the employer
Tweak code	01.04.20	15.04.20	-Fix bugs and clean up code structure.
Finalizing documentation	16.04.20	30.04.20	-Code documentation -End user documentation
Development phase ended		15.04.20	-Last changes are done
Finalize Final report		24.05.20	-Write and edit the report to comply with the standard of documentation
Deliver Final report		25.05.20	-Upload to project website
Presentation of the project	25.05.20	08.06.20	-Present the product: What have we developed, how did we begin to address the problem at hand, and how did we work as a group