

Technology & Information System

Full Project Report

Group 1:

Abdulkader Sardini A21EC4005

Alfarabi Mohani A21EC0248

Awfan Vinandry A21EC4008

Sondos Moustafa A21EC0277

Shi Junhui A21EC4020

Contents

Part 1	3
Introduction	3
The Client, And The Problem Scenario	3
Selection of 4 th IR Technology	4
Our Solution	4
The AWS Architecture	6
Conclusion.....	8
Part 2	9
Business Flow Diagram:.....	9
Low-Fidelity:.....	10
Student Reflections:	10
Abdulkader Sardini	10
Alfarabi Mohani	12
Awfan Vinandry	13
Sondos Moustafa	14
Shi Junhui.....	16

Part 1:

Introduction

This is a report that will demonstrate and explain our effort in-detail as the development team to solve a client's problem with a creative, revolutionary solution. Mainly, the client faced an issue related to files in general that contain important data (documents, spreadsheets, and text files), and we provided them with a service that manages their issue in a great manner. We have used Artificial Intelligence as a 4th Industrial Revolution technology that is the core component of our service, accompanied with an efficient cloud architecture that guarantees optimal performance. Ahead, you will find all the details related to our client's problem scenario, the proposed solution, the technology used, and the cloud architecture.

We have called our project: **Ai.File**

The Client, And The Problem Scenario

Our client is a rising tailorship and clothing company called ElegantPanda. It possesses multiple shops across the country that sell branded and tailored clothing products that are made from local or international brands and materials. After a while, ElegantPanda has started to face a problem with all the compiled documents that contain receipts, customer requests, tailorship and measurement data, and the different tailorship guidelines for all the brand companies that keep varying from time to time. The process of fetching these

sets of information manually was starting to become hideous and troublesome, and the company did not have enough budget to allocate for training its employees or hiring highly skilled ones with large paychecks to deal with such complex situations.

Instead, ElegantPanda wanted a solution that is cost efficient, easy to use by untrained personnel, and helps adapt to any sudden or continuous changes. Therefore, we offered to propose this company a solution that exactly matches its needs and expectations.

Selection of 4th IR Technology

At starters, we wanted to choose a suitable 4th IR technology that offers flexibility, adaptability, and is more user-friendly. The primary thought that directly came to our minds is Artificial Intelligence. The reason behind this is that we needed something that can be as flexible as the company's needs, while staying time and cost efficient and less complicated to use. Additionally, AI can adjust to the different variable types and changes that the client is susceptible to go through due to the nature of their environment and business.

Our Solution

After putting enough thinking process and brainstorming, we have decided to make a **website** that offers **2 core services** to our client, and potentially future clients:

1. A smart way of management, manipulation, edition, preparation, look-up, and exchange of information within a collection of documents that the company possesses.

2. Powerful AI-based search engine that enables finding the required information intelligently.

The client will simply need to upload their document collection, then perform all the beneficial procedures the website offers.

They will have less trouble editing and preparing their files in accordance with the constantly changing variables of their services. Thanks to AI, the client will be able to insert specific terms in the search bar using their natural language to intelligently look-up specific files and data throughout thousand other files from their collection. Afterwards, they can choose to apply certain changes concerning management and categorization to the files them in bulk, such as bulk renaming to conveniently rename large groups of files in a few steps, and bulk metadata editing for revision of access permissions to their files. The client can also choose to edit, replace, or exchange specific sets of information inside their editable documents (like text documents or spreadsheets), or even make new documents based on old ones using the existing data in them.

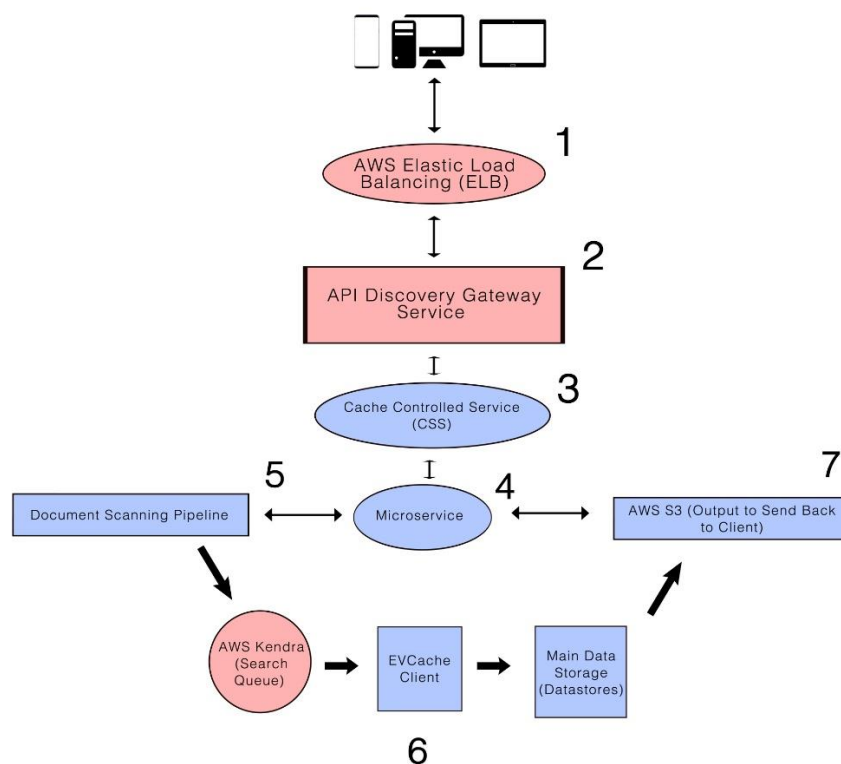
In terms of adaptability, the AI system on the website will get used to the client's usage, and what arrays of data are the most vulnerable to sudden changes, not to mention its ability to sort and list the wanted information in a smart and efficient way. This helps further improve the ease, the usability, and the performance of the website.

Furthermore, the client will save valuable costs and resources since they can bypass hiring trained employees or training their existing ones. This is because the user interface and experience (UI/UX) will be simple enough for the regular user to understand and use.

Combining complex operations and ease-of-use in one solution, heavily supported by Artificial Intelligence to lead a successful future.

The AWS Architecture

For our AWS cloud architecture, we chose to implement the following plan:



* The client's expected devices of usage are PCs and handheld phones / tablets.

1. The client will send a request of their document to filter it to the system, AWS Elastic Load Balancer (ELB) is the service used to handle this operation.

2. ELB will forward it to the next service which will run an API with the intent of discovering the document's contents.
3. The client's document will be stored in the Cache Controlled Service for it to be saved and read by the cloud architecture.
4. The Microservice will read the client's request and bring it to a faster access for the system to digest.
5. The Document Scaling Pipeline is the back-end program that will read the client's documents and determine if there are any fitting matches that the website's data storage may hold.
6. The request the client made will be put through an AI-based search engine known as AWS Kendra, which operates on machine-learning and accepts natural language that the users may use when inputting the terms, then it provides the users the exact things they're looking for. The search will be stored in the EVCache, and later stored in the more holistic Main Data Storage. Kendra also provides instant suggestions of results, so that the user doesn't need to go through whole lists of results. In brief, Kendra was our best candidate to function as a smart service to help gather information.
7. Lastly, the results will be sent from the pipeline to the AWS S3, whose function is to present the output and relay it back to the user.

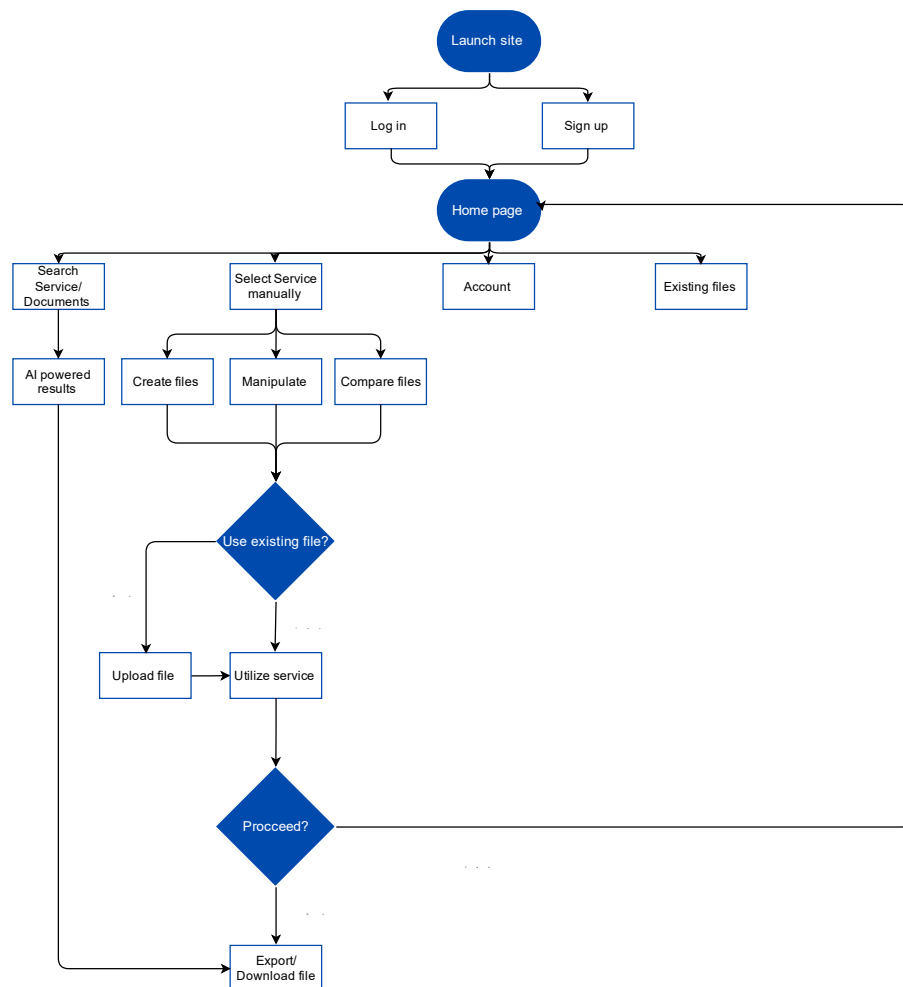
Conclusion

To summarize our achievement, we have helped ElegantPanda Tailorship and Branding company to better manage and manipulate their files using an AI-powered website with a powerful search engine. That search engine can accept natural language to smartly look through huge piles of files, collect the files or their info, then offers intelligent ways to edit, manipulate, categorize, and reproduce files.

Some of the biggest challenges that faced us a development team are communication and time management. We are in different parts of the world, so it was difficult to find a time where all members of the team are present at, not to mention that our schedules were extremely tight as well, since each of us has their own plans and other projects to work on. In the end, the project was still able to come together thanks to our united efforts as a strongly structured team.

Part 2:

Business Flow Diagram:



The design on the website is user-friendly and straightforward. Firstly, the user is required to sign in the website or make an account if they don't have an existing one. Logging in directs the user to the home page which includes all the main services offered. The user could select services manually or use the AI search option the website offers, the main services available are creating files, manipulating them for example cropping, merging, or

converting the different types, lastly is the compare files option. AI is implemented when user searches for a specific service or document as it identifies what exactly the user is asking for, then it generates the results which can be exported in different ways. Similarly, AI is also being used when comparing files by analyzing and matching the similar content. Additionally, users may create files that are based off existing files or uploaded files. this also utilizes AI The user is required to either upload their file or use an existing file that is stored in the database then they can proceed with using the services. With only a few clicks, by entering keywords our AI search engine can process the results. This makes editing and manipulating files simple and manageable.

Low-Fidelity:

We have made our low-fidelity prototype over Figma. For the best experience, please view the complete prototype (with active buttons) through this link:

[**Ai.File Website**](#)

Student Reflections:

Abdulkader Sardini

a. What have you learned and your motivation to complete this project?

I've learned from this project how we can make a low-fidelity prototype with functioning buttons and pages. This is especially useful for our journey as Computer Science students, and also as future professionals in the industry. I also learned the

proper coordination and teamwork that's essential to accomplish big projects such as this one.

My motivation to complete this project was to try out a new thing in this field, especially that I've had previous readings and knowledge about UI/UX design, so it was the right time to test all this knowledge and put into practice.

b. What issues and solutions are implemented to make the project a success?

The main 2 issues that we discussed in this project are: 1) The client's need for a smart way to manage and manipulate their electronic documents. 2) Lacking the employee's who will manually manage the files and documents.

As a suitable solution to each issue, we've decided to build this website with enough care to cater the client's needs through allowing easy servicing and manipulation of the files, and also utilize Artificial Intelligence as a valuable asset that just makes the work much easier.

c. What is your direction after completing this project?

My direction after completing this project is getting even more experienced about UI/UX design, as well as learning the appropriate programming languages that can turn a low-fidelity prototype into a real, viable website.

d. What is the improvement necessary for you to improve your potential in the industry?

As I mentioned in the previous question, the most important and necessary

improvement for me is to learn the principals of UI/UX design, then going towards the programming side of Web Development. I'm planning to become a full-stack developer who is well-equipped to turn a simple, visual prototype into a full-on website with working features. I'm going to be doing so through learning the appropriate front-end Web Development languages, such as HTML, CSS, and JavaScript, then moving into the back-end side, with languages like PHP and others.

Alfarabi Mohani

a. What have you learned and your motivation to complete this project?

This project itself was one that piqued my interest because it was a way for me to test my knowledge of the things I learnt throughout the course and implement it in a creative way. Knowing that I could utilize everything I studied and absorbed and applied it to a digitally appealing product helped keep my motivation stationarily high throughout its duration.

b. What issues and solutions are implemented to make the project a success?

Our main objective of the project was to tackle the problem of the difficulty of finding a document in an overwhelmingly vast database. We realized that there is an issue behind data searching due to the high capacity of information that exists online.

Our search engine was designed to intake a document from the user and output

back other documents that exist within a cloud system that are relevant or similar to the document that the user inputted.

c. What is your direction after completing this project?

Upon completing this course, my next step is to constantly sharpen my ability to further implement cloud computing-based services onto other personal projects that I have. Since I have now understood the core mechanics of how to set up a cloud server and what components exist in the back-end of the servers, I would like to keep enhancing my ability to put the things I learnt to a practical use.

d. What is the improvement necessary for you to improve your potential in the industry?

Linking to the aforementioned idea that I must continue to keep utilizing my knowledge of cloud computing, there is a huge room of improvement for me to keep improving my ability to operate with said services. This will set me up for success in the future as a lot of workplaces nowadays look for candidates who are able to practically use their skills in a real-life situation, as opposed to just a degree.

Awfan Vinandry

a. What have you learned and your motivation to complete this project?

I have learnt on how to use Figma for the first time and its quite simple and

interesting, since i have quite interest to designing. learning designing tool might be a great step ahead if I'm going to be a UI/UX designer later.

b. What issues and solutions are implemented to make the project a success?

In teaching and learning activities in today's lecture world, it is difficult to create, manipulate, compare on high amounts of files, so we made this tool to help especially for students in their lectures and also in making assignments.

c. What is your direction after completing this project?

I want to go deeper into web design because I think I'm interested in it, and find out new things about web design while learning the tools used

d. What is the improvement necessary for you to improve your potential in the industry?

Trying to get lot as many references as possible in various sources and platforms to enrich the ideas and knowledge about design itself, especially for web designing.

Sondos Moustafa

a. What have you learned and your motivation to complete this project?

Throughout my journey of doing the Low-Fidelity Project with my group, I was introduced to various new concepts. The project revolved around problem thinking and allowed me to apply my skills to a practical and real-life situation. The project

also involved designing, including the cloud architecture for our project which depended on our understanding of the AWS course. In addition to that, is designing the business flow diagram and the prototype for our proposed project which I found particularly interesting.

This project has aided me greatly in improving my critical thinking skills by being able to identify a problem and propose a solution for it. Most importantly, it provided me with a chance to work with a team together and further enhanced my communication skills. What motivated me during this project, was being able to use creativity in designing the illustrations and applying skills studied throughout the semester on artificial intelligence and cloud computing and architecture.

b. What issues and solutions are implemented to make the project a success?

In order to be able to identify a successful solution to the problem we identified managing documents, we had to view it from the client's point of view, and analyze what improved options they would like to be available in a search engine. In the end, we decided the most appropriate 4th IR we can implement to our website is Artificial intelligence.

c. What is your direction after completing this project?

After completing this project, I'm looking forward to improving my knowledge on 4th IR technologies, cloud computing, and their practical applications to real life

problems. Moreover, I am hoping I can explore designing more personal projects that can be implemented using similar technologies to our Low-Fidelity project.

d. What is the improvement necessary for you to improve your potential in the industry?

Apart from my personal skills, this project helped me recognize the importance of future technologies and their potential in the industry. As a computer science student, I must realize that technological skills are a huge part of my future career and that I must work on constantly expanding my knowledge on trending technologies, in the hope of becoming an equipped individual and improve my chance of getting employed.

Shi Junhui

a. What have you learned and your motivation to complete this project?

I learned Figma design and I think I'll probably use what I've acquired so far in my future work, so I need to be actively involved and complete the project.

b. What issues and solutions are implemented to make the project a success?

The whole design process is not simple, we need to design many buttons and complex hyperlinks, but when we make a reasonable division of labor, the whole

thing looks much simpler.

c. What is your direction after completing this project?

After completing this project, I will proceed to strengthen my knowledge of artificial intelligence and learning of various design websites for my future tasks and work. I found that design is a very interesting thing, and I may use it often to enrich my free time in the future.

d. What is the improvement necessary for you to improve your potential in the industry?

I need to be proficient in the design and interaction of web pages, as well as cultivate my own ideas of building models, only in this way can I improve my potential in the industry.