Infrastructure case study 2

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# Project definition

## Project background

We are developing an IaaS called “Take a Break” or “TAB”. The purpose of our product is to facilitate in a healthier working environment by releasing all the stress of employees when they are taking a break. Together with the well-designed streaming service, we want to ensure the online infrastructure is secure a reliable to be sure to have a safe but up-to-date and running system. It is aimed at companies of small to medium size.

## Problem definition

In order to improve our previous case study and optimize case study two, we have to improve some parts of the structures and add some other services and protocols.

One of the main improvements we have to pass through, is improving our security. We want to do this using RADIUS as an authentication. We also have to change some of the passwords so they aren't the same for all management tools and virtual machines. Besides security, we have to have a backup in case of system dropout. In this case, we will make use of the so-called design for failure. In case of system failure, an automated process is started which is a kind of self-healing process.

Another feature that will be added is remote access for employees in order to let them work from home or when traveling. In the previous case study, we only managed to set this up for the active directory VM.

Another main improvement will be adding a couple of small movie theatres where every employee would be able to relax in their breaks. Also, a database server will be presented in the infrastructure, in which the basic information about every employee will be saved (e.g., id, name, address, email, department). For further improving on productivity of workers a live chat server will be added for instant messages between departments. A password manager is needed for ensuring of complex passwords. Finally, a currency calculator that will give live data about the trading market.

## 

## Project goal

With TAB, we want to give the employees the opportunity to enjoy their lunchbreaks with a nice movie, some good music or just calming sounds such as white noise. This should result in a better atmosphere on the work floor and keep the employees productive and efficient.

Besides giving employees the opportunity to fully relax during breaks, we also want to make their lives a bit easier during their actual business hours. We are going to make use of some databases to store multiple kinds of data. We would like to store employee information (e.g., name, address, department and e-mail address) and a password manager. With the first database, it is easy for let's say human resources to find employee information if needed. The password manager will provide a locally stored service so that each employee can store their passwords in a secure way. This will give every employee more room in their heads to think about work-related questions, instead of remembering numerous of passwords.

We also want to add a nice feature for the sales and financial departments, namely a live currency calculator. This will make it much less time consuming to look up prices for international deals and companies. For all the departments, we are going to implement a regular calculator as well.

Last but not least, we want to create an online environment for employees to be able to reach out to each other on a nice and informal manor. This is why we chose to create a chat server. This will create a new line of communication for all sorts of questions. Since the IT department also will use this chat service, it will be easy and quick for personnel to contact IT with any issues.

## 

## Expected result

We would like to introduce you to Take A Break (or TAB for short).

We wanted to extend the infrastructure from the previous case study by adding a streaming service for employees. This streaming service, TAB, is there to help employees relax during their breaks. A good and well rested and relaxed employee will result in a more productive person. Medical studies show that there are multiple positive effects on watching movies and series.

“Watching movies can be beneficial for your mental health and serve as more than just a hobby or pastime.

Watching movies is an activity that has long been regarded as simply a pastime to enjoy when you have a free moment from life’s responsibilities.

While too much screen time can be harmful, engaging in hobbies that balance your work and professional life can be healthy.” (*Watching Movies for Your Mental Health I Psych Central*, 2022)

With this structure, we want to create a nice balance between a professional environment where everybody can function optimally, without risking burn-outs or mental (and physical) harm and negative effects. On the other side, we don’t want to distract the employees while working. To make sure people are still working when needed, we added some rules to get an optimal experience for both employees and employers.

## 

## Way of working For this project, we want to be as productive as possible during the project hours specified in our timetable. These hours are every Monday from 09h00 until 16h00 and every Friday from 09h00 until 12h00. This does not mean this is the only timeslot we will be working on the project. We would like to do as much preparation as possible prior to these hours so we can begin immediately without losing time on tasks that could be done from home. If needed, we will use our time after school and in weekends. Also, weekly meetings will be arranged with our mentor/client. The minimum quota will be one meeting per week. For flexibility, the conferences will be arranged week by week and there will be more conferences if there are any queries or questions.

# 

# Project structure

## Development team

We are expected to work in groups of three students on this task. For this second case study, we are completely free to decide which features and services we want to use. In our case, we decided to create a fictional infrastructure called TAB. The fundamentals of this service will be the end product of case study 1, regarding Make IT Work4U. It is aimed for small and medium-sized business clients. Their clients require assistance in modifying their infrastructure to meet the ever-increasing demands of the end user. We are tasked with developing a method for simulating a customer's existing infrastructure.

### Mihai Glodici

My name is Vasile Mihai Glodici and I am nineteen years old. I am a cyber security enthusiast trying to gain experience with infrastructure. I believe that the group project will provide me with the necessary networking skills for pursuing a career in this field.

### Yoan-Asen Popov

Hello there! My name is Yoan-Asen Popov, and I am a nineteen-year-old student. Currently I am studying at Fontys University in the Netherlands. I come from Bulgaria. There I studied in an ICT profile. I learned a bit from everything just like in the orientation phase of the first semester at Fontys. That was when I made up my mind that I am going to continue my growth in this field of work. I have had some internships, considering IT, like in a repair shop for computers. Also in my high school, I have helped to setup the computers and in making the network. I have gone to a couple of programming courses, too. I think all of this ‘experience’ helped me with my choice of coming in the Netherlands and continuing with IT.

### Joep Vinken

Hi there, I am Joep Vinken, a 21-year-old student from the Netherlands. This year, I started my first HBO study after finishing high school in Belgium. I went to Belgium because of their good school programs and the option to get some more practical lectures as well. My first 4 years, I chose for the science package, but this got too difficult, and I would not like to do a job regarding chemistry of physics. That is when I changed to electro-mechanics. This is a bit more practical and prepared me to work on electrical motors and setting up and building new products.  
After finishing this study and graduating, I decided to take a sabbatical in order to make a wise decision about my next study. In September of last year, I applied for the air traffic control study to become an air traffic controller in one of those big towers at the airport. Unfortunately, I did not manage to pass the second part of the application.  
I did not want to sit at home the whole year and travelling was difficult because of COVID. I went looking for a full-time job for the year and managed to get accepted at Apple.

This is where I worked for their customer service and gain a lot of extra technological knowledge of mobile devices (mostly iPhones and iPads). This made me think about starting an ICT study. Looking around on the internet made me come past by the Dutch police force. There were some very interesting jobs which needed a degree first. This was the moment I decided to start the HBO ICT study here, at Fontys. My ultimate goal is to work for the digital investigation department of the Dutch police force, but first finish this study.

## Tutor

Our project and management & securing (M&S) tutor will be Mehrzad Verdizadegan.  
E-mail: [m.verdizadegan@fontys.nl](mailto:m.verdizadegan@fontys.nl)

Our connecting & provisioning (C&P) tutor will be Bart van der Zanden  
Email: [bart.vanderzanden@fontys.nl](mailto:bart.vanderzanden@fontys.nl)

Our programming tutor will be Tim Jansma.  
E-mail: [t.jansma@fontys.nl](mailto:t.jansma@fontys.nl)

# Risk Assessment

**Risks**  
Each project entails some risks. The greatest risk is failing to complete project assignments on time. Due to the high value placed on time these days, it is critical to adhere to deadlines. Apart from time constraints, data loss is a serious concern that must be avoided at all costs. Losing data, settings, virtual machines, and so forth, can result in a significant setback. This failure could result in significant delays and the inability to meet deadlines.

**Probability**  
Not delivering in time or missing deadlines is something we do not expect to happen, but always is something to keep in mind. Losing data is something highly unlikely to happen but the risk is still there.

**Impact**  
Not delivering the assignments on or before the deadlines, could result in an unsatisfied client and can also affect our grades. Losing data and settings could cause us to have delays which could result in a lower grade and make our client upset as well.

**Risk mitigation**  
In order to avoid delays our missing the deadlines, a good schedule is required. This results in time periods that are preserved for working on one, specific task. Addressing one task at a time results in a better end product since everybody is focussed on the same issue or subject. Any faults, mistakes or errors can be solved together to all get a better understanding of the issues and infrastructure.

# Deliverables

\* Project Plan

\* Design document

\* Research (process) report (must include Work division and all the evidence from week 11 to 18 for example meeting’s minutes, agreements)

\* Updated personal development portfolio (PDP)

\* User Requirement Specifications document (URS)

\* User & Technical manual

# Planning/Pert

This will be our planning for the upcoming weeks.

|  |  |  |  |
| --- | --- | --- | --- |
| **Week:** | **Task:** | **Est. duration in minutes:** | **Deadline:** |
| 11 | Make the project plan | 120 | 15-05-2022 |
| 11 | Idea pitch | 90 | 15-05-2022 |
| 11 | User requirements specification (URS) document | 180 | 15-05-2022 |
| 12 | Product roadmap | 60 | 22-05-2022 |
| 13 | Develop stories | 90 | 29-05-2022 |
| 14 | Design document | 150 | 29-05-2022 |
| 15 | Testing our systems and infrastructure | 180 | 05-06-2022 |
| 15 | Write a manual | 60 | 05-06-2022 |
| 16 | Full documentations (process report, URS and design document) | 180 | 12-06-2022 |