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Personal Development Report

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# Introduction

In this document, I provide a comprehensive overview of my study progress for this semester, including detailed reflections on my status and how I am incorporating feedback received. I take the opportunity to critically evaluate my progress and identify areas where I believe I should be in my academic journey, substantiating my argument with valid points and supporting evidence.

To begin, I meticulously outline my current position in the semester, acknowledging the courses and assignments I have completed thus far. I discuss the knowledge and skills I have acquired, highlighting any noteworthy achievements or breakthroughs. I also consider the feedback I have received from professors, peers, or mentors, detailing how I am actively working on implementing their suggestions and improving my performance.

In addition to assessing my current position, I thoroughly analyse where I believe I should be in terms of my academic progress. Drawing on my personal goals, aspirations, and the expectations set by the curriculum, I provide a compelling argument for why I believe I should have reached a certain level of proficiency or achievement at this stage. I support my argument with concrete examples, such as successful completion of relevant coursework, participation in extracurricular activities, or engagement in research projects.

Throughout the document, I maintain a reflective and analytical tone, highlighting both strengths and areas for improvement. I showcase my ability to assess my own progress objectively and critically, demonstrating a growth mindset and a commitment to continuous learning. By carefully documenting my study progress and engaging in self-evaluation, I aim to enhance my academic journey, set realistic goals, and chart a path towards success.

# Learning objectives

## Data Preperation - Orienting

Graphical user interface

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*Explanation*

You must be able to understand data that you have. Furthermore, you must also be able to ensure that you get accurate results by properly cleaning and preparing your data for future use. You also need to store your data in a way that it is good for the environment.

### First evaluation week 5:

I have not been able to do much with this yet. However, I did clean the data for the canvas assignments for further use.

### Second evaluation week 11:

As part of the group project, I have been involved in data preparation tasks, specifically focusing on preparing the data for visualization purposes. In addition to this, I completed data preparation exercises on Canvas. Furthermore, I have also prepared data for my personal data challenge, but I am yet to receive any feedback on it.

As part of the air quality project, my main responsibility was to perform data cleaning and preparation for the air pollution dataset. This involved handling missing data and organizing the data based on dates to ensure its accuracy and consistency. During the visualisation exercise, I received constructive feedback from Simona, which I promptly incorporated into my work to enhance the visual presentation of the data. By applying the received feedback, I aimed to improve the overall quality and effectiveness of the visualizations.

A picture containing text, font, white, algebra

Description automatically generated

The text above also includes the feedback I received from Olaf.

Text

Description automatically generated

In my personal challenge, the objective was to develop a machine learning model capable of identifying various species of arachnida, insecta, amphibia, and reptilia. Additionally, the model was designed to provide information regarding the characteristics and potential danger level these species pose to humans. To accomplish this, I utilized a sizable dataset comprising images and species-specific information, which served as the foundation for training the model.

Initially, I downloaded a comprehensive dataset encompassing different types of arachnida, insecta, amphibia, and reptilia. Before proceeding with the project, I diligently cleaned the dataset, addressing any missing values to ensure data integrity.

Following the data cleaning phase, I employed various visualization techniques to gain insights and comprehend the dataset's characteristics. One such visualization example is provided below:

A picture containing text, screenshot, diagram, plot

Description automatically generated

After visualizing the data, I proceeded with data preparation. This involved eliminating duplicate values and introducing new columns to denote whether a particular species was considered dangerous and specifying the reasons behind its potential danger. Once the data preparation stage was complete, I proceeded with the development and refinement of the machine learning model.

### Third evaluation week

In our group project, I took the responsibility of cleaning the air quality data and merging it with the weather data to facilitate air pollution prediction. However, during the cleaning process, I discovered that the air pollution data was still inadequately processed, with numerous missing values that required attention. Recognizing the importance of addressing this issue, I devoted time to reevaluate and improve the cleaning procedure for the air pollution dataset. By doing so, I ensured its suitability and reliability for future use in our prediction tasks.

A screenshot of a computer

Description automatically generated with medium confidence

Following the comprehensive data cleaning, I proceeded with feature engineering techniques to identify the most influential features for our prediction model. This involved carefully selecting and engineering the relevant variables that strongly correlate with air pollution levels. By focusing on these essential features, we aimed to enhance the accuracy and effectiveness of our predictions.

During the project, I received valuable feedback from Olaf, who emphasized the importance of not incorporating other PM values in our prediction model. This feedback was crucial, as it considered the limitations of future data availability and ensured the applicability of our model in scenarios where such information might not be accessible.

### Self-assessment: proficient

In the air quality project, I took on the responsibility of performing data cleaning and preparation for the air pollution dataset. This involved effectively handling missing data and ensuring the accuracy and consistency of the data by organizing it based on dates. I received constructive feedback from Simona during the visualization exercise, and I promptly incorporated the feedback to enhance the visual presentation of the data. By implementing the feedback, I aimed to improve the overall quality and effectiveness of the visualizations.

I also undertook a personal challenge focused on developing a machine learning model capable of identifying different species of arachnida, insecta, amphibia, and reptilia, along with assessing their potential danger level to humans. To accomplish this, I obtained a comprehensive dataset containing relevant images and species-specific information. I diligently cleaned the dataset, addressing missing values to ensure data integrity.

Following the data cleaning phase, I employed various visualization techniques to gain insights into the dataset's characteristics. I successfully carried out data preparation tasks, including removing duplicate values and introducing new columns to denote species' dangerousness and reasons for their potential danger. With the data prepared, I progressed to developing and refining the machine learning model.

Overall, I have actively participated in various data preparation tasks, received valuable feedback, and applied it to improve my work. I have demonstrated my ability to handle missing data, organize datasets effectively, and utilize visualization techniques to gain insights. Additionally, I have showcased my dedication to personal challenges by taking on the task of developing a machine learning model for species identification and danger assessment. Moving forward, I aim to continue honing my skills and knowledge in data preparation and analysis.

## Data analysis & model engineering - orienting

Graphical user interface

Description automatically generated with medium confidence

*Explanation*

You must be able to create and train a model while considering aspects such as accuracy and precision. Furthermore, you also need to know ways of analysing data through clustering, trend analysis and other techniques.

### First evaluation week 5:

Also with this learning objective, I made the assignments on canvas that I had to train a model with on several occasions.

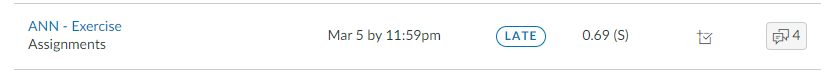
### Second evaluation week 11:

I completed all the exercises on Canvas, which involved creating various types of models, and subsequently received feedback on these exercises.

At the ANN exercise, I have created a trained neural network to predict the class of wine based on chemical properties. Nico gave me the following feedback on this and gave me a S for the exercise.

A screenshot of a cell phone

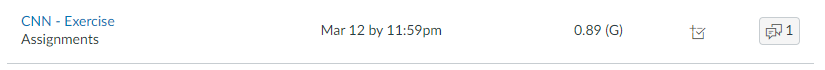
Description automatically generated with low confidence



For the CNN exercise I’ve created a CNN to classify cats and dogs. I’ve also created this CNN with a pretrained model, and this is the feedback I received from Nico.

A picture containing text, screenshot, font, algebra

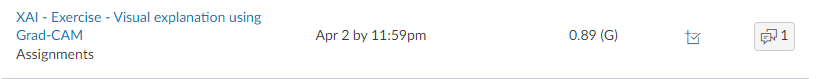
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For the XAI exercise I’ve created a new CNN on images of fish. This is the feedback I received from this exercise.

A screenshot of a message

Description automatically generated with low confidence



I have developed three distinct scripts for analysing IMDB reviews as part of an NLP exercise. Each script was created using a unique approach to ensure a comprehensive understanding of the exercise. Lastly, I utilized BERT, a pretrained model, to observe how it performs in handling this task.

Text, letter

Description automatically generated

During the RL exercise, I undertook the task of developing my own Mario game. Through this exercise, I acquired valuable knowledge and skills in training Mario to autonomously play the game. I received this feedback on the game.

A white background with black text

Description automatically generated with low confidence

Chart, funnel chart

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### Self-assessment: Beginning

I have completed all the Canvas exercises, and they have already been graded. However, as I am still working on developing the model for my data challenge, I believe that I am still at the beginning stages of this learning outcome.

## Targeted interaction - undefined

Application

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*Explanation*

I must be able to show that I can have a professional attitude that matches the target audience I want to reach. Based on the target audience, I must be able to choose the right data visualization tools and information.

### First evaluation week 5:

In the assignments on canvas, I have already had to visualize something, however, I have received feedback on this that I have yet to apply.

### Second evaluation week 11:

I presented our project to Jean-Paul, and the feedback I received was positive. I effectively communicated my ideas with fluency and clarity, demonstrating a well-structured presentation. Previously, I had received feedback from Olaf, suggesting that I include more text on the PowerPoint slides to enhance clarity. Taking this feedback into account, I made the necessary improvements, and the revised slides were well-received by everyone.

In addition, I participated in a poster presentation where I had the opportunity to showcase our project and discuss its goals and features during an interview.

Graphical user interface, application, Word

Description automatically generated

### Self-assessment: Proficient

During the project presentation to Jean-Paul, I successfully conveyed our project's details and objectives, receiving positive feedback for my efforts. I effectively communicated my ideas with fluency, ensuring clarity throughout the presentation. The structure of my presentation was well-organized, allowing the audience to follow along seamlessly.

Previously, I received valuable feedback from Olaf, who suggested including more text on the PowerPoint slides to improve clarity. I took this feedback into consideration and made the necessary adjustments, resulting in a clearer and more comprehensive presentation. The revised slides were well-received by the audience, indicating that the changes made were effective in enhancing understanding.

In addition to the project presentation, I actively participated in a poster presentation. This allowed me to showcase our project and engage in an interview where I had the opportunity to discuss its goals and features. Through this experience, I effectively conveyed the key aspects of our project, highlighting its significance and accomplishments.

Overall, my presentation skills were commended for their fluency, clarity, and structure. I demonstrated my ability to incorporate feedback and make necessary improvements, resulting in a more impactful and comprehensible presentation. Additionally, my participation in the poster presentation and subsequent interview showcased my ability to communicate effectively about our project's objectives and features.

## Future orientation - Undefined

Graphical user interface, text, application

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*Explanation*

You must be able to guarantee that your assignment is future-proof by thinking about the consequences in society and in the environment. You must also show that you think about the implications of your data in terms of laws, ethics, and your own boundaries.

### First evaluation week 5:

For this part I haven't done much yet, I'm also not sure how to apply this in a project.

### Second evaluation week 11:

I participated in a lecture on law and ethics and subsequently discussed its content with my team for the group project.

Additionally, I utilized the tict tool, an effective framework for ethical analysis, to comprehensively document and evaluate the ethical aspects of my personal project. By systematically considering the ethical implications of my work, I aimed to promote responsible and morally sound decision-making. The tict tool provided a structured approach to assess the potential ethical challenges and ensure that my project adheres to ethical guidelines and considerations.

Engaging in the law and ethics lecture and subsequently discussing its content with my team facilitated a deeper understanding of the ethical landscape in our field of study. Utilizing the tict tool further allowed me to methodically analyze and address the ethical dimensions of my personal project, ensuring that it aligns with ethical principles and values. By actively integrating ethics into our work, I strive to contribute to a more ethical and responsible approach in our professional endeavors.

Chart, funnel chart

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### Self-assessment: Beginning

I actively participated in a lecture on law and ethics, demonstrating my commitment to developing a solid understanding of ethical considerations in our field. To further strengthen the ethical foundation of my personal project, I proactively utilized the tict tool, a reliable framework for ethical analysis. By employing this tool, I systematically documented and evaluated the ethical aspects of my project. This approach enabled me to comprehensively assess potential ethical challenges, fostering responsible decision-making and upholding moral principles. The tict tool provided me with a structured approach to ensure that my project adheres to ethical guidelines and considerations, promoting an ethical and responsible outcome.

This document is not yet graded, that’s why for now, this learning outcome is Beginning.

## Investigative problem solving - Orienting

*A picture containing graphical user interface

Description automatically generated*

*Explanation*

I must be able to identify the questions I encounter in a clear and professional manner. I must then answer these by using reliable research methods and with reliable sources so that I show that I can think critically about myself.

### First evaluation week 5:

I have not been able to do much with this learning objective either. With my project group we have been working on the domain understanding where we learned to understand the vision of the company and come up with a solution to the problem.

### Second evaluation week 11:

In the group project, I took on the responsibility of researching potential restrictions and challenges that could arise during the project. Through thorough investigation, I explored possible solutions to address these issues, ensuring smooth progress and successful completion of the project.

Similarly, in my own challenge of classifying species, I conducted extensive research to identify a suitable dataset that would contribute effectively to the project. During this process, I also examined any potential restrictions associated with the chosen dataset. To gain further insights and guidance, I discussed my challenges and concerns with Qin, who advised me to proceed with developing the model since it is primarily a proof of concept.

Graphical user interface, application, Word

Description automatically generated

### Self-assessment: Proficient

By actively researching and addressing potential restrictions and challenges, both in the group project and my personal challenge, I demonstrated my proactive approach to problem-solving. Engaging in these research efforts enabled me to make informed decisions, strategize effectively, and seek advice when needed. Moving forward, I will continue to apply my research skills to anticipate and overcome potential hurdles, ensuring the success of future projects.

## Personal Leadership - Undefined

Graphical user interface, text, application

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*Explanation*

I must show that I have the motivation to learn the skills I need for this semester while encouraging my classmates to do the same. I must also take responsibility for my own work and choices and be able to take charge when necessary to meet my learning goals.

### First evaluation week 5:

In our mini company, I am project leader of the Air Quality team. With this role, I make decisions for my group and organize stand ups/stand downs.

### Second evaluation week 11:

During the initial weeks of the group project, I took on the role of team leader, showcasing my leadership abilities. As the team leader, I assumed several responsibilities, such as organizing and conducting the morning stand-up meetings to ensure effective communication among team members. Additionally, I coordinated meetings with the instructors to seek guidance and gather valuable insights. I also had the privilege of presenting our team's progress to the client, showcasing our accomplishments and milestones.

In addition to my contributions to the group project, I actively engaged in professional development opportunities. I attended the Woman in Data Science conference, where I had the opportunity to network with industry professionals and gain valuable knowledge and insights into the field. Furthermore, I participated in the career day at Fontys Tilburg, where I shared my experiences and expertise in the AI specialization, promoting the importance of data science in today's world.

Both in the group project and my personal data challenge, I completed various data visualization tasks. Through these tasks, I effectively communicated complex information in a visual format, enhancing understanding and facilitating data-driven decision-making. Moreover, I received feedback on my work, enabling me to refine my skills and further improve the quality of my visualizations.

Graphical user interface, application, Word

Description automatically generated

### Self-assessment: Proficient

In the initial weeks of the group project, I assumed the role of team leader, and I am pleased with my performance in this position. As the team leader, I successfully organized and conducted the morning stand-up meetings, ensuring efficient communication among team members. This facilitated a collaborative environment where ideas and progress were shared effectively. Additionally, I coordinated meetings with the instructors to seek guidance and gather valuable insights, contributing to the project's overall success.

Participating in professional development opportunities has been instrumental in my growth as a data scientist. Attending the Woman in Data Science conference allowed me to network with industry professionals and gain valuable knowledge and insights. This exposure to the latest trends and practices in the field has broadened my understanding and enhanced my expertise. Similarly, participating in the career day at Fontys Tilburg provided me with an opportunity to share my experiences and expertise in the AI specialization, promoting the significance of data science in the current landscape.

In both the group project and my personal data challenge, I successfully completed various data visualization tasks. Through these tasks, I effectively conveyed complex information in a visually appealing manner, facilitating understanding and supporting data-driven decision-making. Furthermore, receiving feedback on my work has been invaluable. The feedback I received enabled me to refine my skills and improve the quality of my visualizations, resulting in more impactful and insightful presentations.

Overall, I am proud of my contributions as a team leader in the group project. Engaging in professional development opportunities has allowed me to expand my knowledge and network with industry professionals. Completing data visualization tasks in both the group project and personal challenge has strengthened my ability to convey information effectively. Moving forward, I will continue to seek professional development opportunities, leverage feedback to enhance my skills, and make valuable contributions to the field of data science.

## Graduation Preparation

Graphical user interface, text, application

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*Explanation*

You create opportunities to acquire and define an internship assignment based on a match between your ambitions, the school's requirements and the field related to your profile or specialization.

### First evaluation week 5:

I won't be doing an internship next semester, so I don't know if this learning objective is relevant to me.

**Zelfevaluatie:**