Personal Development Report

Fontys

University of Applied Sciences

2775409 - *Mateusz Mierzejek* - *13/09/2021*

Introduction

As a software engineer every day is a new challenge. When I started out with this study, I had no idea what I would be able to achieve. After struggling to find my path in technology, I made the switch to software. This has been a great decision because I feel more motivated than ever. Semester 3 especially has been an experience which I am proud of. Learning new tools and applying them with success is something that I never get tired of. I am eager to step out of my comfort zone and explore new challenges that require thinking on a scientific level.

Contents

1: Data Preparation

You can **prepare** and **store** a given dataset in such a way that it can be used in your data analysis and/or modelling.

Clarification
Preparing a dataset consists of extending it with additional data and cleaning the data according to theories of data quality, in such a way that the process of cleaning and preparing those data is repeatable, transparent to others, and the results are suitable for data analysis and/or modelling.
Storing a dataset includes investigating cloud solutions and arguing whether they should be used.

ADVANCED	PROFICIENT	BEGINNING	ORIENTING	UNDEFINED

Second Evaluation: week 2 (09/09/2021)

After getting a better understanding of the workflow during an exercise I attempted the Eindhoven parking case. Working through the exercise, treating, and analyzing the data. After which I plotted the results in a graph. To further give a better display, I used a program called Mapbox. I imported my data and displayed it on an actual map of Eindhoven. Finally, I used a web-api to import data ready for treatment and analysis.

FEEDBACK

Self-Assessment: Orienting

Using more tools to my disposal is a great mindset which I developed during the work with this exercise. Still, I haven't even scratched the surface when it comes to available tools, that's why I am still orienting.

First Evaluation: week 1 (02/09/2021)

Checking the Bosting Housing Analysis data on any nullable datapoints, outliers or correlated features that can have an impact on the accuracy of the model. For instance, using *Pearson Correlation* and displaying the results in a heatmap.

FEEDBACK

Self-Assessment: Orienting

When working on the exercise I frequently looked up methods and terms. I applied this new knowledge and managed to prepare data for the training of a machine learning algorithm.

2: Data Analysis & Model Engineering

You can **apply** machine learning algorithms and **other data analysis techniques** to a prepared dataset.

Clarification
Applying consists of optimizing the training of a model using model tuning and grid search, and evaluating the results with respect to recall, precision, accuracy, cross-validation, etc.
Other data analysis techniques are for example: descriptive statistics, derived columns, forecasting, trend analysis, clustering, etc.

ADVANCED	PROFICIENT	BEGINNING	ORIENTING	UNDEFINED

Second Evaluation: Week 2 (07/09/2021)

With the knowledge from the Boston Housing exercise, I started working on the Titanic case. Treating the data and applying several machine learning algorithms, I selected the most optimal solution comparing R^2 scores. Finally, I applied One-Hot-Encoding on the Random Forest algorithm to check for differences in model accuracy.

Nice work. We have had a discussion about this exercise. You show that you are 'orienting' in the field of machine learning.

Kuijpers, Nico N.H.L., 13 Sep at 9:56

Self-Assessment: Orienting

With the experience from the first exercise, it was a lot easier to get working on the Titanic. My understanding of core concept has increased, but I still made some mistakes concerning the algorithms which I chose. After the lecture about *Linear Regression* my understanding of the topic has increased greatly because of the direct comparison within the lecture.

First Evaluation: week 1 (02/09/2021)

The Boston Housing exercise was a great practice. I learned to analyze and prepare data so that it can be used in a machine learning algorithm.

Nice start with machine learning. I can see that you learned from this exercise. You show that you are 'orienting' in the area of machine learning. Good luck with Titanic!

Kuijpers, Nico N.H.L., 13 Sep at 9:42

Self-Assessment: Orienting

While working on this exercise a lot of new terms are used. I often research these to get a better understanding. Applying these technicalities is something that will take a lot of

practice. I am orienting heavily with this subject and experimenting with exercises is one of the main ways to learn for me.

3. Reliability and Transparency

You can address **reliability** and **transparency** aspects during data analysis and/or modelling.

Clarification
Reliable means that conclusions are supported by methodologically acquired and evaluated results, recommendations make sense regarding the domain knowledge, and used sources are referenced appropriately.
Transparent refers to the process being clear to such a degree that it is reproducible, results being explainable to humans and based on decision making that is considered fair, whilst eliminating bias.

ADVANCED	PROFICIENT	BEGINNING	ORIENTING	UNDEFINED

First Evaluation: week 3 (13/09/2021)

Putting a lot of work into my jupyter notebooks so every detail is clear to any new reader. Furthermore, it must be clear for me. Every subject is unknown territory for me. So, getting a good understanding in the beginning might have a great impact in the end. Every method, function and parameter are reviewed and tested in different circumstances.

FEEDBACK

Self-Assessment: Orienting

Of course, it is only the 3rd week of this course. So, I cannot already have obtained enough experience or even a good enough understanding of these concepts. But by training with them and researching the possibilities I find myself on the orienting scale.

4. Targeted Interaction

You use **appropriate communication** to address your audience considering your role, your audience, and the medium to convey your message regarding the **approach** and **results** of your data analysis and/or modelling.

Clarification
Appropriate communication means reporting and/or presenting the approach, process or outcomes of a data analysis in a methodologically sound way. You can reflect on the effect of your communication and based on that reflection you define steppingstones ahead on the task, on the role and on the projected results.
Interaction about data analysis is based on a systematic **approach** (such as the IBM Data Science Methodology) and comprises 4 phases/components: 1) project proposal 2) data preparation 3) data analysis/modelling 4) results and evaluation.
Based on your message, your position and the person(s) you address, you choose the right channel and format to communicate **results**, including appropriate data visualizations (such as data stories, infographics, or (a set of) static or interactive plot(s)).

ADVANCED	PROFICIENT	BEGINNING	ORIENTING	UNDEFINED

First Evaluation: week 3 (13/09/2021)
Actively making exercises has put me in the position to train with each of the phases. Jupyter notebooks have explanatory text and are written in an understandable manner for readers of each level. Discussing results with teachers and keeping an open mind while staying critical.

FEEDBACK

Self-Assessment: Orienting

By performing general exercises, I have practiced with most phases and am orienting further in the possibilities within each phase. During the upcoming weeks I will have gathered more experience and knowledge.

5. Future Orientation

You can **assess the context** of data analysis and/or modelling from **multiple perspectives** to pursue this project in a sustainable manner.

Clarification
Assess the context means the organizational and societal environment in which the data analysis project takes place. You show that you can identify the hallmarks and roles of the environment of the assignment and have a keen eye for a future-oriented, sustainable embedding of your work in an organization and society.
Multiple perspectives include social and ethical considerations, law compliance, organizational data maturity, alignment with sustainable development goals, recognizing own boundaries and those of others and acting accordingly. Reflecting on ethics and governance of AI-based automated decision-making will be an important and integral part of your learning process.

ADVANCED	PROFICIENT	BEGINNING	ORIENTING	UNDEFINED

6. Investigative Problem Solving

You can critically consider a data analysis and/or modelling project from various perspectives, **identifying problems**, finding an **effective approach,** and coming up with appropriate solutions.

Clarification
Identifying the problem means you can formulate a clear hypothesis and research question to determine the aim of solution using an inquiring mindset. **Effective approach** means you compose and pursue applied research methods (such as the DOT framework) and approaches based on reliable and verifiable sources. You can methodically and creatively find answers to applied research questions, considering alternatives, and critically analyzing your own and others' line of reasoning.

ADVANCED	PROFICIENT	BEGINNING	ORIENTING	UNDEFINED

7. Personal Leadership

You show an **entrepreneurial mindset** regarding the data analysis and/or modelling project and your personal development, while being aware of your own **learning capacity** and keeping in mind your **professional ambition**s in the field of Artificial Intelligence.

Clarification
Entrepreneurial mindset includes being aware, seeing opportunities and seizing them, motivating oneself and others, being able to profile oneself, a team and others.
Learning capacity means guiding your own development and study progress, showing leadership and taking responsibility, enhancing ones' own learning capacity, demanding and giving active feedback, all with respect to the learning outcomes.
Professional ambitions means you are examining what type of professional you want to be in the long term, which field and type of position you aspire to and how you can stand out from others in field of AI/data.

ADVANCED	PROFICIENT	BEGINNING	ORIENTING	UNDEFINED

Second Evaluation: week 2 (10/09/2021)

Not sure how to prepare myself for an internship I jumped in the deep. Last Friday I had a talk with Nico, and he recommended me to just try to get into contact with one of the internship contacts. Already knowing what I wanted I looked up the person on LinkedIn and sent a message. I got a referral for the actual person in charge on internships.

FEEDBACK

Self-Assessment: Beginning

Not waiting but working hard towards my goals. I am not going easy on this semester because I know what I want, and I know it takes lots of work to get there. Preparing myself well for the Data Science Master route is one of my main concerns this semester.

First Evaluation: week 1 (02/09/2021)

Starting from the previous semester I have been taking a different approach to my personal development. I am more outreaching and demanding of myself, but also of others. I am strict on my own results and expect clarity and support from the tutors. I am very active and strive towards becoming better every day.

"It is very good you are being active from the start. Getting a good understanding of all concepts from the beginning is a great advantage"
Nick Welman
(Monday morning startup meeting SI - 06/09/21)

Self-Assessment: Orienting

I am heavily focusing myself on my personal development. There is a lot to learn. But by taking steps and actions towards my goals I am slowly mastering the skills to achieve those dreams. Asking feedback and engaging in conversations in one of my favorite aspects in this field.

8. Internship Preparation

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

ADVANCED	PROFICIENT	BEGINNING	ORIENTING	UNDEFINED

Second Evaluation: week 2 (10/09/2021)

I have been in contact with a HRM manager from Prodrive Technologies. He referred me towards the internship coordinator from Prodrive. I sent an email with my CV and motivation.

ProdriveInternshipMail.pdf (Command Line)

Self-Assessment: Orienting

Slowly but surely making steps in the professional world. Now I must wait for a response to see what the next step will be.

First Evaluation: week 1 (02/09/2021)

Last semester I started looking for internship opportunities in the field of IT. I also made a LinkedIn account where I provided crucial information about myself and my skills. I already got into contact with a few recruiters, but I am not sure yet if I will pursue these offers. The next step for me will be creating an online portfolio.

Talking on Friday (10/09/2021) with Nico, he gave me advice to look on the Fontys internship portal. There I could find some more information.

Self-Assessment: Orienting

I Have made a start concerning my internship. I am looking around and preparing myself for the next steps. Some guidance would be nice.