

# Personal Development Report

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S4-AI41

Project Information	
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Project name	Personal Development Report
Version	1.0

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## Version History

Version	Date	Change
1.0	15-02-2022	Created document

## Introduction

I have chosen to do a specialization in AI because I am very interested in the subject and think it would round out my software background nicely.

I think there is a future in the AI sector and am very interested in where this area might go in the future. I also want to learn more on the process of creating a model and training it, because I think the algorithms used are very interesting.

Because I already have a background in software, I assume that the machine learning part will come easier to me and for this I also want to spend a lot of time on data preparation because I think that I could learn a lot in this part of AI.



## Data Preparation

*You are able to **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.

## Data analysis & model engineering

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

*Clarification:*

**Applying** consists of training of different types of models (classification, regression, etc.), and evaluating the results with respect to recall, precision, accuracy, cross-validation, etc. as well as tuning hyper-parameters.

**Other data analysis techniques** are for example: descriptive statistics, derived columns, forecasting, trend analysis, clustering, etc.

## Reliability and transparency

*You are able to 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 in regards to 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.

## Targeted interactions

*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)).

## Future orientation

*You are able to **assess the context** of data analysis and/or modelling from **multiple perspectives** in order 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.



## Investigative problem solving

*You are able to 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 in order 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 are able to methodically and creatively find answers to applied research questions, considering alternatives and critically analysing your own and others' line of reasoning.

## 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 ambitions** 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.

## 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 specialisation.