**Machine Learning (WS 2025/2026)**

**Assignment Sheet 1 – Task 1.4**

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**Assignment 1.4 Answer:**

Data could be collected in several ways:

* We could use the student’s past grades in a similar subject or pre-requisite course
* We could use the student’s performance in practice exercises
* We could use the student’s performance on assignments

The following problems may occur in the data:

* Irrelevant data: The student’s past grades may have a different calculation methodology, e.g. his past subject/institute may use 10-point GPA, while our subject/institute may use a 5-point GPA.
* Missing data: It is possible that the student may have forgotten to submit past exercise assignments or missed attending practice lessons.
* Outlier data: Exceptionally good or bad performance. It is possible that past grades may be skewed if the student was sick during one of his exams or when submitting his assignments.
* Annotation bias: A teacher may be negatively biased towards a student that regularly misbehaves in class and thus grade him negatively.

This task is a type of classification task that uses a form of supervised learning as we are trying to estimate the points a student may receive on an exam, using his past grades. This is a classification task as we are more accurately trying to place the student in a grade range rather than an absolute grade or percentage.

The following features may be relevant to this task:

* Assignment/exercise grade: for helping estimate the student’s own grade
* Submission date: for helping guess if the student is disciplined, or if he submits his assignments late (maybe even not at all)
* The subject of the assignment: this may help as certain subjects may lead to better understanding of another like taking Part-I of English will lead to better grades for English Part-II
* Grade improvement: if there is any improvement in the student’s grades as time goes on.
* Attendance rate: the student should tend to do better if he attends more classes.