

Midterm Exam - Student Report

This is a report of your academic performance in the introduction to programming course (GPRO), including your scores in the midterm exam (MT) and the self-assessment quizzes (SA). Our data analysis of Medialogy students in Aalborg shows that students taking the SA's have higher scores in the MT, regardless of prior programming experience. We hope that you will benefit from this report by identifying your current programming progress.

The boxplots¹ show how you compare to a larger sample of first semester Medialogy students from Aalborg and Copenhagen (see Figure 1). Specifically, they indicate the average score of all students in five topics, based on results from the SA and the MT. The SA topics refer to the first self-assessment quizzes on Moodle and their corresponding lectures, i.e. course introduction, variables and math, branching, looping, and functions. The same five topics constitute the midterm exam questions (Q). Your score in the MT is indicated with red dots, and your score in the SA is indicated with blue dots. The scores are normalized on a scale from 0 to 1, indicating the lowest and highest possible scores for each topic. A score above 0.5 means that you received more than half of the points denoted for the particular topic. The percentiles indicate the percentage of students whose scores are equal to or less than yours.

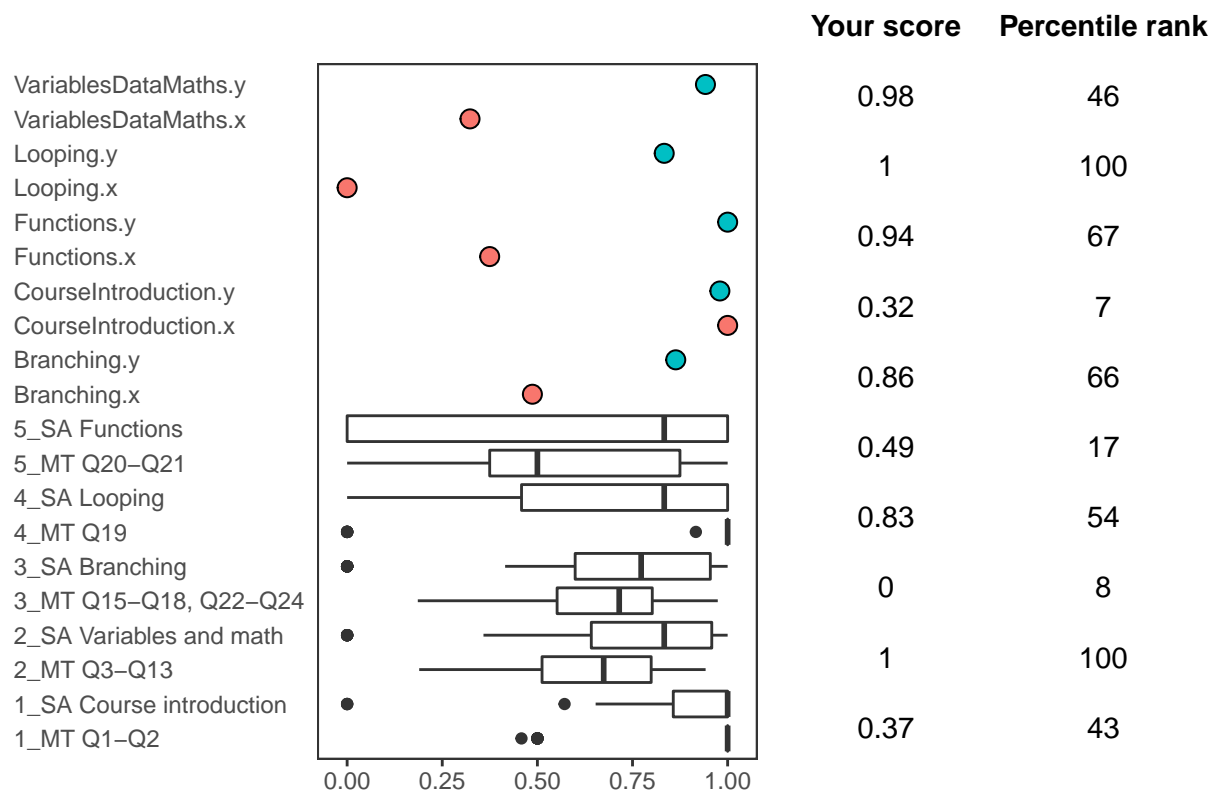


Figure 1: Boxplots of the scores of all students in five topics.

¹A *boxplot* illustrates the full range of variation (from min to max), the likely range of variation called the interquartile range (IQR) and a typical value (median). The rectangular box denotes the IQR, corresponding to the middle scores of the dataset - ranging from the 25th to the 75th percentile. The line dividing the box into two parts marks the median. The horizontal lines to the left and right of the IQR (whiskers) are 1.5 times as long as the width of the IQR. Outliers are defined as data points outside the whisker ranges and plotted as black dots.

Programming progress - from SA to MT

Table 1 describes characteristics of your programming experience, SA usage, and MT score. The SA data consists of the first seven SA's, and it was retrieved one day before the MT. Thus, with this data we analyse if the SA usage before the MT is related to MT scores. For this purpose, we look at the percentage of completed SA's, the average score of all seven SA's (assigning zero to incompleting SA's), and the average score of completed SA's.

In September you reported having novice programming experience in the study verification test (SSP). You reached a score of 42.08 in the MT, showing that you need to study and practise programming to be on-track with the course. Some students with no and little prior programming experience managed to achieve high scores in the MT (see Table 2), and with more effort and time you can do the same. Students, with similar prior experience as you, obtained high MT scores if they had completed the SA's and achieved a high score in these. Hence, you can use this tool to assess your learning progress. Other tools and activities also have influence on learning, and you should utilize all accessible aids. For example, asking for help from the teacher and TA's not only assist you in completing the mandatory exercises, but it can also help you in understanding what is essential for you to learn for the course. In November 2017, you had the advantage of such opportunity in an individual tutoring session, from which you could get help with anything in programming. At this time of the year, with no lectures, you will need to seek support elsewhere, such as your peers. Teaming up with peers and explaining to each other the course content can help you reach new understandings, other methods to apply programming, and which topics of the course you need to review.

Table 1: Statistics of programming experience, SA usage, and MT score.

Prior exp.	Perc. of completed SA's	Avg. score of SA's	Avg. score of completed SA's	MT score	Tutoring
novice	100	94.55	94.55	42.08	not taken

Table 2 shows the minimum (min), maximum (max), and average (avg) of the midterm exam scores based on prior programming experience, retrieved from the study verification test (SSP). The descriptive statistics consist of data from Medialogy students in Aalborg and Copenhagen, of which the number of students in each experience level is indicated with N. As you may have heard or experienced, hands-on practice is the key to learning and improving your programming skills. Actively participating and completing all lecture exercises is a reason why some of your peers across prior programming experience achieved a high score.

Table 2: MT scores based on prior programming experience.

Prior programming experience	min	max	avg	N
beginner (no experience)	32.16	91.02	61.89	65
novice (small projects less than 900 lines)	26.55	99.55	66.22	85
intermediate (projects btw. 900-40.000 lines)	38.71	99.55	71.66	22
expert (projects more than 40.000 lines)	57.27	76.59	65.95	3