# Udacity Nanodegree Survey Data Analysis

Udacity carried out a student survey of students, who finished one of their Nanodegrees, asking numerous questions about study behaviour, personal and professional background and marketing related questions. The data collected consists of 753 responses of students from 12 different countries, who studied one of the following Nanodegrees:

Intro to Programming,
Business Analyst,
Data Analyst,
Machine Learning Engineer,
Artificial Intelligence,
Deep Learning Foundation,
Self-Driving Car Engineer and
Robotics.

All data points are self-reported data through a questionnaire and are only representative of the sample of students, who took part in the questionnaire. The survey was carried out about three years ago.

What is the difference in age distribution between Data Analyst and Artificial Intelligence students?
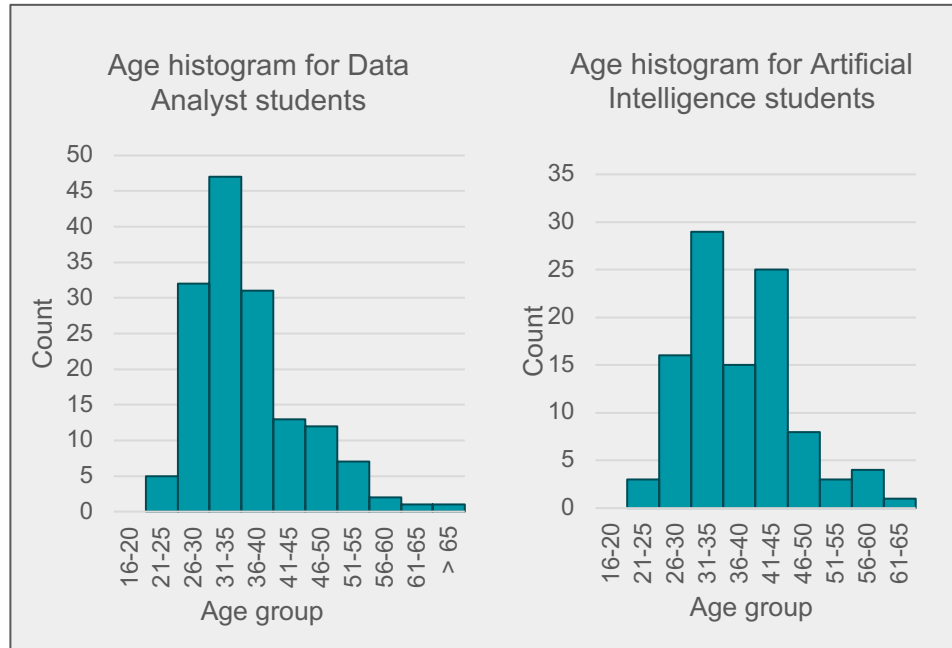
The most common age group for studying the both Nanodegrees is between 31 and 35 years of age.

For the Data Analyst course, most students are below 40 years of age and older than 26. For the AI course however, the bulk of the student age is spread out further with a second class mode around 41 to 45 years. AI seems to be interesting to wider age group for the bulk of the students, keeping in mind the overall numbers of students, who studied AI is lower than for Data Analyst.

The fact that the age is clustered tighter around the median for Data Analyst students can also be seen when looking at the Q1 and Q3 age numbers: The difference in interquartile range is 9 years for Data Analysts and 12 years for AI students.

What is the difference in age distribution between Data Analyst and Artificial Intelligence students?

Ages (years)	Data Analyst	AI
Mean	35.9	37.5
Mode	34	34
Median	34.0	36.7
Stdev	8.5	8.3
Range	57.0	37.5
Min	24.0	24.5
Q1	30.5	31.3
Q3	39.5	43.0
Max	81.0	62.0

In the summary statistics, it is clear that the mean age of the AI students of 37.5 is higher than the Data Analyst mean of 35.9. AI is being studied by on average older students, who may be further into their career and have a better grounding in programming and mathematics as the AI course requires more pre-requisits than the Data Analyst course.

The median for both groups is lower than the mean, indicating a right skewed distribution of both groups.

The mode is the same in both student groups. The mode of 34 shows that out of all ages, most students where 34 years old, which may be a good age to use for a marketing personae to advertise Udacity Nanodegrees.

The standard deviation is very similar for both groups, indicating that variability of the student ages is very similar in both groups.

The overall range in ages is much larger for Data Analyst students. This is caused by an outlier of a single student with the age of 81 years.
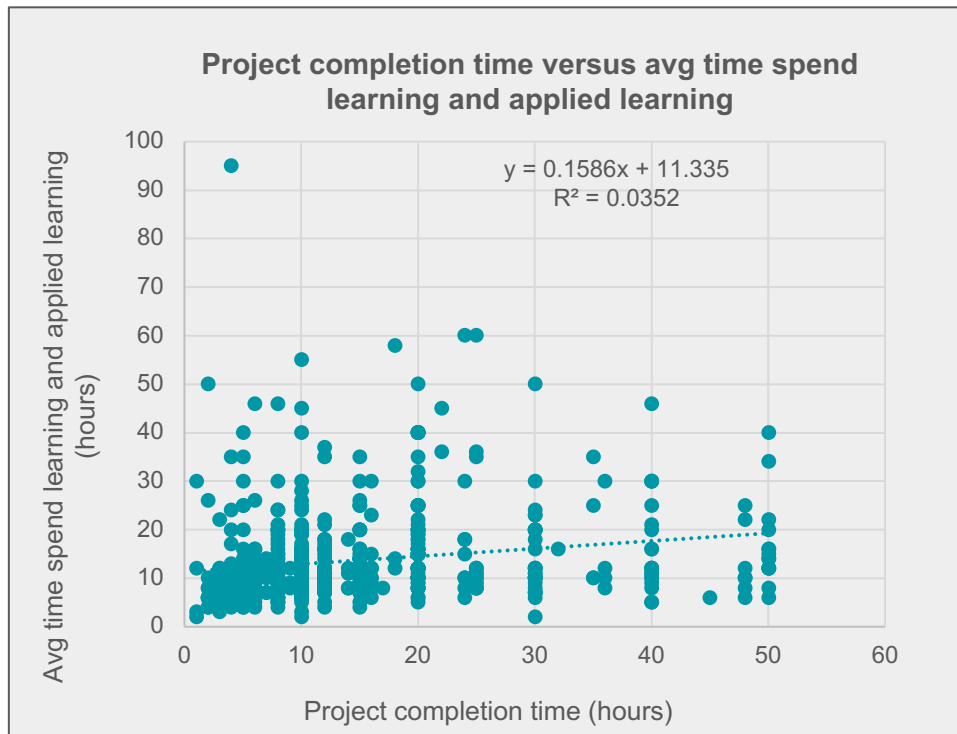
Do students who read more sleep less on average?

Books read per year versus avg. daily sleep duration

y = -0.102x + 10.075
R² = 0.0002
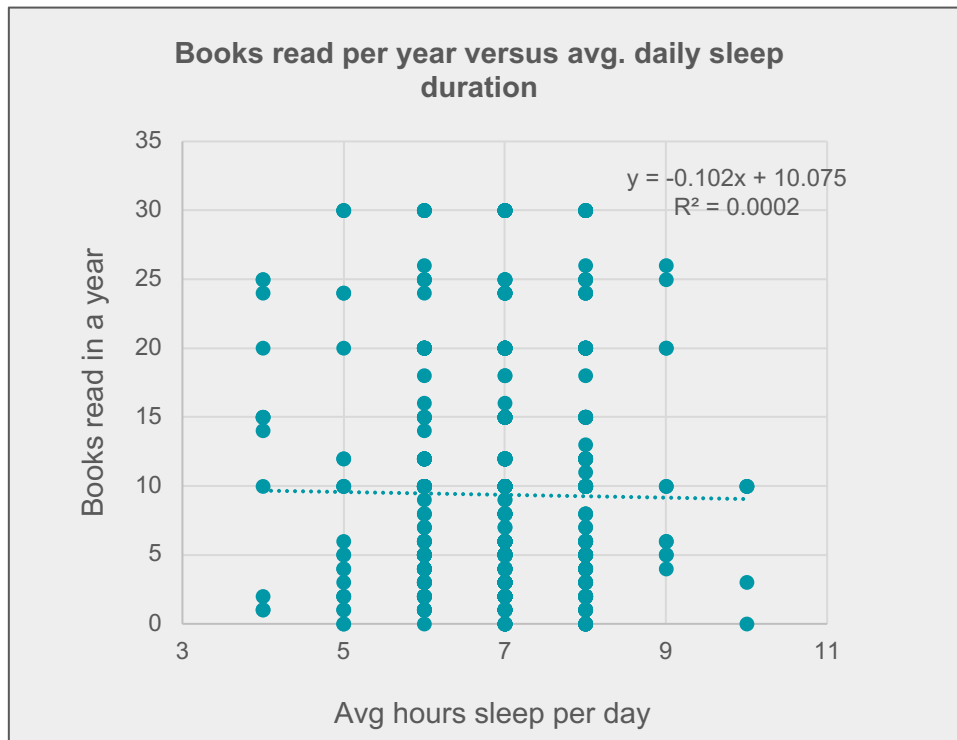
There is very little evidence that the amount of books read changes with the average hours slept per day.

With a correlation coefficient of -0.0125, the number of books read per year is pretty much unrelated to the average hours slept per day.

Do students finish projects faster if the spend more time learning and applied learning per week?

Project completion time versus avg time spend learning and applied learning

$y = 0.1586x + 11.335$
$R^2 = 0.0352$

Avg time spend learning and applied learning (hours)

Project completion time (hours)

Students, who spent more time learning and applying their knowledge during the week, do not finish Udacity projects faster.

There is not much dependency between these two variables with a correlation coefficient of 0.188, but there is some trend that students who study more also spend more time on a project, before finishing it.

Students from which country are most likely to purchase swag?

Percentage of students interested in Udacity swag per country of origin
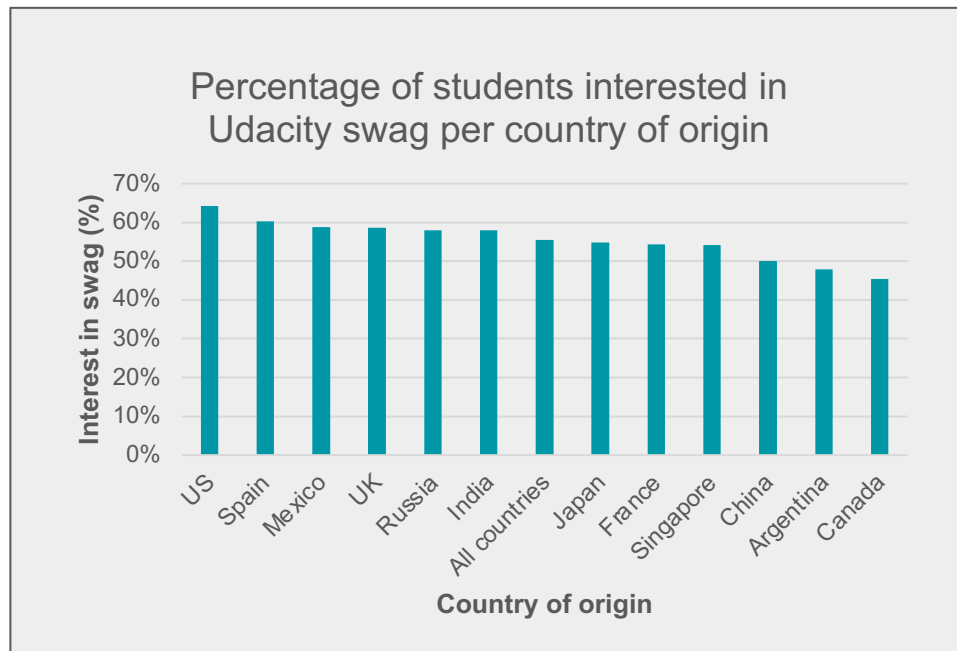
Students from the US stated more often than students from any other country, that they are interested in purchasing Udacity swag. 64 % of US students signalled an interest, compared to the average of 56 % overall students.

Students from Canada showed the smallest interest with only 45 %.