CS210 PROJECT

ZEYNEP BETUL GUREL
22509

Motivation

This project emerged to examine my four-term academic process at Sabancı University in a more comprehensive manner. Using data from my own lecture notes and observations, I sought to understand what role seasonal effects play in student performance. During this process, my personal experiences and the trends observed in my course notes provided important information to shed light on the potential effects of seasonal changes on academic success.

The focus of the study is to analyze trends in student performance and develop strategies for possible improvements based on these trends. By evaluating the performance in each semester, I tried to identify the differences that emerged especially between the autumn and spring semesters. The insights I gained through this process helped me understand the strengths and weaknesses in my own learning processes and gain an understanding of how to develop more effective strategies for future success.

My project is not limited to my own academic performance, but focuses on understanding the factors that may affect the student community in general and supporting students' success with inferences made in this context. Therefore, it leads me to think about how the project can be evaluated in a wider context, taking into account my results, limitations and future areas of work.

Data source

My data set was obtained from an Excel file containing personal lecture notes. While creating this file, I manually recorded the grades of the courses I took in each semester. I also documented my experiences and observations during the lessons in this report. This data set is not just a numerical value of student performance, but also includes subjective elements in my learning experience.

At the end of each semester, I calculated my semester and overall GPA using the grades in the Excel file. Then, by separating this data by periods, I tried to determine the performance differences between the fall2021-2022, spring2021-2022, fall2022-2023 and spring2022-2023 periods. The personal nature of my data set allowed this study to be enriched

with a subjective perspective and provided a deeper understanding of seasonal variations in student performance.

This data collection process formed the basis of the project, while also providing the opportunity to reflect on a personal learning process. In this way, I gained a better understanding of the meaning of the data and increased ability to evaluate seasonal effects on student performance. The fact that the data set was created manually brings with it the limitations of the study. I will discuss these limitations in more detail later in the Limitations and Future Work section.

Data analysis

My data analysis process initially started by calculating the averages of course grades in the Excel file. This phase was an important step in identifying overall performance trends and understanding how my seasonal performance was changing. Separating grade point averages by season allowed me to see the differences between the fall and spring semesters more clearly.

I then applied t-test and p-value analyzes to evaluate statistical significance. Using these techniques to determine statistical differences between fall and spring periods allowed me to uncover not only whether seasonal effects were noticeable trends, but also whether these differences were statistically significant.

This phased analysis process allowed me to answer the project's central questions: Do seasonal changes really affect student performance? Are these effects limited to visible trends or can they be verified statistically? These analyzes demonstrate that the project was conducted on an objective basis and that the results obtained are reliable, and also helped me further deepen my understanding of seasonal effects on student performance.

Findings

The project results clearly demonstrated the effects of seasonal changes on my grades throughout my four-semester academic period. It was an interesting finding for me to observe that my grades were higher during this period, especially in the autumn semester. Because I

always thought that clear, sunny weather affected me better and that I could focus better. But I examined my own learning experiences and the trends in my lecture notes to observe and make sense of the opposite situation.

Good weather conditions and short vacation periods in the spring make it difficult for me to focus on classes. During this period, I realized that hot weather and outdoor activities distracted me. On the contrary, my physical and mental strength resulting from the cloudy weather conditions and longer vacation periods in the autumn provided me with the opportunity to focus and spend more time working. This helped me understand seasonal changes in my grades and develop and improve my own learning strategies.

These results contributed to my better understanding of the strengths and weaknesses in my own learning processes. In order to adapt to seasonal changes more effectively, I began to adjust my study plans and strategies according to seasonal factors. For example, I try to make time for more outdoor activities in the spring, while planning for busier work periods in the fall. At least I can more easily choose the courses I will take in the spring, or I can lighten the burden of spring courses by studying extra in the fall. As another option, I can meet both my social and academic needs in the most satisfactory way by making a more regular study plan in the spring semester that starts early in the day.

Thus, the personal insights I gained from this project were a valuable lesson for me in understanding not only the seasonal variations in my grades, but also my learning style and effective study methods.

Limitations and future work

Considering the limitations of this study, the most important limitation is that the data set is based on my personal observations and my own performance data. Data obtained from my own performance may not be fully representative of the general student population, making it difficult to generalize my results to other students. That is, it limits the capacity to generalize. Another important factor that limits the scope of the study and prevents it from giving accurate results is the exclusion of a number of external factors that may affect student performance, such as personal living conditions, course schedule, and students' psychology and individual characteristics.

In the future, I aim to overcome these limitations in order to put the project on a stronger and broader foundation. First, I aim to increase the study's ability to generalize by using a data set that includes a broader student population. A data set containing data from students from different departments and classes will allow seasonal effects to be examined from an interdisciplinary perspective. I would also like to evaluate other potential factors that may influence student performance in future studies. For example, understanding the effects of factors such as social interactions outside of class, sleep patterns, and general health status on performance will allow me to make a more comprehensive, accurate analysis.

Considering the limits I have stated and my future plans, with this project I aim to develop strategies that will increase the performance of each student and help them adapt to seasonal changes more effectively, using the grade improvement and development methods I have found for myself.