Department of Computer Engineering
Faculty of Engineering–Cairo University

MTH2253 Course
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The Bayesian Believers Team

Student Beheviour

Introduction

We've seen a lot as university students for more than three years—both our own and our friends' stories. We now know about the various facets of student life and the factors that impact it. This inspired us and made us consider offering assistance to brand–new pupils. Our goal was to discover the secret to maintaining a healthy balance between academic pursuits and personal enjoyment.

Visualizations of our data
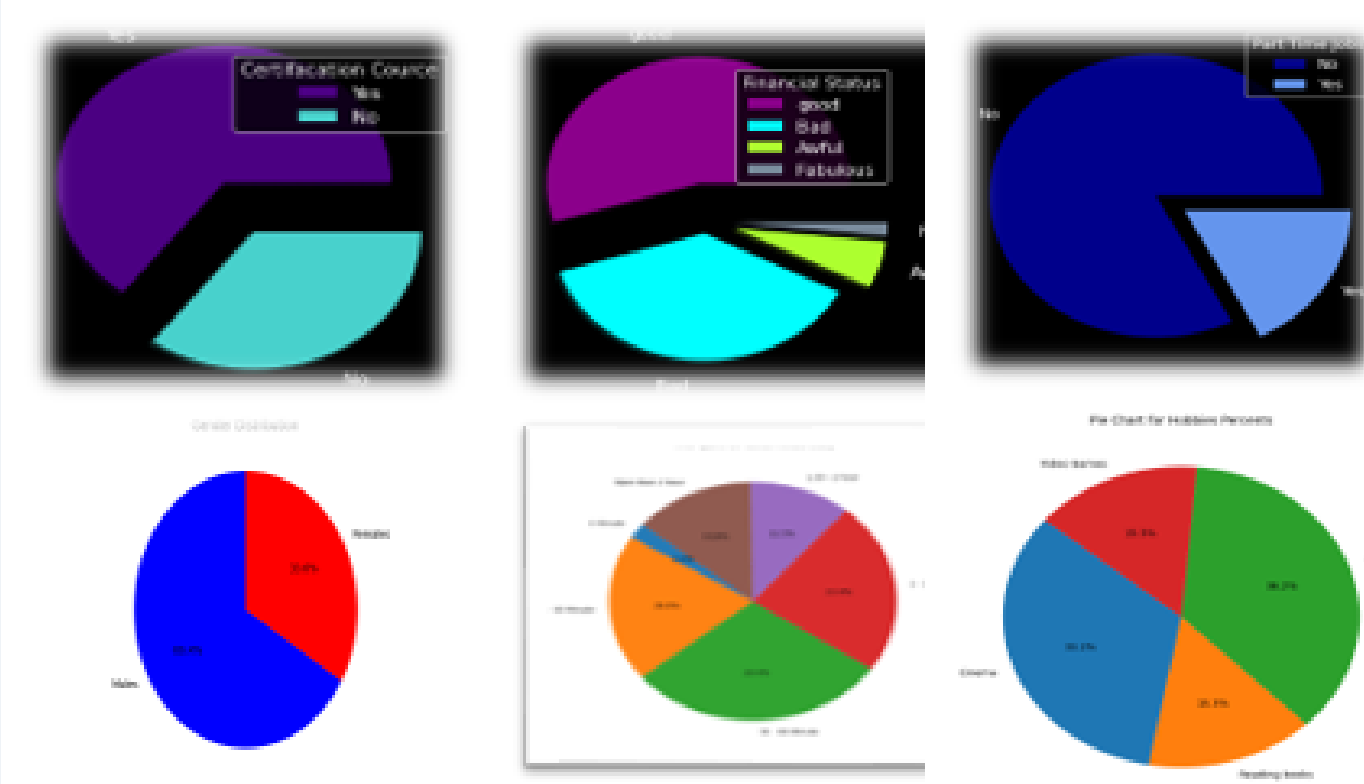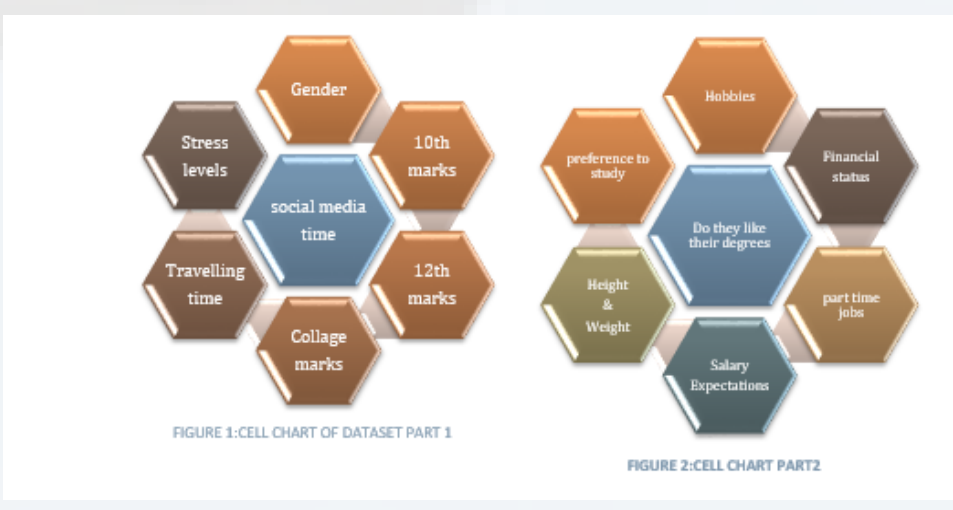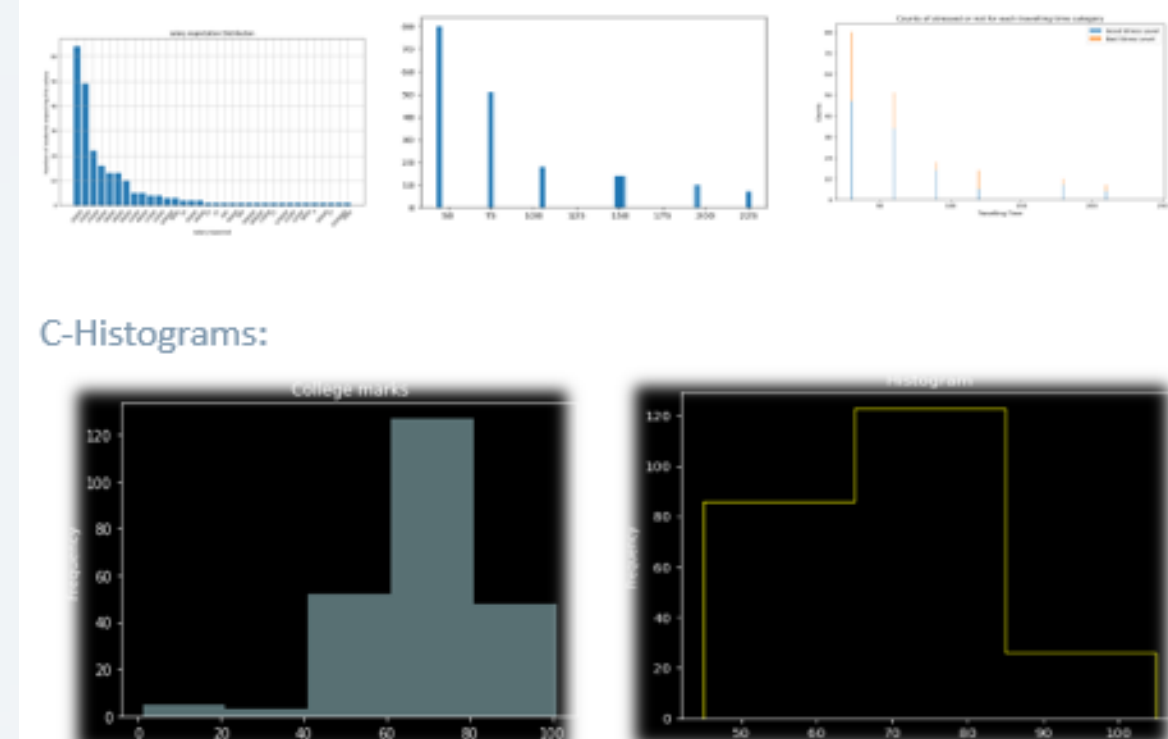
This shows the descriptive statistics of our data, which include feuture names, bars, pies, histograms, and correlations.

Abstract

Since students make up a sizable percentage of our population.We make the decision to look into some of the variables that influence their behavior when they are learning more.because we are unable to manage a big population. We inquired about the lifestyle preferences of a sample of 235 college students.Next, we used descriptive statistics to initially describe our data.After that, we determined the methodologies required for that, and in order to generalize it for huge populations, we enlisted the aid of certain supervised machine learning techniques.Our research yielded some very positive outcomes, which allowed us to draw more conclusions.

Methodologies

Based on our prior data, there are numerous and diverse relationships in it, from which machine learning models can infer a wide range of conclusions. Let's give them some serious thought.

Questions To be answerd

- What is the likelihood that students who work part–time will have a secure financial situation?
- Can we use high school grades to predict college grades?
- Do grades have an impact on stress levels?
- Does the number of hours spent on social media correlate with grades?
- Does travel make people less stressed?
- Is there a connection between performing well in school and attending college?

Machine Learning Algorithms

- Naive Bayes.
- Random Forest classifies
- Linear Regression
- Correlations
- Logistic Regression

Numerical Analysis

we will have a more in–depth discussion with you regarding our models. Here, we encountered several numerical pricing and provided them with our predictive model's graphs in an attempt to find the answers to our questions.
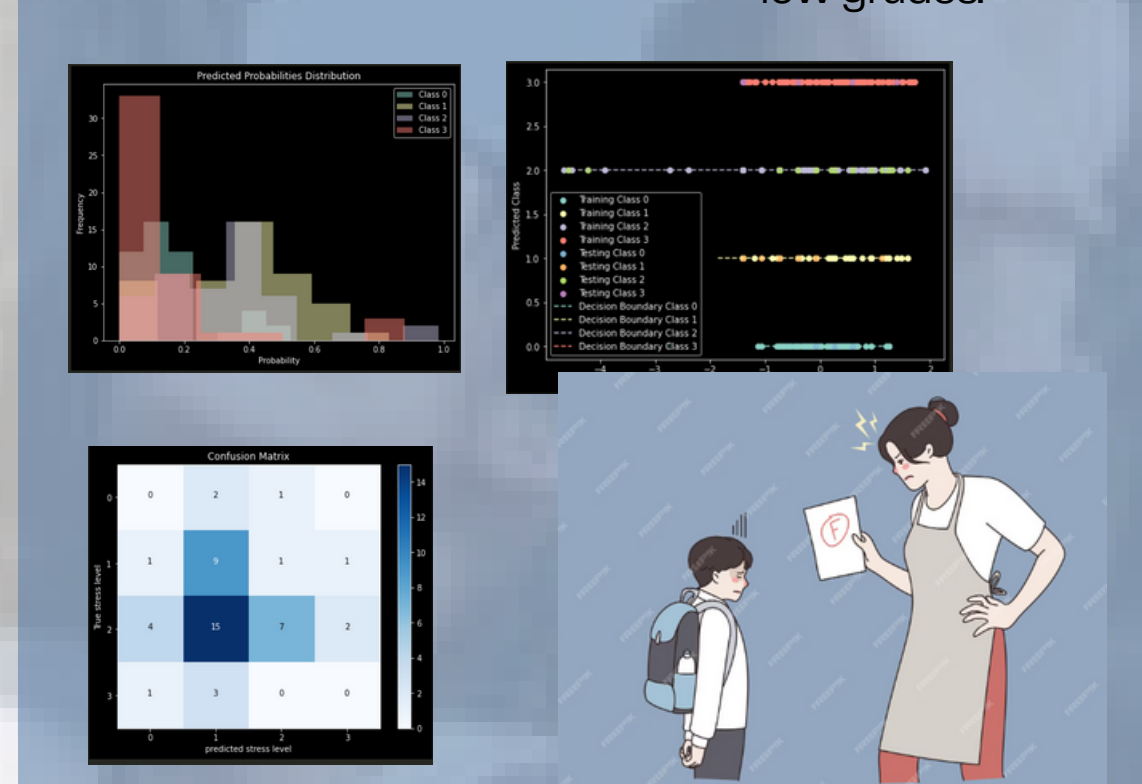
Stress level and marks?

Here we used random forest classifier to catogrize student stress levels into 4 based on their college mark and we found the majority of them get bad stress level with bad marks .
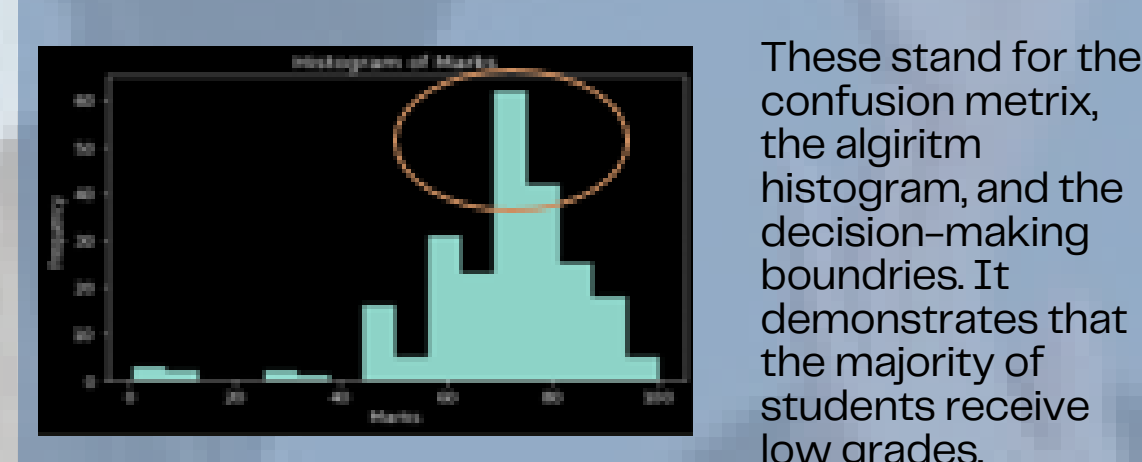
These stand for the conlusion metrix, the agirtm histogram, and the decision–making boundries. It demonstrates that the majority of students receive low grades.

Stress level and Travelling time?

Here, we classified the stress level of the students based on how much time they spent traveling by using logistic regression. It is more so for people who travel frequently.
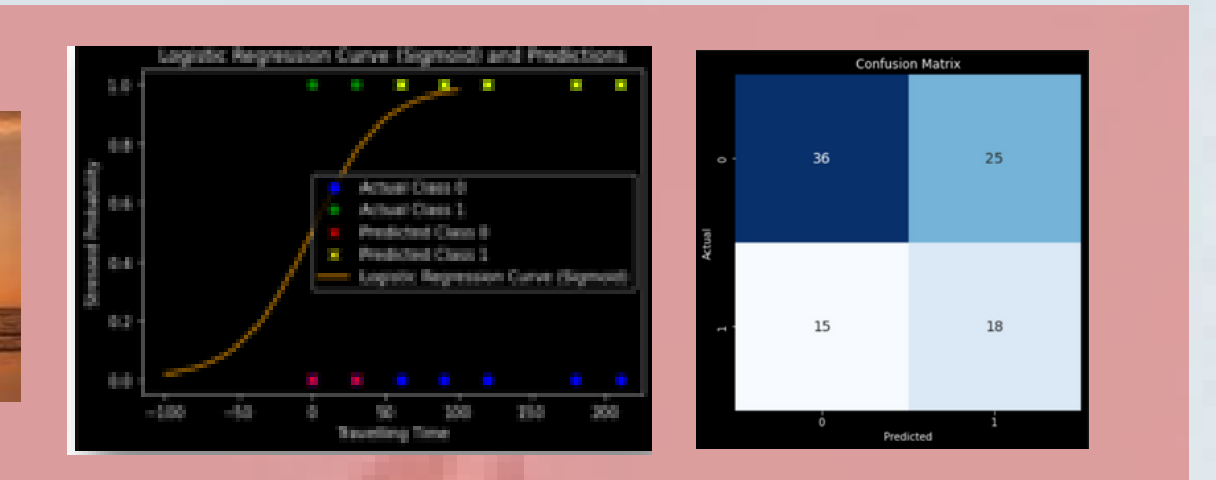
12th Marks and College Marks

In this case, we used linear regression to forecast a student's college score based on their 12th grade grades, but first we discovered a correlation and the true linearity between those variables.

Social media hours and marks?

Here, we obtained the correlation and discovered that it was zero, indicating that there was no relationship between those, and we rejected the claim that students were addicted to social media. We also used linear regression to confirm the absence of a relationship between those.
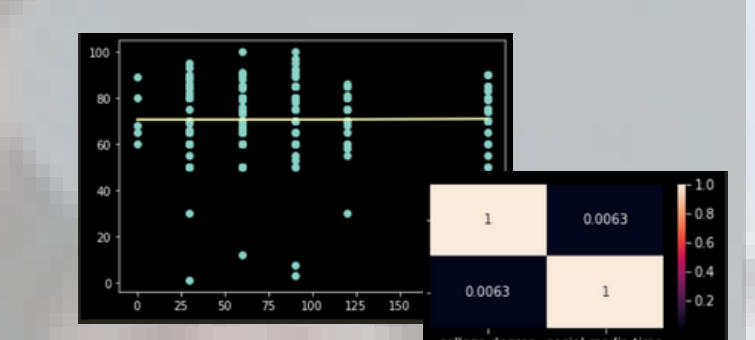
Financial status with part-time jobs

Here we used naive bayes to deduce the financial statuse of students knowing that they take part time jobs .
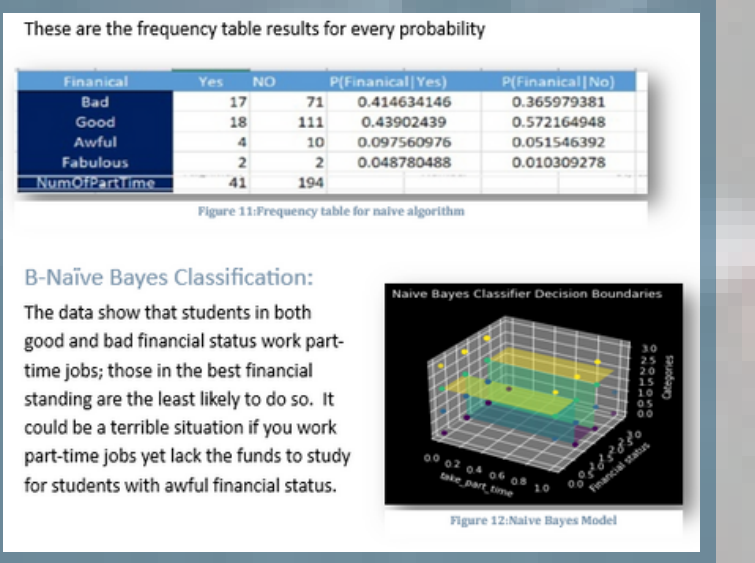
Conclusion

- strong correlation between college and 12th grade grades.
- Students who travel frequently experience reduced stress.
- Unsatisfactory grades raise students' stress levels
- There is no correlation between the amount of time students spend on social media and their grades
- Regardless of their financial situation. The majority of students work part–time jobs. .

Final Message

We have finally arrived at the conclusion of our voyage, having shared all the joys and sufferings of the kids. We have given a lot of thought to what is happening, how it affects their mental health, what they want, and everything else.
in fact, the research was excellent in helping us as students understand what to look for.

References

- https://en.wikipedia.org/wiki/Machine_learning
- https://www.kaggle.com/datasets/gunapro/student-behavior

Team Notebook of codes

- https://drive.google.com/file/d/18bZazIaBD9xoy5g35mZR1MhOnRUPa2vB/view?usp=drive_link

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