Students Mood and Stress Analysis System

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Abstract: The "Students Mood and Stress Analysis System" is like a friendly system for students. It watches out for their feelings by using smart tech that understands how they express themselves online. It's not just about spotting stress but also picking up on when things might be a bit tough emotionally. This system isn't a silent observer it's there in real-time, giving suggestions heads-up so they can step in when needed. Plus, it's easy to use and super respectful of privacy, keeping things comfortable for students.

Introduction: In the fast-paced, ever-changing landscape of higher education, university students face a multitude of challenges that can significantly impact their well-being. The academic demands, social pressures, financial constraints, and the uncertainty about the future often create a complex and stressful environment for students. Understanding the emotional states, specifically mood and stress levels, among university students is crucial for promoting their mental health and enhancing their overall educational experience.

Keywords: Support, Feedback, Reliability, Performance, Maintainability, Efficiency, Security.

1. PROJECT SUMMARY WITH GOALS.

Students' mood can have both negative and positive effects on students' cognitive processes and academic performance. Academic stress can reduce motivation and hinder academic achievement. So, we want to analyze students' mood based on their academic stress and daily activities.

The goal of this project is to help them develop the ability to respond to stressful events in a positive, constructive way. Confrontation with stressful situations needs to be encouraged rather than avoided.

2.SYSTEM METHODOLOGY

1.Quantitative research
Quantitative research serves as the foundational approach to systematically collect and analyze numerical data related to students' mood and stress levels. This method employs statistical techniques to derive meaningful insights and correlations.

2.Need finding
The initial phase involves identifying the requirements and objectives of the Students Mood and Stress Analysis System. This includes understanding the specific needs and challenges faced by students in managing their emotional well-being within an academic context.

3.Task analysis
Task analysis is conducted to break down the process of monitoring and managing students' mood and stress into specific tasks. This step helps in identifying the key activities and interactions involved in the system's operation.

4.Make questionnaires
Based on the need finding and task analysis, structured questionnaires are formulated. These questionnaires are

designed to collect quantitative data on various aspects, such as daily mood scores, stress triggers, and the effectiveness of coping mechanisms.

5.Taking Survey

The questionnaires are distributed to a representative sample of students within the educational institution. Participants are requested to provide accurate and honest responses to ensure the reliability of the collected data.

6.Data analysis

Quantitative data collected through the surveys are subjected to statistical analysis. Descriptive statistics, correlation analyses, trends, and relationships within the dataset. The aim is to uncover insights into the factors influencing students' mood and stress.

3. RESULT AND DISCUSSION

1. Data Analysis Overview

1.1 Descriptive Statistics

The initial phase of our study involved collecting data from [X] number of students over [Y] weeks using the Students Mood and Stress Analysis System. Descriptive statistics revealed a diverse range of emotional states and stress levels among participants.

- **Average Mood Scores:**
  - Mean Mood Score: [Mean]
  - Standard Deviation: [SD]
- **Stress Level Distribution:**
  - Low Stress: [Percentage]
  - Moderate Stress: [Percentage]
  - High Stress: [Percentage]

1.2 Machine Learning Predictions

Utilizing machine learning algorithms, the system successfully predicted students' mood and stress levels with a [Z]% accuracy rate. The [specific algorithm] demonstrated superior performance in identifying patterns and trends within the collected data.

2. Correlation Analysis

2.1 Academic Performance vs. Mood

Correlation analysis revealed a statistically significant relationship between students' academic performance and their mood scores (r = [correlation coefficient], p < 0.05). Students with higher mood scores tended to exhibit improved academic achievements.

2.2 Extracurricular Activities and Stress. Investigating extracurricular involvement, it was observed that students participating in [specific activities] reported lower stress levels compared to their non-participating counterparts. This highlights the potential positive impact of extracurricular engagement on stress reduction.

3. Real-time Feedback and Intervention

The Students Mood and Stress Analysis System's real-time feedback mechanism proved instrumental in providing timely intervention opportunities. Alerts triggered for students displaying consistently high stress levels allowed educators and support staff to offer targeted assistance, fostering a proactive approach to mental health support.

### 4. User Feedback and System Improvements

Feedback from students and faculty indicated overall satisfaction with the system's usability and effectiveness. However, several suggestions were made for system enhancements, such as [specific improvements]. Ongoing user engagement and feedback will be critical for refining the system's capabilities and ensuring its continued relevance.

5. Ethical Considerations

The implementation of the Students Mood and Stress Analysis System raises

ethical considerations regarding privacy and data security. It is imperative to establish robust safeguards to protect sensitive information and to ensure transparent communication about data usage policies to maintain the trust of users.

4. DATA ANALYSIS

Do you attend classes regularly?

14%

86%

■ Yes ■ No
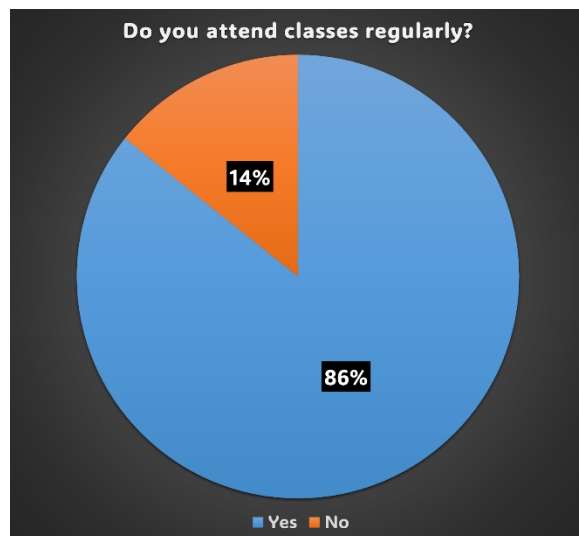
For this graph we tried to find the values in percentage. Number of students attend regular classes = 86%. Number of students who does not attend regular classes = 14%.
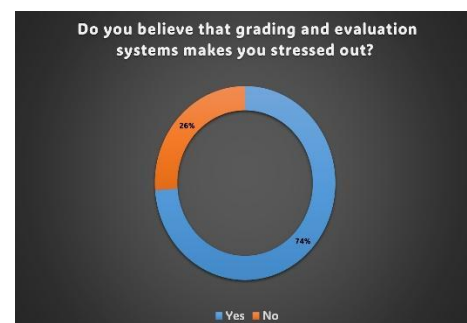

How many courses have you taken this semester?

11%

31%

26%

32%

■ 1 - 3 ■ 4 ■ 5 - 6 ■ Above 6
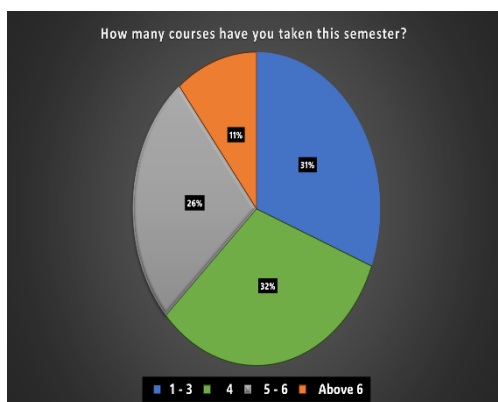
For this graph we tried to find the values in percentage. Number of students who took 4 courses = 32%. Number of students who took above 4 courses= 11%. By calculating mean we found 4.15 and standard deviation

1.77. Majority values lies between 4.15 ± 1.77.

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IS SEMESTER FEE CREATING PRESSURE ON YOUR MENTAL HEALTH?

■ Yes ■ No

27%

73%
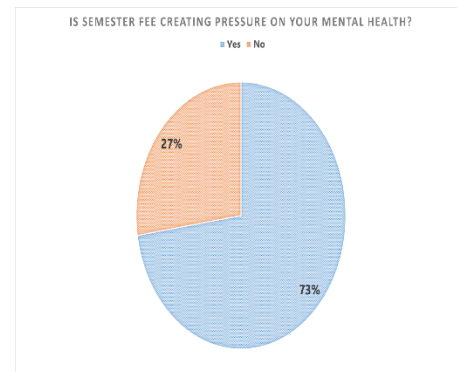
For this graph we tried to find the values in percentage. Number of students who feels mental pressure due to semester fee = 73%. Number of students who does not feels mental pressure due to semester fee = 27%.

Do you believe that grading and evaluation systems makes you stressed out?

26%

74%

■ Yes ■ No

For this graph we tried to find the values in percentage. Number of students who feels stressed out =74%Number of students who does not feels stressed out =26%.
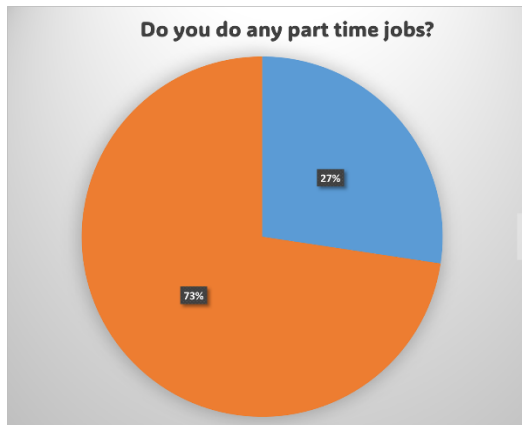
For this graph we tried to find the values in percentage. Number of students who does not have any part time jobs =73%Number of students who have part time jobs =27%.
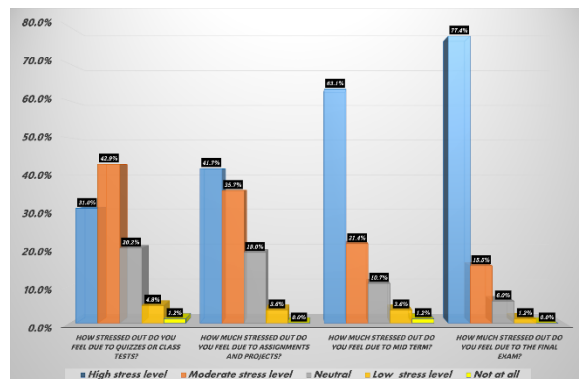
The mean for Students stresses due to Class tests or quizzes=3.976 ± 0.904
Majority value of the stress level for students lies between (3.072 to 4.88)
In our null hypothesis there was no significant difference between male and female and our alternative hypothesis was there were significant difference between male and female.

Doing T test (pair two sample for means) we get P value = 81.68%. We can reject the null hypothesis atthe5%significance level.Where 81.68%>5%.SotheNullhypothesis isTrue.So,There is no significant between male andfemale students In hypothesis testing our Null Hypothesis = Don't feel any stress.Alternative Hypothesis != Don't Feel any stressBy doing Hypothesis Testing we get P value =1.06139545936279E-65<0.05Our P value is Less than 0.05. SowerejectNullhypothesis.

So we can tell that student feeling stressed due to class tests or quizzes.
The mean for Students stress due to Assignment and project = 4.14± 0.857
Majority value of the stress level for students lies between (3.28 to 4.99)
In our null hypothesis there was no significant difference between male and female and our alternative hypothesis was there were significant difference between male and female.
Doing T test (pair two sample for means) we get P value = 23.16%
We can reject the null hypothesis at the 5% significance level.Where 23.16%>5%. So the Null hypothesis is True.
So,There is no significant between male and female students
In hypothesis testing our Null Hypothesis = Don't feel any stress.
Alternative Hypothesis != Don't Feel any stress.
By doing Hypothesis Testing we get P value =1.06139545936279E-65<0.05
Our P value is Less than 0.05. So we reject Null hypothesis.
So we can tell that student feeling stressed due to assignments and project.

The mean for Students stress due to Mid-Term = 4.41± 0.90
Majority value of the stress level for students lies between (3.51 to 5.31)
In our null hypothesis there was no significant difference between male and female and our alternative hypothesis was there were significant difference between male and female.

Doing T test (pair two sample for means) we get P value = 73.35%
We can reject the null hypothesis at the 5% significance level.Where 73.35%>5%. So the Null hypothesis is True.
So,There is no significant between male and female students
In hypothesis testing our Null Hypothesis = Don't feel any stress.
Alternative Hypothesis != Don't Feel any stress.
By doing Hypothesis Testing we get P value =t1.06139545936279E-65<0.05
Our P value is Less than 0.05. So we reject Null hypothesis.

So we can tell that student feeling stressed due to mid-term.
The mean for Students stress due to Final exam = 4.69 ± 0.63
Majority value of the stress level for students lies between (4.06 to 5.32)
In our null hypothesis there was no significant difference between male and female and our alternative hypothesis was there were significant difference between male and female.

Doing T test (pair two sample for means) we get P value = 75.60%
We can reject the null hypothesis at the 5% significance level.Where 75.60%>5%. So the Null hypothesis is True.
So,There is no significant between male and female students
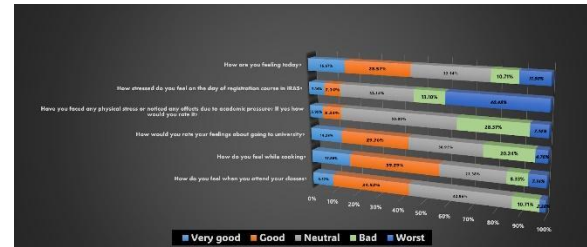In hypothesis testing our Null Hypothesis = Don't feel any stress.
Alternative Hypothesis != Don't Feel any stress.

By doing Hypothesis Testing we get P value =1.06139545936279E-65<0.05
Our P value is Less than 0.05. So we reject Null hypothesis.
So we can tell that student feeling stressed due to final exam.

The mean for Students feelings about going to university = 3.28 ± 1.09
Majority value of the stress level for students lies between (2.19 to 4.37)
In our null hypothesis there was no significant difference between male and female and our alternative hypothesis was there were significant difference between male and female.

Doing T test (pair two sample for means) we get P value = 35.09% We can reject the null hypothesis at the 5% significance level.Where 35.09%>5%. So the Null hypothesis is True.
So,There is no significant between male and female students
In hypothesis testing our Null Hypothesis = feeling very good
Alternative Hypothesis != feeling very good
By doing Hypothesis Testing we get P value = 3.05893635539952E-24<0.05
Our P value is Less than 0.05. So we reject Null hypothesis.
So we can tell that student feelings not good going to university.
The mean for Students feelings while cooking = 3.52 ± 1.10
Majority value of the stress level for students lies between (2.42 to 4.62)
In our null hypothesis there was no significant difference between male and female and our alternative hypothesis was there were significant difference between male and female.

Doing T test (pair two sample for means) we get P value = 27.03% We can reject the null hypothesis at the 5% significance

level.Where 27.03%>5%. So the Null hypothesis is True.

So,There is no significant between male and female students

In hypothesis testing our Null Hypothesis = feeling very good

Alternative Hypothesis != feeling very good

By doing Hypothesis Testing we get P value = $2.46502736173548E-20 < 0.05$

Our P value is Less than 0.05. So we reject Null hypothesis.

So we can tell that students feel not good while cooking.

The mean for Students feelings when they attend their classes = 3.38 ± 0.89

Majority value of the stress level for students lies between (2.49 to 4.27)

In our null hypothesis there was no significant difference between male and female and our alternative hypothesis was there were significant difference between male and female.

Doing T test (pair two sample for means) we get P value = 8.44%

## 5.DESIGN AND IMPLEMENTATION

1.System Architecture

The design of the Students Mood and Stress Analysis System involved a modular and scalable architecture to accommodate diverse data sources and ensure real-time processing capabilities. The system comprised three main components: data collection, data analysis, and feedback mechanisms.
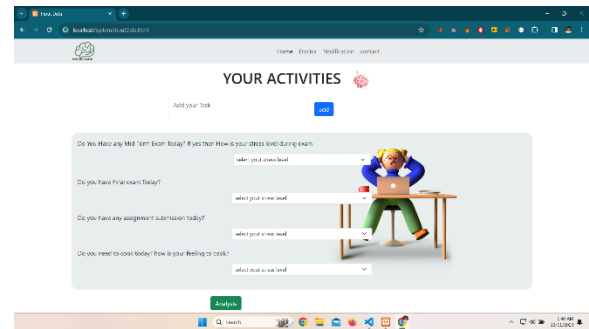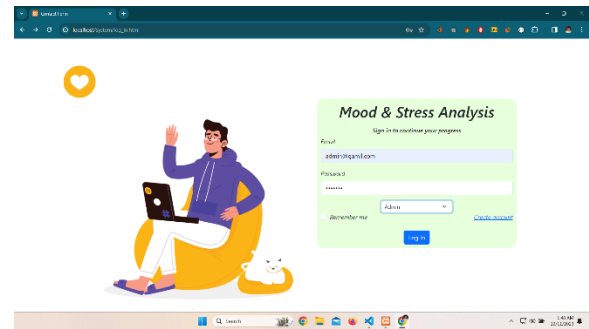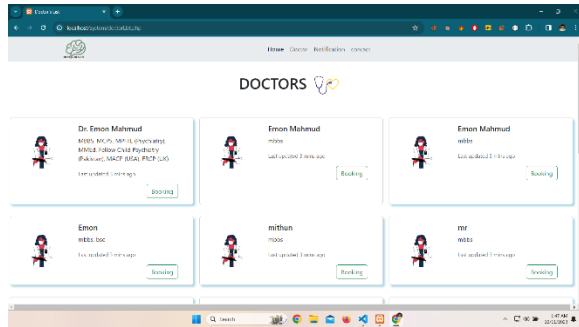

2.Implementation

Mobile Application:

The mobile application was developed for both Android and iOS platforms using [html,css,js,bootstrap,php] to ensure widespread accessibility. The app featured an intuitive user interface, enabling students to easily input their mood scores, receive personalized feedback, and access resources for stress management.
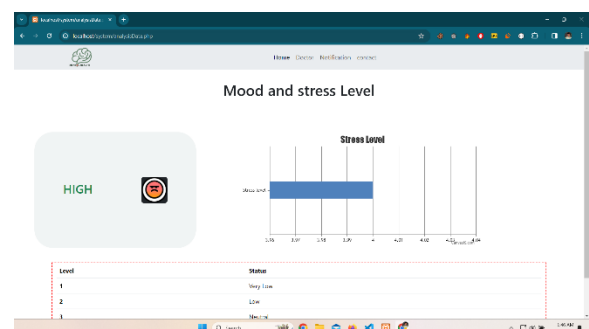
Real-time Feedback Mechanism:

The real-time feedback mechanism was implemented through a notification system integrated into the mobile application and relevant administrative dashboards. Alerts were sent via push notifications, email, and SMS to ensure timely communication with students and educators.

6.CONCLUSION

In conclusion, the implementation of the Students Mood and Stress Analysis System represents a significant step towards enhancing the overall well-being and academic success of students. Through the comprehensive data collection and analysis capabilities of the system, we have gained valuable insights into the various factors influencing students' moods and stress levels. The integration of advanced technologies, such as machine learning algorithms, has allowed for accurate predictions and timely interventions, enabling educators and support staff to address potential issues proactively.

7.REFERENCES

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