

Student's mood analysis based on academic stress and daily activities

Student's Mood Analysis

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Abstract—We made a website called "Students Mood And Stress Analysis System " which is created to support university students' emotional health in their academic life. Using this website students can monitor their daily mood data. This will provide them their mental health state information. The website uses this data provided by the university students to provide specific recommendations, which will make the life of the students easy and will also allow students to make decisions about their mental health that are knowledgeable. Our approach shows promising results in helping cope with students' mental health issues.

Index Terms—component, formatting, style, styling, insert

I. INTRODUCTION

The university is currently undergoing an unusual increase in mental stress. In the challenging academic environment, students often face different challenges that can negatively impact their mental health negatively. Understanding the importance of mental health for academic success we have developed a website named Students Mood and Stress Analysis System which is a user-friendly website designed to help students to manage their mental health effectively. Our website provides a comprehensive solution, allowing students to monitor their daily moods and activity which gives them valuable information of mental well-being over time. Our self-reporting website provides personalized recommendations based on the submitted information. By analyzing mood data provided by the students our website provides suggestions to help the

students make decisions for their mental well-being. In this paper we focus on emphasizing on the potential to transform how students prioritize and address their mental health.

METHODOLOGY

We design a prototype of website for mood and stress analysis for university students. Students input their daily activities and predict their stress levels and give suggestions like they can avoid cook, you could order food or student could avoid less priority work for now. We collect data from university students. For collecting data, we make questionnaires. There were 21 questions and most of the questions were Likert. We completed our survey in Google form. After completing the survey, we completed the student's need findings then we analyzed data in Excel. We find out mean, mood, and standard deviation and we try to understand which types of activities they stress out. After that, we did hypothesis testing. In usability testing for our prototype, we collected data in the System Usability Scale (SUS) from our targeted audience. [1]

DATA ANALYSIS AND RESULT

We have received 84 responses. We have collected data by Google form survey. We take 50% male and 50% female, as shown in the fig-1. From the bar chart (fig-2) we can see 42.9%(36 students) of students feel moderate stress, 31%(26 students) of students feel high stress and there are a small number of students who didn't feel any stress during

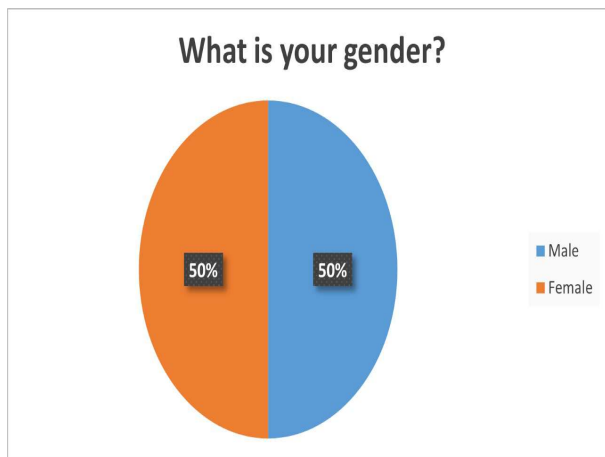


Fig. 1.

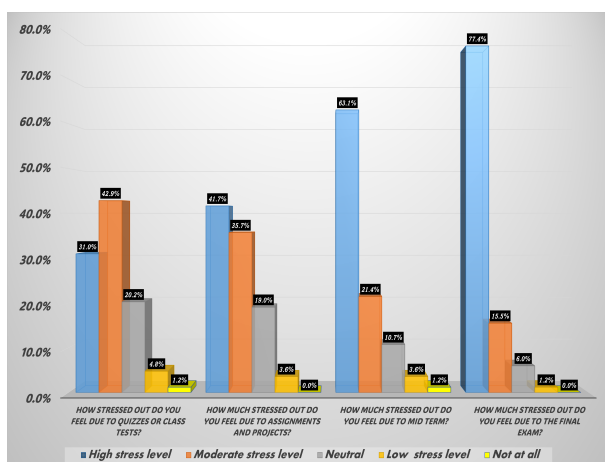


Fig. 2.

class tests. Calculating the mean in Excel sheet, we found 3.98 ± 0.90 , where 0.90 is the standard deviation. During the assignment and project period 41.7%(35 students) of students feel high stress, 35.7%(30 students) of students feel moderate stress and 3.6%(3 students) of students feel low stress. Calculating the mean in Excel sheet, we found 4.15 ± 0.86 , where 0.86 is the standard deviation. 63.1%(53 students) of the students are highly stressed out due to mid-term and 21.4%(18 students) of the students feel moderate stress due to mid-term. Only 1.2% of students didn't feel any stress due to mid-term. Calculating the mean in Excel sheet, we found 4.42 ± 0.91 , where 0.91 is the standard deviation. 77.4%(65 students) of the students are highly stressed out due to the final exam and 15.5%(13 students) of the students feel moderate stress due to the final exam. Only 3.5% of students feel low stress due to the final exam. Calculating the mean in Excel sheet, we found 4.69 ± 0.64 , where 0.64 is the standard deviation.

We see from the graph (fig-3) that 34.52% (36 students) and 9.52% (8 students) of the students feel good and better when

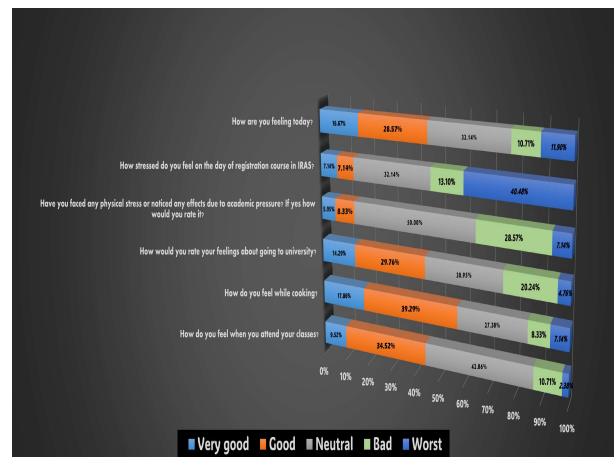


Fig. 3.

they attend class. Calculating the mean in Excel sheet, we found 3.38 ± 0.89 , where 0.89 is the standard deviation. 39.29% (33 students) and 17.86% (15 students) of the students feel good and better when they cook. Calculating the mean in Excel sheet, we found 3.52 ± 1.10 , where 1.10 is the standard deviation. 28.57% (24 students) and 7.14% (6 students) of the students faced physical stress due to academic pressure. 40.48%(40 students) and 13.10% (11 students) of the students were stressed out due to registration in IRAs. Calculating the mean in Excel sheet, we found 2.27 ± 1.26 , where 1.26 is the standard deviation.

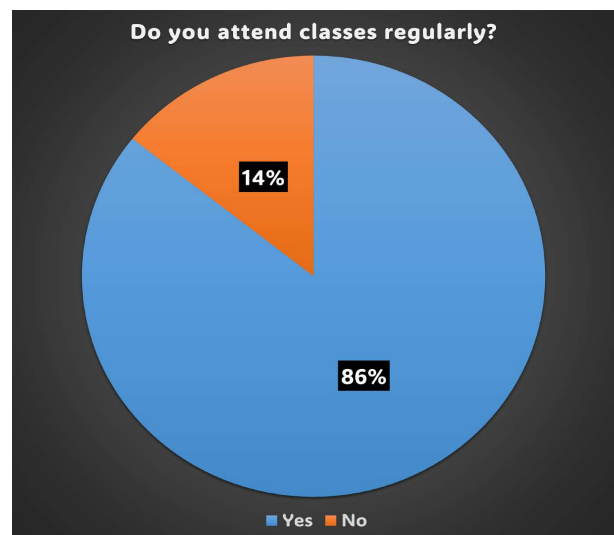


Fig. 4.

From fig-4 we found that 86% of students attend class regularly and 14% of students didn't attend class regularly. 73% of students create pressure on mental health when they paying semester fee found it from fig-5 and 74% of the students believe grading system and evaluation system makes them stress out.

In this step we checked by hypothesis testing there are no

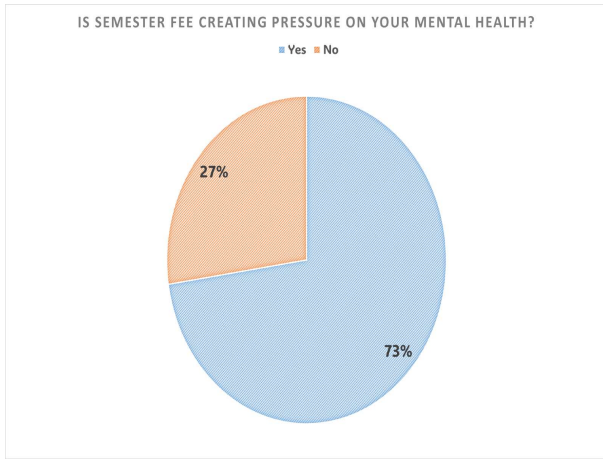


Fig. 5.

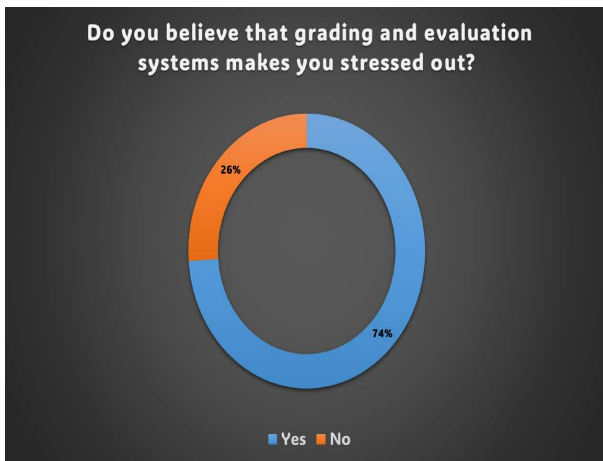


Fig. 6.

| Activity | p-Value |
|------------------------|-------------------|
| Attend Class | 0.0844 or 8% >5% |
| Class Test | 0.8169 or 82% >5% |
| Assignment and Project | 0.2316 or 23% >5% |
| Mid Term | 0.7335 or 73% >5% |
| Final Exam | 0.7560 or 76% >5% |
| Cooking | 0.2703 or 27% >5% |
| Pay semester fee | 0.3508 or 35% >5% |

TABLE I

significant differences between males and females. Here null hypothesis there were no significant differences between males and females and the alternative hypothesis was there were significant differences between males and females. We see in Table-1 that all p-values are greater than 5% so we couldn't reject the null hypothesis therefore alternative hypothesis is true.

For class tests, assignments or projects, mid-term, final null hypothesis is students don't feel any stress and the alternative hypothesis is they feel stress. In table-2 we see p-values are very small and it's less than 0.05 therefore they feel stress. For attending classes, coking, paying semester fee, going to

| Activity | Result |
|-----------------------|-------------------------------|
| Attend class | $3.28 \times 10^{-28} < 0.05$ |
| Cooking | $2.48 \times 10^{-20} < 0.05$ |
| Paying semester fee | $1.04 \times 10^{-34} < 0.05$ |
| Going university | $3.06 \times 10^{-24} < 0.05$ |
| Academic pressure | $1.56 \times 10^{-36} < 0.05$ |
| Registration in Iras | $3.97 \times 10^{-33} < 0.05$ |
| Class test | $1.78 \times 10^{-46} < 0.05$ |
| Assignment or Project | $1.18 \times 10^{-50} < 0.05$ |
| Mid-term | $5.65 \times 10^{-51} < 0.05$ |
| Final Exam | $1.06 \times 10^{-65} < 0.05$ |

TABLE II

university, academic pressure, and registration in Iras here null hypothesis is students feel better and the alternative hypothesis is they don't feel better. In table-2 we see p-values are very small and it's less than 0.05 therefore they don't feel better. We found from data analysis and proved that students feel stress due to class tests, mid-term, final exams, assignments or projects, cooking, paying semester fees, going to university, during registration, academic pressure.

Using system usability scale (SUS) we have tested our prototype. We calculated the SUS score by online SUS score calculator. We have received the SUS score below table.

| SL | SUS score |
|----|-----------|
| 1 | 70 |
| 2 | 92.5 |
| 3 | 90 |
| 4 | 87.5 |
| 5 | 95 |
| 6 | 87.5 |
| 7 | 75 |
| 8 | 70 |
| 9 | 72.5 |
| 10 | 80 |
| 11 | 82.85 |

TABLE III

Mean of SUS score is 82.04.

LIMITATION

The students Mood And Stress Analysis System offers a promising solution for the students but it also needs to be acknowledged for certain limitations as well. The accuracy of the provided mood data by the students completely depends on them. The accuracy might also vary from person to person as well. Moreover, the effectiveness of the mood analysis and prediction of this system completely relies on the engagement of the students on a daily basis. If a student fails to provide data on a daily basis or if a student is not consistent enough incase of providing mood data, the system's accuracy might decrease. Privacy is also a concerning factor in this case. Despite having tight security measures, the user may think twice before providing data which may be confidential. [1]

During the survey part, we collected 84 students data overall but due to shortage of time we couldn't gather more

data. We have also provided the form to numerous students but not everyone participated in filling up the survey form. We think the more data we collect the more accurate our data analysis could have turned out and benefited our research. We also took eleven responses for the SUS scale. This number of students could have been much higher if we had time. But this is a part we are looking to update in the future and improve our system accordingly. We haven't applied a machine learning model in our system but we are planning to do it as well. [2]

CONCLUSION

To conclude, the "Students Mood and Stress Analysis System" actively addresses the mental health needs of students while acknowledging the challenges they face in the demanding academic setting. With the unique blend of technology, personalized analysis this website is a potential game-changer in promoting student well-being. The impact of the "Students Mood and Stress Analysis System" extends beyond individual users, signifying its potential to shape a transformative resource. We promise to make mental health important in University. We want to create a culture where everyone cares about and helps the well-being of each student. This method of doing things doesn't just help with urgent mental health problems. It also sets the foundation for creating a strong and close-knit community that cares about everyone's well-being.

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