**Student Mental Health Analysis Project**

**Overview**

This project addresses the growing concern of mental health among students, focusing specifically on depression. Using real-world student mental health data, I developed an interactive dashboard to identify patterns, distributions, and correlations between various factors and depressive symptoms, creating an accessible tool for educators, mental health professionals, and researchers.

**Key Findings**

* **Strong positive correlation** between academic pressure and depression levels – as academic pressure increases, depression levels also go up;
* **Positive correlation** between work/study hours and depression symptoms, students studying or working longer hours tend to show more signs of depression;
* **Negative correlation** between study satisfaction and depression levels – students who are more satisfied with their studies show **lower signs of depression**;
* **No significant correlation** between CGPA and depression, meaning grades alone don't explain mental health outcomes.

**Problem Tackled**

This project addresses the growing concern of mental health among students, specifically focusing on depression. The central problem is the lack of accessible and interactive tools to explore, understand, and visualize mental health data in an insightful manner that could help educators, mental health professionals, or researchers make informed decisions.

**Relevance**

Student mental health has become a critical issue affecting academic performance, social development, and overall well-being. This interactive dashboard supports early detection efforts by making complex data accessible and interpretable, aiding in the development of targeted interventions and raising awareness about student mental health issues.

**Methodology**

My analysis process included:

1. **Data Loading and Inspection**: Imported CSV data using pandas with UTF-8 encoding and error handling
2. **Data Cleaning**: Automatic handling of numeric and categorical data types
3. **Analysis Methods**:
   * Descriptive statistics;
   * Distribution analysis (histograms, bar charts, box plots, violin plots);
   * Correlation analysis.
4. **Visualization Techniques**:
   * Interactive plots with Plotly Express;
   * Dash components for user interaction;
   * Real-time updates based on user selections.

**Key Insights Gained**

* **Technical**: Mastered interactive dashboard development, various data visualization techniques, and feature selection strategies;
* **Conceptual**: Identified meaningful patterns in mental health factors, recognized the value of data-driven decision making, and understood the importance of feature correlation in identifying risk factors.

**Future Improvements**

* Expand the dataset for more comprehensive and accurate results;
* Implement predictive analytics using machine learning to identify at-risk students;
* Enhance the user interface for improved accessibility and user experience.

This project demonstrates how data analysis can provide valuable insights into student mental health, potentially informing interventions that improve student well-being and academic outcomes.

***A link to the GitHub repository containing the code and documentation –*** *https://github.com/emilijadi/business\_school\_project/tree/main/emilijaDi*