Project: Midterm Report

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1 Abstract

summarizing the project [1–4].

AI-generated stuff:

The project aims to develop a comprehensive data mining solution to analyze and predict trends in large datasets. The primary focus is on leveraging advanced machine learning techniques to extract meaningful insights and patterns. The project will involve data preprocessing, exploratory data analysis, model training, and evaluation. The expected outcome is to build a robust predictive model that can be applied to real-world scenarios, providing valuable information for decision-making processes. The project aligns with the course objectives by applying theoretical concepts to practical applications, demonstrating the effectiveness of data mining methodologies.

2 Introduction

TODO: a self-contained intro to the problem, including motivation (why the problem is interesting/important, etc.)

3 Motivation

TODO: A few sentences on why the project is of interest from a data mining and/or real world application perspective.

With the rise of machine learning and pattern prediction models, the ability to analyze and predict upon more complex data and parameters becomes much more approachable. Likewise, child development is a multi-facted situation in which parenting and environmental factors can lead to an incredibly high number of outcomes. This field has had great strides in classical research, but a more modern approach could lead to significant development in the success of future generations. Additionally, predictions against an extensive number of possible outcomes like this represents a current roadblock in machine learning- that is, how modern predictive models can adapt to an ever-increasing set of parameters and decreasing set of training data. Finally, child psychology is interested in recognizing patterns in early behavior in order to reduce the impact of harmful effects from a child's environment.

4 Related work

in the literature, and in kaggle/related forum. Having just 1-2 references or no references to papers/books will lead to low scores. TODO: Add references to related work

4.1 scope

TODO: Any change in scope from original proposal, please see guidelines above.

5 Methodology

TODO: what you are doing / planning to do from a data mining perspective. This can include any exploratory or statistical data analysis, visualization, efficient data storage/compression, fitting

predictive models, clustering, pattern mining, etc. If you are doing / planning to do a comparative study, discuss the methods you are considering, including any methods being used as baselines. Please include a clear evaluation plan, including train-val-test splits, cross-validation, hyper-parameter tuning, and explain clearly how you will do these. You have to highlight alignment of the project with the course clearly, especially if you have received feedback on concerns regarding limited alignment with the course.

6 (Current / Preliminary) Results

TODO: what you have so far in terms of initial results and analysis of initial results. Please see comment on figures/tables above, especially the fact that good captions go a long way to making things readable.

7 Plan of Work

TODO: what are the next steps before the final report. Please be as precise as possible. Note that you will have about a month to finish the project, so make suitably calibrated plans, e.g., do not over/under promise.

8 Conclusions, discussions

References

[1] Elias Aboujaoude. Problematic internet use: an overview. *World Psychiatry*, 9(2):85–90, June 2010.

[2] Hilarie Cash, Cosette D Rae, Ann H Steel, and Alexander Winkler. Internet addiction: A brief summary of research and practice. *Curr. Psychiatry Rev.*, 8(4):292–298, November 2012.

[3] Mauro Pettorruso, Stephanie Valle, Elizabeth Cavic, Giovanni Martinotti, Massimo di Giannantonio, and Jon E Grant. Problematic internet use (PIU), personality profiles and emotion dysregulation in a cohort of young adults: trajectories from risky behaviors to addiction. *Psychiatry Res.*, 289(113036):113036, July 2020.

[4] Anita Restrepo, Tohar Scheininger, Jon Clucas, Lindsay Alexander, Giovanni A Salum, Kathy Georgiades, Diana Paksarian, Kathleen R Merikangas, and Michael P Milham. Problematic internet use in children and adolescents: associations with psychiatric disorders and impairment. *BMC Psychiatry*, 20(1):252, May 2020.