



University of Guadalajara



University Center for Exact Sciences and Engineering

Industry Topics 1: Data Analysis and Visualization

MASTER'S IN APPLIED COMPUTING

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Final Project Proposal

Interactive Dashboard for Memory Test Analysis

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Project Proposal: Interactive Dashboard for Memory Test Analysis

1. Introduction

This project aims to develop an interactive dashboard that dynamically displays and analyzes data from a Kaggle dataset titled Memory Test on Drugged Islanders Data. The dataset records individuals who took memory tests before and after taking drugs, with key variables including personal information, demographic data, emotional state, drug dosage, and memory performance scores.

2. Objectives

- Develop an interactive dashboard that meets the project requirements by allowing users to filter, visualize, and compute metrics from the dataset.
- Enable in-depth data exploration by leveraging various dataset attributes.
- Present insights on how factors such as age, emotional state, drug type, and dosage impact memory test performance.

3. Dataset Overview

The dataset includes the following columns:

- first_name & last_name: Personal identifiers (used for record keeping but not for direct analysis).
- age: Participant's age.
- Happy_Sad_group: Categorical variable indicating the participant's emotional state.
- Dosage: Amount of the drug administered.
- Drug: Name or type of drug taken.
- Mem_Score_Before: Memory test score before drug consumption.
- Mem_Score_After: Memory test score after drug consumption.
- Diff: The difference between the before and after scores, representing the change in memory performance.

4. Dashboard Structure

Layer 1 – Parameters Menu:

- A filtering panel will allow users to modify the dataset by selecting parameters such as age range, emotional state (Happy/Sad), drug type, and dosage.
- Filters will also let users choose specific metrics like memory scores before and after drug consumption or the computed difference (Diff).

Layer 2 – Graphical Representation of Source Data:

- The dashboard will provide interactive visualizations such as heat maps and line charts to display memory performance.
- For example, a heat map could show variations in the Diff metric across different ages and drug dosages, while line graphs could illustrate trends in memory scores before and after drug consumption.

Layer 3 – Metrics Control Panel:

- A dedicated control panel will compute and display key metrics, such as the average memory score improvement (Diff), distribution of scores, and correlation analyses between variables (e.g., age versus Diff or dosage versus Diff).
- Graphical representations (e.g., histograms, scatter plots) will aid in understanding the relationships among variables.