Development Report
PHYSICS II COURSEWORK PERFORMANCE ANALYZER Dashboard
By Shafiq R

Abstract

This report presents the development of the *PHYSICS II COURSEWORK PERFORMANCE ANALYZER*, a dashboard created to facilitate the monitoring and analysis of student performance in the SP025 (Physics II) course at Kolej Matrikulasi Sarawak (KMSw). Built using Google Sheets as the data source and Looker Studio as the visualization tool, the dashboard provides a centralized, real-time view of individual student coursework marks across multiple assessment components. It supports lecturers and academic coordinators in tracking UPS tests, practical assessments, and assignment scores efficiently. With features such as MIS-based student lookup, color-coded sections, and live data updates, the dashboard aims to reduce manual workload, enhance feedback delivery, and promote data-informed academic support. This document outlines the design objectives, platform tools, implementation steps, key features, and potential future enhancements of the system.

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Introduction

The *PHYSICS II COURSEWORK PERFORMANCE ANALYZER* is a customized dashboard developed to support the evaluation and visualization of student coursework marks for the SP025 (Physics II) course at Kolej Matrikulasi Sarawak (KMSw). The dashboard was created in response to the need for a centralized, accurate, and efficient system for managing coursework data. It provides lecturers and academic coordinators with a simplified method of accessing, reviewing, and interpreting students' progress across various assessment components. Developed using Google Sheets and Looker Studio, the system is designed to be accessible, flexible, and compatible with real-time data updates.

Objectives

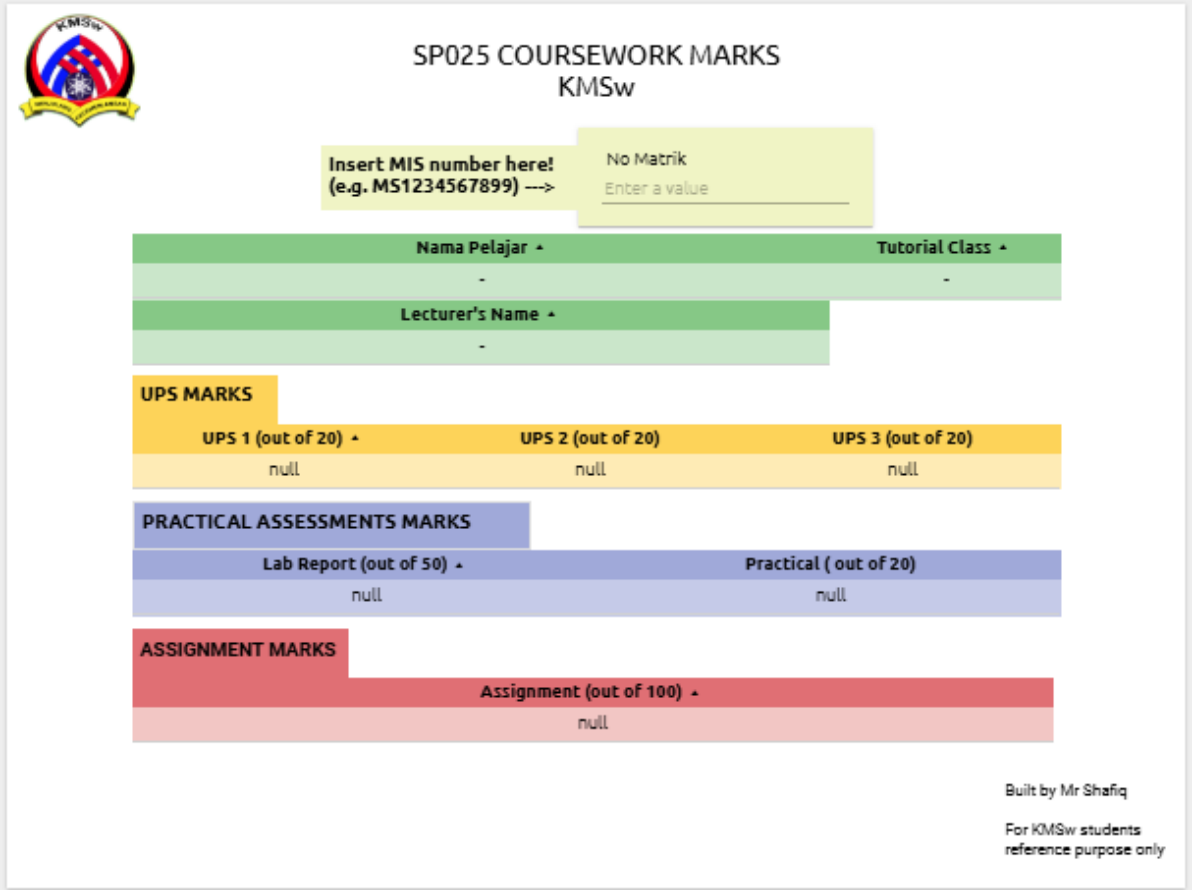
The main objective of this project is to digitalize the management of coursework performance records. It seeks to reduce reliance on manual tracking methods by offering a centralized digital solution that automatically retrieves and displays assessment data. The dashboard also aims to improve the speed and accuracy of feedback given to students by allowing users to instantly view individual performance through a MIS number lookup. Furthermore, it supports academic planning by providing structured performance insights for each coursework component.

Tools and Platforms

The dashboard integrates two key tools: Google Sheets and Looker Studio. Google Sheets serves as the primary data source, where all student assessment records are entered and maintained. It offers easy data entry, cloud-based access, and compatibility with data connectors. Looker Studio, formerly known as Data Studio, functions as the visualization layer. It enables the creation of interactive and user-friendly dashboards that pull live data directly from the Google Sheet. This integration ensures that any updates in the sheet are immediately reflected in the dashboard, maintaining data consistency and accuracy.

Dashboard Features

The dashboard interface is structured for ease of use, with a clean layout and color-coded sections to differentiate assessment categories.



At the top of the interface, there is a field where users can enter a student's MIS number. Once entered, the dashboard retrieves and displays the student's name, tutorial class, and lecturer's name. Below this, the coursework marks are divided into three main sections: UPS marks, practical assessments, and assignment marks. The UPS marks section includes UPS 1, UPS 2, and UPS 3, each graded out of 20 marks and highlighted in orange. The practical assessments section, shaded in blue, includes two components: the lab report (out of 50) and the practical test (out of 20). Finally, the assignment section, presented in red, displays the student's assignment mark out of 100. Each section is clearly labeled and designed for quick reference.

Implementation Process

The development process began with structuring the coursework data in Google Sheets. Each student was assigned a unique MIS number, and their marks were entered under clearly labeled columns corresponding to the relevant assessment components. The Google Sheet was then

connected to Looker Studio using a live connector. Calculated fields and filters were configured in Looker Studio to ensure that data retrieval was accurate and dynamic. A MIS number filter was implemented to allow individualized performance lookup. The dashboard layout was carefully designed to align with the logical structure of the coursework, and colors were applied to visually distinguish the different assessment categories. Dummy data was used during testing to ensure functionality and accuracy before deploying the dashboard for academic use.

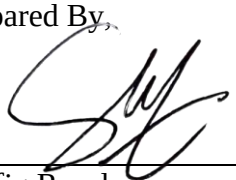
Future Enhancements

To further improve the functionality and value of the dashboard, several enhancements are planned. These include the addition of automated total score and grade calculations, graphical representations of class-wide performance (such as averages and distributions), and the ability to export individual reports to PDF. Another potential improvement is the integration of basic access control features or verification methods to ensure data privacy. These future additions would expand the dashboard's role from a performance tracker to a full-featured academic monitoring tool.

Conclusion

In conclusion, the *PHYSICS II COURSEWORK PERFORMANCE ANALYZER* dashboard offers a modern, efficient, and accessible solution for managing student coursework marks at Kolej Matrikulasi Sarawak. By leveraging the capabilities of Google Sheets and Looker Studio, the dashboard enhances transparency, reduces manual workload, and provides meaningful academic insights. Its structured design and interactive features make it a valuable tool for both lecturers and students, laying the foundation for more effective academic engagement and feedback.

Prepared By,



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