**Student Evaluation System Project**

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A Report

Presented to

Department of Computer Science

Indiana State University

Terre Haute, Indiana

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In Partial Fulfillment

of the Requirements for the Degree

Masters in Computer Science

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by

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TABLE OF CONTENTS

[ACKNOWLEDGMENTS i](#_Toc245261347)i

[LIST OF FIGURES iv](#_Toc245261349)

[INTRODUCTION 1](#_Toc245261350)

[EXECUTION 2](#_Toc245261352)

[RESULTS](#_Toc245261354) 5

[REFERENCES 7](#_Toc245261356)

# LIST OF FIGURES

[Figure 1. Screenshot of response sheet..](#_Toc245261328) 2

[Figure 2. Screenshot of database relationships in MS ACCESS. 3](#_Toc245261329)

[Figure 3. Response Table before unpivot.](#_Toc245261329) 5

[Figure 4. View responseTBL after unpivot.](#_Toc245261329) 5

[Figure 5. University Mean and Response\_Rate for all questions.](#_Toc245261329) 6

[Figure 6. Course standard deviations for each question.](#_Toc245261329) 6

CHAPTER 1

# Introduction

## This project involved designing a system for student evaluations. The purpose was to store the responses collected from the students in a format that can be processed efficiently. It will allow the organization to better analyze student feedback and communicate it to the faculty. The set of questions to be asked were taken from last semester’s student evaluations of Indiana State University. Student responses were collected through online forms where students were allowed to answer a list of questions. Questions with weighted responses were set to required and those questions requiring comments were left optional. This data was transferred to a spreadsheet in a database. Certain metrics were calculated including mean, response rate, and standard deviation for each individual course as well as for the relevant department and college associated with that course. This processed data can be used to generate reports for each individual course while comparing the statistics with the rest of the university.

CHAPTER 2

# Execution

The project involved response collection, transfer of data to MySQL database, and processing of the data collected to prepare various metrics.

## Response Collection

Student responses were collected through google forms. It allowed students to receive email notifications to fill in the forms. Responses were available in a google sheet where each individual question was a separate field in the sheet. Majority of the questions used a linear scale where students could choose a weight from strongly agree to strongly disagree. Some of the questions were marked as required while others were marked optional. The form can be accessed through this link [2]. The data in the google sheet looked like the following.

Table

Description automatically generated

Figure 1. Screenshot of response sheet

### Transfer of data to MySQL database

The spreadsheet was transferred to a MySQL database. The database tables were not accessible by any built-in addon for google forms like Form Director. So, this involved use of pygsheets with Python Django to transfer the data. The google sheet was shared with a project on google cloud account and credentials for that project were saved in a json file to be used by the python program. Fields containing questions were renamed as Q1, Q2 and so on which allowed easy processing of data. Data was imported in a MySQL database in a table named responses.

### Database Schema

The database contained table to store the list of colleges, departments within colleges, courses offered in various departments, Instructors teaching courses, and the responses received for each of the courses through google forms. The table responses is filled through the google sheets.

Graphical user interface, application

Description automatically generated with medium confidenceFigure 2. Screenshot of database relationships in MS ACCESS.

The relationships were created as shown in Figure 2. Same database was generated through a SQL code in MySQL workbench. The credentials for the database were obtained from a website named Clever Cloud [1].

The code used did not enforce referential integrity between tables to allow more flexibility in transfer of data. Some experimental data was inserted into the tables to allow further processing. It was also done through a SQL script.

CHAPTER 3

# Results

Several views were created in MySQL to calculate metrics needed for evaluation. There was a need to unpivot columns to rows in the responses table. The data in the responses table was left untouched and a separate view was created for this purpose. After unpivot, all questions were collected in one field and their corresponding responses in the other.

Graphical user interface, table

Description automatically generated

Figure 3: Responses Table before unpivot

Graphical user interface, text, application

Description automatically generated

Figure 4: View Responsestbl after unpivot

This view with unpivoted data will be used to create views for calculation of means, response rates and standard deviations. These metrics will be calculated for each individual course, corresponding department, college and the entire university. It will require the use of GROUP BY queries in MySQL.

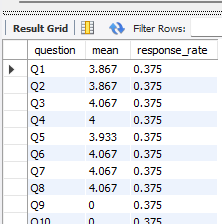


Figure 5: University Mean and Response\_Rate for all questions

The calculation of standard deviation required separate views as the formula requires mean values. In Figure 6, course\_std1.dif is the difference between actual value and the mean where as count(course\_std1.dif) gives the number of values associated to each course.

Table

Description automatically generated

Figure 6: Course standard deviations for each question

6

6

# REFERENCES

1. Clever Cloud Database. Link “https://console.clever-cloud.com/
2. Form : https://forms.gle/wZKaho8UjbL6vDXd8