CAPE BRETON UNIVERSITY

SHANNON SCHOOL OF BUSINESS

CAPSTONE FINAL REPORT

SINKUMUNCHIS: PLAYERS DATABASE 2.0

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ABSTRACT

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Sinkumunchis, a non-profit organization dedicated to establishing football schools in remote Quechua-speaking communities in the Andes, has emerged as a transformative force in the Cusco region over the past two years. With three schools currently serving approximately 1000 students, Sinkumunchis aims to expand its impact by establishing ten schools by the end of 2025, accommodating between 3000-4000 students. However, as Sinkumunchis embarks on this ambitious growth trajectory, there arises a pressing need to enhance accessibility to its internal data for key stakeholders. To address this challenge, the Sinkumunchis project focuses on implementing efficient database management and automated attendance tracking systems. By integrating collected and preprocessed data into a MySQL database, developing an automated attendance sheet in Excel, and leveraging Tableau for real-time data visualization, the project aims to streamline data processes and empower stakeholders with actionable insights. Through seamless integration and strategic implementation, the Sinkumunchis project seeks to optimize operations, support expansion plans, and facilitate data-driven decision-making within the organization.

Key Words: Sinkumunchis, non-profit organization, football schools, Quechua-speaking communities, database management, automated attendance tracking, MySQL, Excel, Tableau, real-time data visualization, scalability, decision-making.

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LIST OF ABBREVIATIONS

DBMS	Database Management system
ERD	Entity-relationship diagram

1. OVERVIEW

The Sinkumunchis database project responds to the critical necessity within the Sinkumunchis organization for optimized data management and improved decision-making processes. With the increasing volume and complexity of data, there is a growing need for efficient database management, automated processes for attendance tracking, and intuitive data visualization techniques. This project aims to fulfill these requirements by creating a MySQL database, developing an automated attendance sheet in Excel, and visualizing the data using Tableau.

1.1. Identification of the need

Sinkumunchis is a non-profit organization dedicated to establishing football schools in remote Quechua-speaking communities in the Andes. With over two years of successful operation and three schools serving approximately 1000 students in the Cusco region, Sinkumunchis aims to expand its reach by establishing ten schools by the end of 2025, accommodating between 3000-4000 students. (Foundation, n.d.) However, as the organization grows, there is a pressing need to enhance accessibility to its internal data for key stakeholders.

Currently, managing various data sources manually poses challenges,Without centralized and easily accessible data, including schools, students, parents, coaches, and relevant parties, lack the necessary insights for informed decision-making and efficient operations.

To address this issue, implementing an integrated data management solution is essential. Such a solution would streamline access to comprehensive data, support strategic decision-making, facilitate operational planning, establish performance metrics, and automate administrative tasks. By doing so, Sinkumunchis can empower its stakeholders to make informed decisions, enhance program delivery, and maximize its positive impact on the communities it serves.

1.2. Definition of the problem

The project's core objective is to enhance Sinkumunchis operational efficiency by implementing efficient database management and automated attendance tracking systems. This involves integrating collected and preprocessed data into a MySQL database and creating an automated attendance sheet in Excel. Additionally, the project aims to facilitate real-time data visualization using Tableau by connecting SQL to Tableau for seamless access to insights. The challenge lies in streamlining these processes to ensure accuracy, accessibility, and scalability,

thereby supporting Sinkumunchis expansion plans and enabling informed decision-making.

1.2.1. Functional requirements

The functional requirements for this project encompass several key components. Firstly, the system must facilitate efficient database management, including the creation of a MySQL database and the seamless integration of collected and preprocessed data into this database. Users should have the ability to query and retrieve data easily to support various analytical tasks.

Secondly, the project entails the development of an automated attendance sheet in Excel. This sheet should be capable of generating attendance records automatically, updating them based on data inputs or scheduled intervals. Additionally, users should be able to customize attendance reports to meet specific requirements.

Finally, the system must enable data visualization using Tableau. This involves connecting SQL to Tableau to facilitate real-time data visualization. Users should be able to create various types of visualizations, such as charts and graphs, to represent data effectively. Furthermore, the system should support interactive features, allowing users to interact with the visualizations and explore data insights further. These functional requirements are essential for ensuring the system meets the needs of Sinkumunchis and supports its objectives effectively.

1.2.2. Performance requirements

Firstly, the system must deliver swift response times for database queries, ensuring efficient data retrieval without compromising accuracy. It should be adept at managing sizable data volumes while upholding reliability and availability to minimize downtime instances. Secondly, regarding the automated attendance sheet, the system should promptly and accurately update attendance records within the Excel sheet, catering to multiple user inputs concurrently without sacrificing performance or data integrity. Lastly, in facilitating data visualization through Tableau, the system must offer seamless and rapid visualization capabilities, allowing users to interact with data representations effortlessly. It should support the creation of intricate visualizations efficiently, even when dealing with extensive datasets, while maintaining robust and optimized connections between SQL and Tableau for real-time data updates. These performance requirements are essential for ensuring the system's smooth operation and providing Sinkumunchis with an efficient platform for database management, attendance tracking, and data visualization.

1.2.3. Constraints and limitations

The project encountered several constraints and limitations that posed challenges throughout its development. Foremost among these was the language barrier, necessitating extensive translation efforts for the original Spanish dataset, adding complexity to the data preprocessing phase. Additionally, the project's restriction to single user editing limited collaboration potential, potentially slowing down development and hindering team productivity. As a nonprofit organization influenced the selection of open-source software, impacting available features and functionalities. Moreover, the lack of requisite skills and resources in the university syllabus hindered the development of a user interface or application. Furthermore, the decision to use Tableau Public, a free version, for data visualization posed challenges as it did not allow direct connection to SQL Server, limiting the types of visualizations that could be created and constraining the project's data analysis capabilities. Despite these challenges, the project has had significant economic, environmental, and social impacts, including cost savings from the use of open-source software, reduced paper waste due to digital data management, and improved access to educational opportunities for underserved communities through Sinkumunchis initiatives.

1.3. Methodology

It involved a multi-faceted approach to efficiently address the organization's objectives. Initially, a meticulous process was undertaken to prepare the data, including the addition of student ID’s, and to ensure seamless uploading of datasets into database it's essential to remove special characters from certain names, particularly those from the Pisac and Huayoccari datasets. This prevents potential errors during the upload process. This preparatory phase aimed to streamline the subsequent database creation process.

The Sinkumunchis dataset comprises a diverse range of attributes essential for understanding student demographics, attendance patterns, and school performance metrics. The dataset includes information on student demographics such as age, gender, and grade level, as well as attendance records indicating daily or periodic attendance. Additionally, school-specific attributes such as location, community are included. The dataset consists of a substantial number of instances, each representing a school record.

Following the data preparation stage, we proceeded to design and implement a MySQL database structure tailored to Sinkumunchis data requirements. This involved defining appropriate tables and relationships to effectively store and manage attendance data and other

relevant information. An automated attendance sheet was developed in Excel to facilitate efficient tracking of attendance records across Sinkumunchis schools. This Excel-based solution provided a user-friendly interface for recording attendance data.

Once the database and attendance sheet were established, we leveraged Tableau to create dynamic visualizations of attendance trends. By connecting Tableau directly to the MySQL database, real-time insights into attendance patterns across Sinkumunchis' schools were made accessible to stakeholders. Interactive dashboards and reports within Tableau enabled stakeholders to monitor attendance data effectively and make informed decisions.

In addition, comprehensive documentation is going to provide to facilitate smooth transition and adoption of the new systems within the organization. This structured and collaborative approach ensured the successful alignment of the project outcomes with Sinkumunchis objectives, thereby enhancing operational efficiency and supporting data-driven decision-making within the organization.

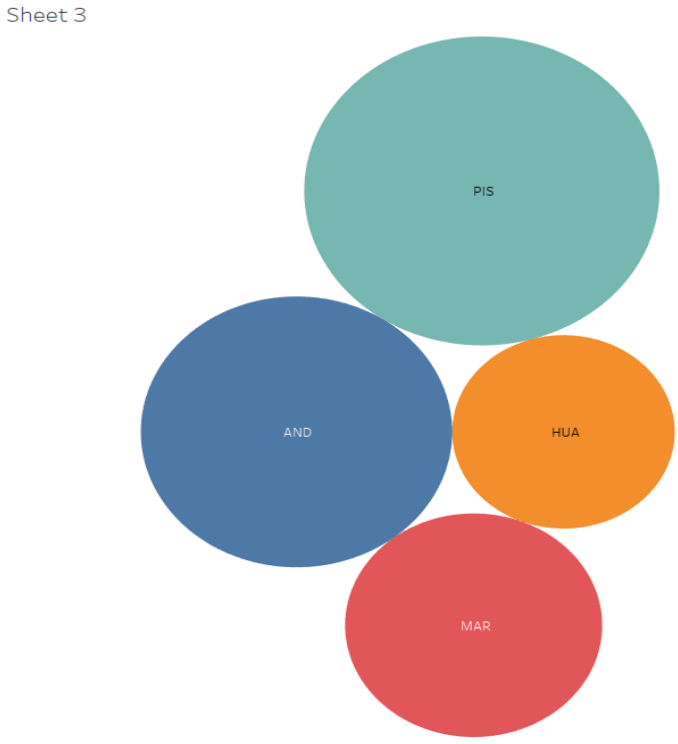

Figure 1. Total attendance of each school

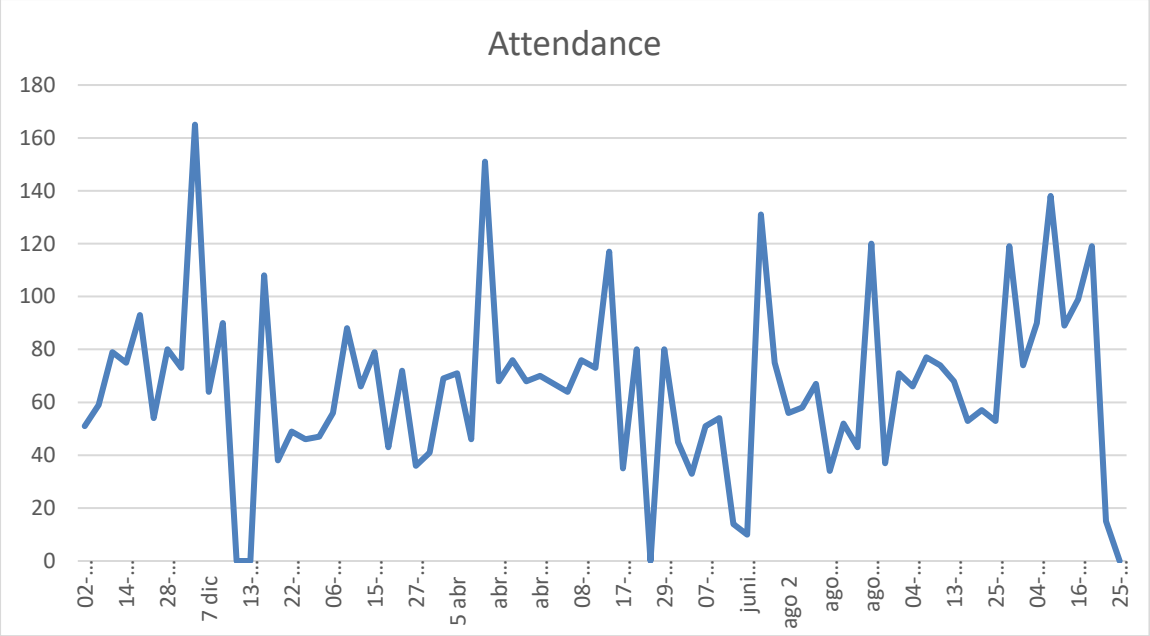

Figure 2. Pisac attendance variation

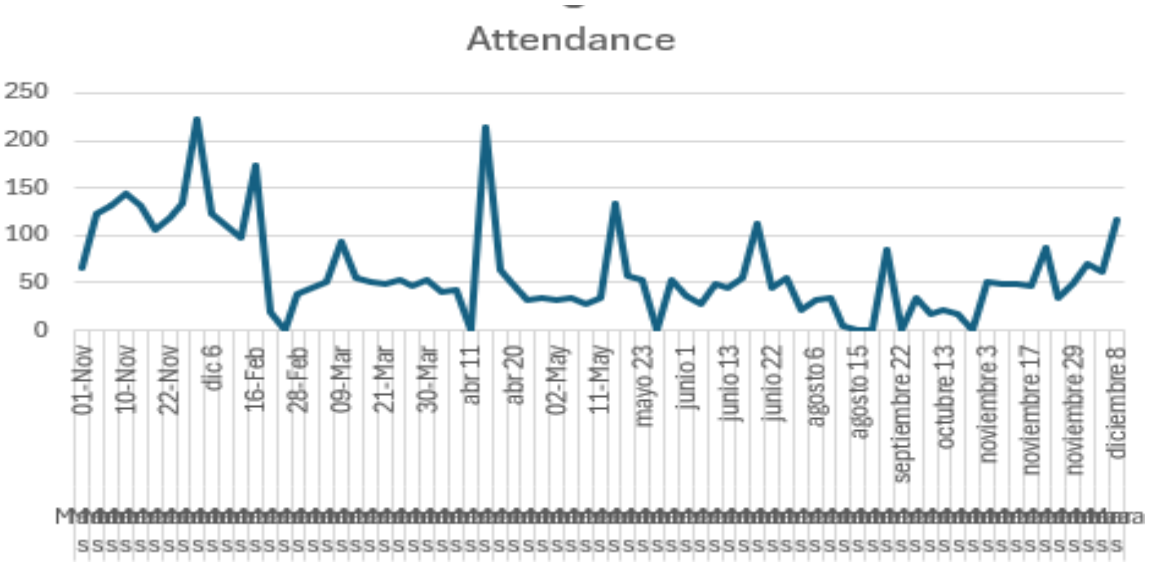

Figure 3. Maras attendance variation

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: | Fetch rows:

attendence_id	student_id	school_identification	attendance_count
1	MAR-001	MAR	2
2	MAR-002	MAR	30
3	MAR-003	MAR	19
4	MAR-004	MAR	26
5	MAR-005	MAR	9
6	MAR-006	MAR	10
7	MAR-007	MAR	34
8	MAR-008	MAR	3
9	MAR-009	MAR	15
10	MAR-010	MAR	5
11	MAR-011	MAR	8
12	MAR-012	MAR	10
13	MAR-013	MAR	10
14	MAR-014	MAR	3

attendance 1

Table 1. SQL interface of table attendance

1.3.2. Concepts

The project encompasses several key concepts aimed at enhancing data management, automation, visualization, and collaboration within Sinkumunchis. Firstly, it involves centralizing student and school-related data in a MySQL database, ensuring structured storage and efficient retrieval.

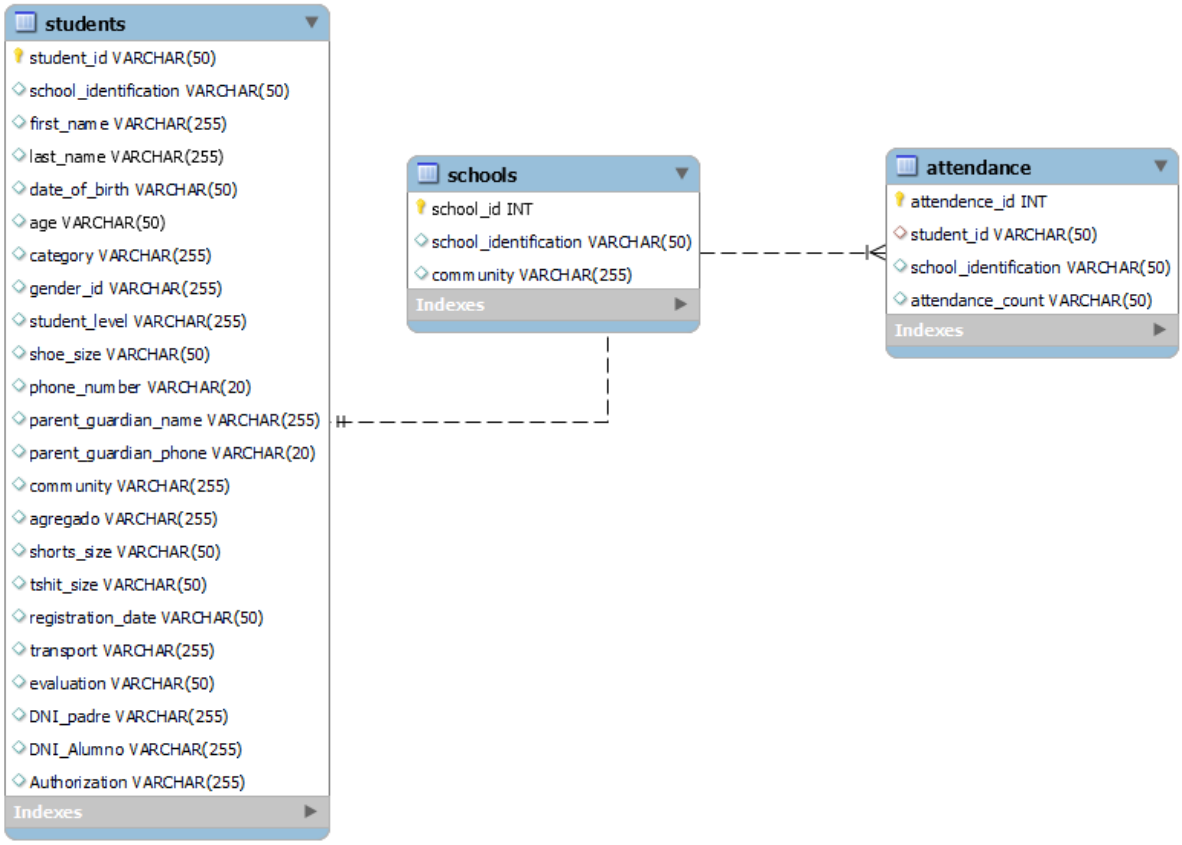

Figure 4. Key feautures of Database

1.4. Physical architecture

The physical architecture of the system comprises both hardware and software components. At the hardware level, a dedicated server is utilized to host the MySQL database. The server is equipped with sufficient processing power, memory, and storage capacity to handle the database workload efficiently.

On the software side, the system relies on several components. The MySQL database management system is installed on the server, providing the core infrastructure for data storage and management. Microsoft Excel is utilized for developing the automated attendance sheet, allowing users to record and update attendance data seamlessly. Furthermore, Tableau Desktop may be installed on client devices for creating and visualizing dynamic reports and dashboards. Alternatively, Tableau Public can be accessed through web browsers for basic visualization capabilities.Overall, the physical architecture supports the seamless operation of the system, enabling efficient data management, attendance tracking, and data visualization for Sinkumunchis.

2. WORK PLAN

In our project for Sinkumunchis,Each individual has been assigned specific responsibilities based on their expertise and interests, fostering a collaborative environment where everyone's contributions are valued. Regular coordination meetings are held to monitor progress, address any challenges, and ensure alignment with project objectives.

2.1. Work Breakdown Structure (WBS)

Figure1 shows the ways in which we break down our project work structure. A project's smaller, more manageable components are broken down hierarchically into a work breakdown structure, or WBS. To arrange and specify the activities, deliverables, and scope of work necessary to finish a project, project managers utilise this visual tool. Project components that are easily understood and controlled are separated into discrete work packages by the WBS.

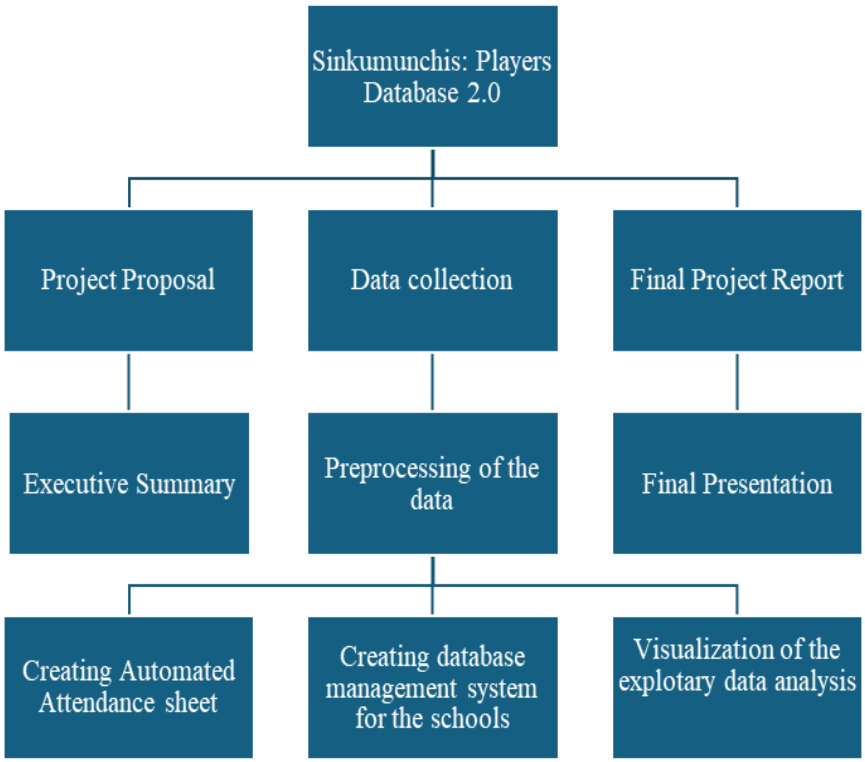

Figure 5. Work breakdown structure for the project.

2.2. Responsibility Matrix (RM)

This shows the Responsibilty Matrix for the team.This matrix shows the contribution of each group member for the different tasks involved in the project.

	Abhirami	Darsini	Mathews	Promit
Project Proposal	R	R	R	R
Executive Summary	R	R		R
Data Understanding and preprocessing		R		R
Automated attendance sheet				R
Sinkumunchis Database	S	R		
Data Visualization	R	R		
Presentation	R	R	S	R
Final Report	R	R		R

Table 2. Responsibility Matrix for the team

R= Resposible; S=Support

2.3. Gantt chart

Our Gantt chart illustrates project tasks and timelines.

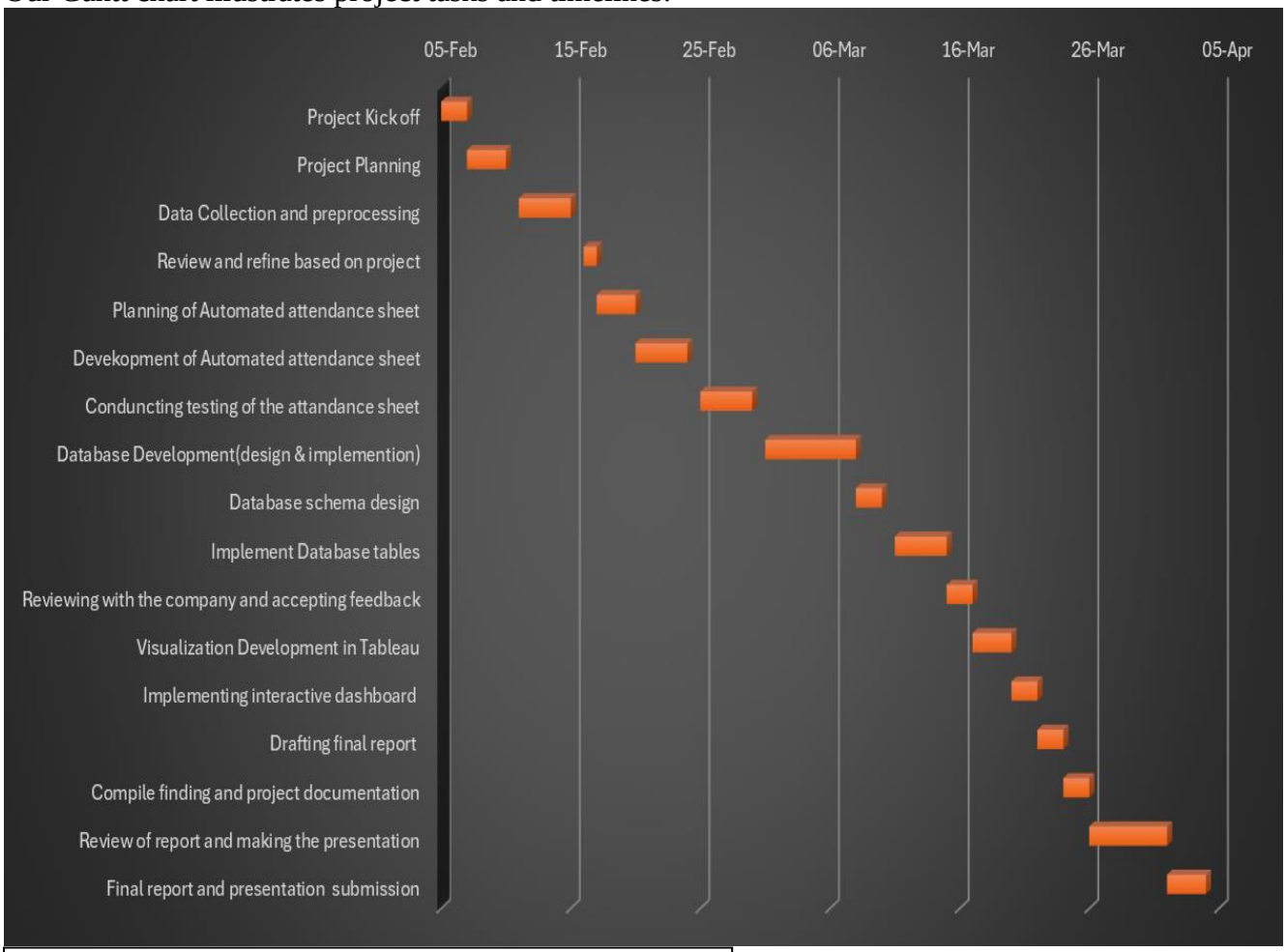

Table 3. Gantt Chart for the Project

3. SUB-PROJECTS

The project consists of three subprojects: creating an automated attendance sheet in Excel, establishing a MySQL database, and generating visualizations in Tableau. These subprojects collectively aim to streamline attendance tracking, centralize data management, and enhance data analysis capabilities for Sinkumunchis

3.1. Database implementation

The database implementation encompasses the development of a MySQL database capable of storing comprehensive student information, including attendance records, photos, and relevant demographic data. Furthermore, it will accommodate data related to schools, such as performance metrics and administrative details. This centralized repository ensures streamlined data management and facilitates informed decision-making processes within Sinkumunchis operational framework.

3.1.1. Requirements

It include accurate recording and storage of student attendance data, easy retrieval and modification of records, comprehensive storage of student information, and preprocessing tasks such as adding student IDs. These requirements aim to establish a robust system that enhances data management and accessibility for Sinkumunchis.

3.1.2. Technologies and methods

For database creation in MySQL, the project will follow a structured approach to accommodate various data types, including student information, attendance records, school details, and photos. This involves designing a comprehensive schema that includes appropriate tables for each data type. Additionally, a specific table will be created to store photos, utilizing data types suitable for storing image files. The schema will be implemented using MySQL, with tables created and configured according to the defined specifications. Data integrity constraints and indexing strategies will be applied to maintain accuracy and optimize performance. Overall, the goal is to establish a scalable database solution that effectively manages diverse data types for Sinkumunchis.

3.1.3. Conceptualization

In the initial stages of conceptualizing the database for the Sinkumunchis project, our focus is on identifying key entities and their respective attributes. These entities primarily consist of

students, schools, and records pertaining to attendance and photographs. For instance, the "student" entity encompasses details such as student ID, name, age, and gender, while the "school" entity includes attributes like school ID, name, location, and size. Similarly, the "attendance" entity comprises attributes such as attendance ID, count, and relevant identifiers for schools and students, whereas the "photo" entity encompasses details like photo ID, link, and associated student ID.

Additionally, we establish relationships between these entities to accurately represent the connections within the organization's data framework. For instance, one or more student maybe included in one category, indicating a "many-to-one" relationship between the "student" and "category" entities. Furthermore, attendance records are interconnected with both students and schools, enabling the tracking of student attendance across various educational institutions over time.

To visually depict these relationships, we have developed an Entity-Relationship Diagram (ERD). This diagram serves as a graphical representation of the entities, attributes, and relationships within the database model. It aids stakeholders in comprehending the structure of the database and ensures alignment with the organization's data requirements. The ERD acts as a guiding tool throughout the database design process and facilitates effective communication.

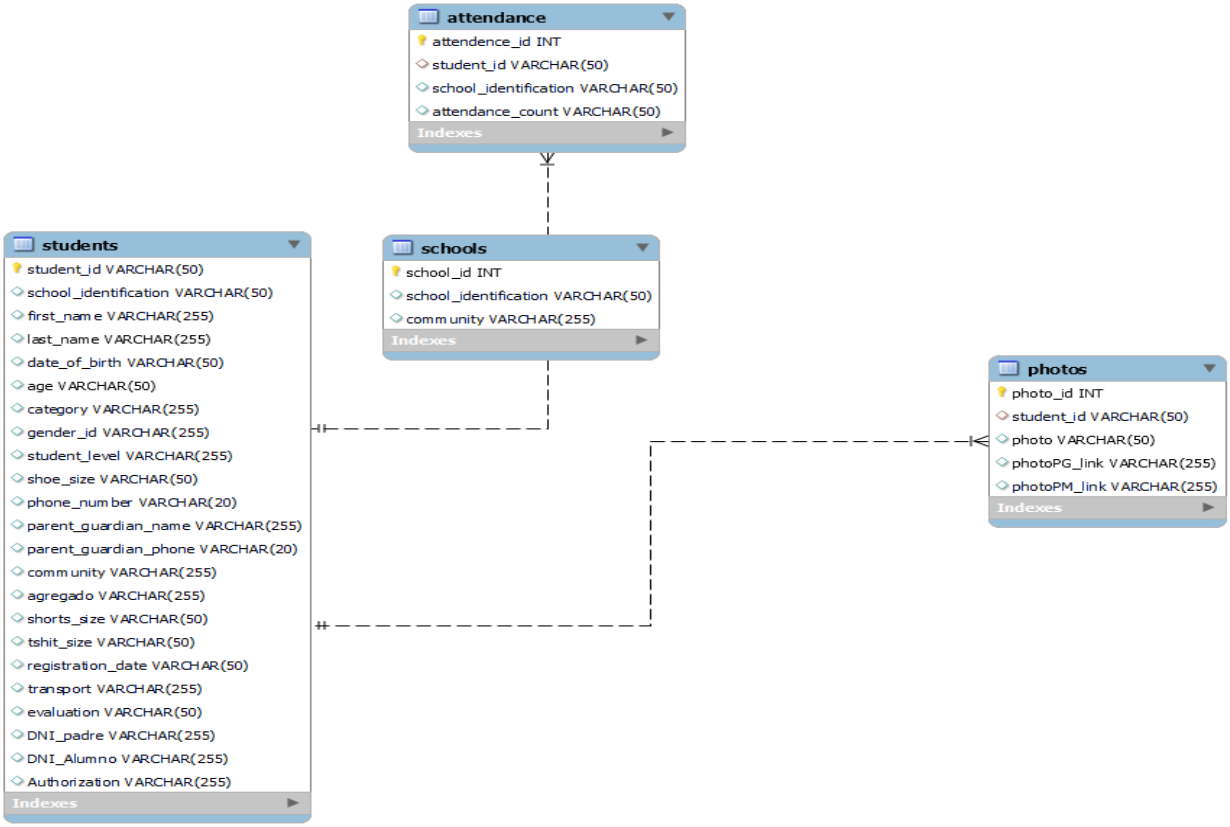

Figure 6. ER-Diagram

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: | Fetch rows:

student_id	school_identification	first_name	last_name	date_of_birth	age	category	gender_id	student_level	shoe_size	phone_number	parent_guardian_name	parent_guardian_phone	community
AND-001	AND	Keisha Kim	Pichihua Oscco	26/1/2012	12	Sub 12	F	Basico	36		Hernan Pichichua	950303849	Lliupapuquio
AND-002	AND	Yesely	Perez Oscco	1/7/2014	9	Sub 10	F	Basico	32		Hernan Pichichua	930540509	Lliupapuquio
AND-003	AND	Efrain	Velasque Sopanta	31/10/2017	6	Sub 6	M	Basico	30		Hernan Pichichua	986662396	Lliupapuquio
AND-007	AND	Yandy Luz	Maucaylle Quispe		124	Sub 18	F	Basico				973058181	Lliupapuquio
AND-008	AND	Thiago Aldimar	Yauris Maucaylle	10/9/2016	7	Sub 8	M	Basico	32			982316659	Lliupapuquio
AND-009	AND	Clever Jackson	Quispe Pauccar	24/11/2008	15	Sub 18	M	Basico	38			929713054	Lliupapuquio
AND-015	AND	Alvaro Benjamin	Rodriguez Cconmanya	22/5/2017	6	Sub 6	M	Basico				999590356	Lliupapuquio
AND-017	AND	Waldir Ivan	Alvarado Ramirez		124	Sub 18	M	Basico				949058716	Lliupapuquio
AND-018	AND	Oliver Eliot	Yauris Alvarado	31/10/2006	17	Sub 18	M	Intermedio	38			901936030	Lliupapuquio
AND-020	AND	Brayden Alexis	Ccorisoncco Serna		124	Sub 18	M	Basico				972328711	Lliupapuquio
AND-021	AND	Dylan Aldair	Ccorisoncco Serna		124	Sub 18	M	Basico				972328711	Lliupapuquio
AND-023	AND	Jafeth Eliseo	Lima Quispe	29/5/2016	7	Sub 8	M	Basico	34		Lucio Lima Oscco		Lliupapuquio
AND-025	AND	Diego fabricio	Pauccar Lima		124	Sub 18	M	Basico				991213995	Lliupapuquio

Table 4.Student information database table

3.1.4. Experiments and Results

In the initial phase of the Sinkumunchis project, the database was meticulously crafted based on the provided dataset, laying the groundwork for efficient data management and retrieval. Leveraging the MySQL database management system (DBMS), tables were designed and structured to accommodate diverse data types and relationships inherent in the Sinkumunchis domain. Following the database creation, data from the dataset was systematically fetched and organized within the database schema. SQL queries were meticulously crafted to extract, transform, and load the dataset into corresponding tables, ensuring data integrity and consistency. Each piece of information, ranging from student demographics to attendance

records and school performance metrics, was accurately captured and cataloged within the Sinkumunchis database. This foundational step not only established a comprehensive repository of information but also paved the way for subsequent phases of the project, facilitating informed decision-making and streamlined operations within the Sinkumunchis educational framework.

3.2. Data Visualization

We're utilizing Tableau to visualize real-time attendance data across the schools we serve. By integrating our MySQL database with Tableau, we're able to dynamically track and display attendance counts for each school in Sinkumunchis' network. This allows us to quickly identify which schools have the highest attendance rates at any given moment, empowering Sinkumunchis to make informed decisions and allocate resources effectively. With this real-time visualization capability, Sinkumunchis can proactively address attendance-related issues and optimize efforts to ensure the success of its initiatives in remote communities.

3.2.1. Requirements

The project for Sinkumunchis entails the development of a system capable of visualizing real-time attendance data across the organization's supported schools. Key requirements include seamless integration with a MySQL database housing attendance records and related information, ensuring dynamic updates to reflect changes as they occur. The system must facilitate school-wise attendance tracking, allowing stakeholders to identify schools with the highest attendance rates. Additionally, it should feature a user-friendly interface for easy navigation and interaction, supporting customizable visualizations tailored to specific criteria or time periods. Accessibility to authorized personnel, scalability to accommodate future expansions, and security measures to protect sensitive data are essential. Furthermore, optimal performance, with fast loading times and responsive interactions, is crucial to support efficient decision-making processes. These requirements collectively aim to empower Sinkumunchis with actionable insights derived from real-time attendance data, facilitating informed decision-making and resource allocation across its operations.

3.2.2. Technologies and methods

It employs a variety of technologies and methods to accomplish its objectives effectively. It primarily relies on MySQL as the database management system for storing and managing attendance records and related data. The integration with Tableau facilitates real-time data

visualization, enabling stakeholders to derive actionable insights from attendance data. Additionally, data preprocessing tasks may be conducted using SQL queries within MySQL or with tools like Microsoft Excel to ensure data quality and consistency before integration. Collaborative tools such as Google meet and Microsoft Teams foster communication and coordination among team members, ensuring efficient collaboration throughout the project lifecycle. These technologies and methods work in tandem to ensure the successful implementation of the project, aligning with Sinkumunchis organizational goals

3.2.3. Physical architecture

The proposed solution involves the seamless integration of player attendance data by creating an intelligent database that consolidates information from various player sheets. This database is intelligently designed for easy updates and scalability to accommodate additional sheets in the future. By incorporating a robust querying platform, users can perform SQL queries and visualize data, which improves data interpretation. To ensure long-term sustainability and adaptability, the project includes thorough documentation, offering clear guidelines for future updates, the addition of new metrics, and the inclusion of additional schools. Furthermore, the implementation introduces advanced data input methods aimed at improving speed and accuracy, such as automated ingestion processes and a user-friendly mobile interface. This comprehensive approach aims to establish an efficient and user-friendly system for managing player attendance data, promoting continuous improvement and adaptability to changing requirements. The project provides insights into the number of students assigned to each teacher on training days, monthly attendance throughout the year, and organizes data based on schools and genders.

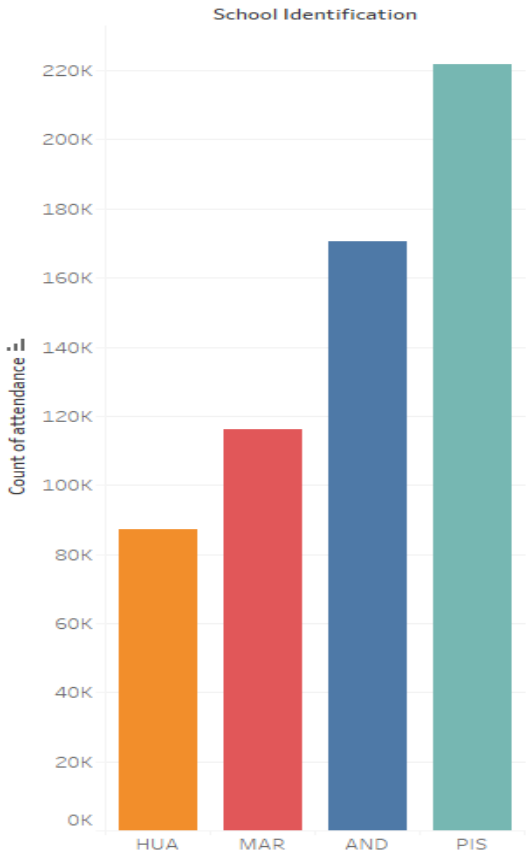

Figure 7.Comparison of total attendance count

3.2.4. Experiments and Results

It involve integrating Tableau with SQL to create dynamic visualizations for Sinkumunchis' attendance data. The experiment commences with configuring Tableau to establish a connection with the SQL database housing attendance records. Real-world attendance data is then extracted from the SQL database and utilized to design interactive visualizations within Tableau. Various visualization techniques, such as bar charts, line graphs, and geographical maps, are employed to represent attendance trends and patterns effectively. These visualizations are analyzed to derive insights into attendance rates across different schools, identify attendance outliers, and track attendance trends over time. The results obtained from these experiments provide valuable insights for Sinkumunchis, make informed decisions and strategies to improve attendance rates and overall organizational outcomes.

3.2.5. Evaluation

The evaluation of this entails examining how effectively and user-friendly the integrated Tableau and SQL solution is in providing actionable insights from attendance data. This assessment begins with scrutinizing the clarity and depth of the visualizations produced,

ensuring they accurately depict attendance trends across Sinkumunchis schools and how easily users can interact with the visualizations and navigate Tableau's interface. Furthermore, the impact of the visualizations on organizational outcomes, like enhanced attendance rates and resource allocation strategies, is assessed. Stakeholder satisfaction and the alignment of the integration with Sinkumunchis' objectives are additional evaluation criteria. Based on these evaluations, adjustments may be made to refine the visualizations.

3.3. Automated attendance sheet

For the project we were making an automated attendance sheet for the students who is present in a training for that day. For this task Microsoft excel was used to make an automated attendance sheet. An interface was made from the visual basics under developer tab in Microsoft excel.

3.3.1. Requirements

In this subproject, it will be accessible to store the student's attendance in a particular day and many attributes of that student e.g. student ID, Student name, School name, parent's name, and cell phone number etc. The main objective of this part is to keep track of the student's attendance easily rather that searching for a student manually by searching by name.

3.3.2. Physical architecture

At first an excel file is created and after that in that file five new sheets are being created. They are named as Attendance, StudentMaster, AttendaceCode, AttendanceDisplay and Setting. In the Attendance sheet we are going to store the attendance. Secondly, in StudentMaster sheet we are going to store student information. All the attendance types are stored in AttendanceCode sheet. Here we basically took three different types of attendance. They are present stored as P, absent stored as A and all the null values are stored as N. Finally, setting tab is used for future purpose of the project. The final model requires ascending and descending function to sort the filter. For that purpose, setting tab is used. After making those new tab sheets we proceed to our next part. In this part we make the attendance interface by going to visual basics. It is made by text box, combo box, list box, label and command button from toolbox tab in the visual basics menu.

Our interface has three different tabs. They are respectively named as Attendance, Student and Attendance Code. These three tabs store the data in the three above mentioned

sheets in the excel file named Attendance, StudentMaster and AttendanceDisplay. After that we start coding in the VBAproject.

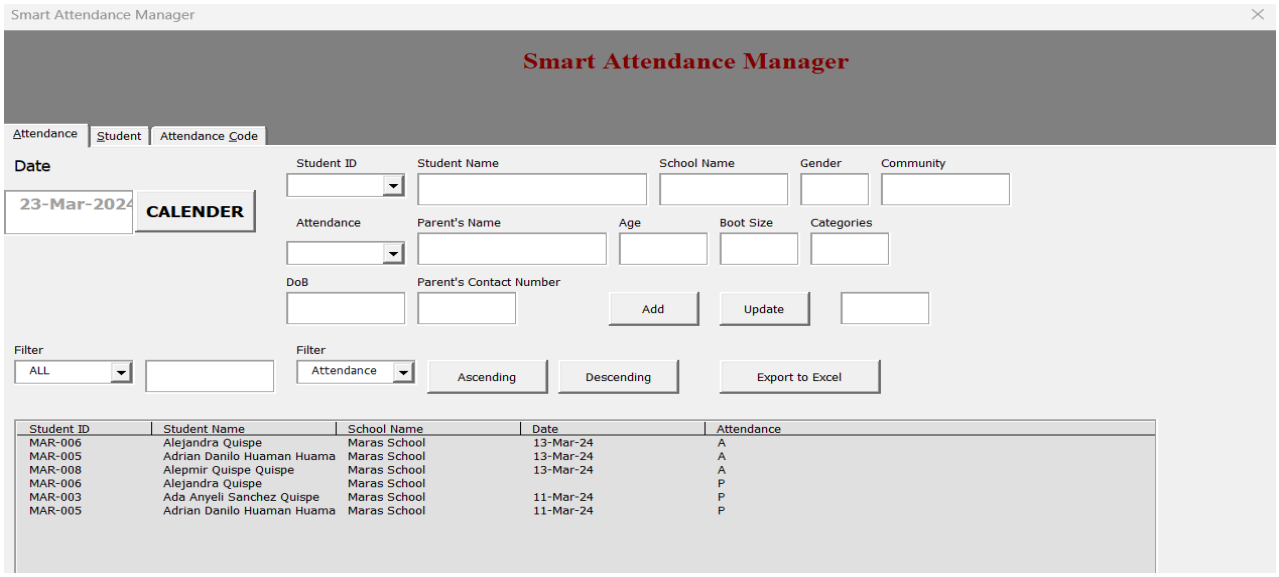

Table 5. Smart attendance window

3.3.3 Results

After implementing the code in visual basics we can successfully create an automated attendance sheet. We can select a student based on their ID. If we select an ID, related all the information going to display in the Attendance sheet. After that we can assign their attendance A,N or P for that given day.

4.INTEGRATION AND EVALUATION

The Sinkumunchis project integrates MySQL database with Tableau data visualization. This seamless connection enables real-time access to attendance data, facilitating informed decision-making. Stakeholder feedback and usability testing ensure the effectiveness and relevance of visualization

4.1. Integration

The integration of two sub-projects within the Sinkumunchis initiative, the development of a MySQL database and the implementation of Tableau for data visualization, forms the foundation of our integrated project. The integration process involved configuring Tableau to establish a direct connection with the MySQL database, facilitating seamless data retrieval and visualization. This integration allows for real-time access to attendance data, enabling stakeholders to monitor attendance trends and make informed decisions promptly. Furthermore, the integration ensured interoperability between the database and visualization components, providing a comprehensive solution for data management and analysis within Sinkumunchis.

4.2. Evaluation

It focuses on assessing its impact, effectiveness, and usability. Firstly, we examine the accuracy and reliability of Tableau-generated visualizations, ensuring they accurately depict attendance trends across Sinkumunchis schools.Supervisor’s feedback plays a crucial role in gauging the usability and relevance of these visualizations, emphasizing ease of interpretation and accessibility. Additionally, we assess the project's impact on organizational outcomes, such as improvements in attendance tracking and decision-making processes. Overall, the evaluation underscores the integrated project's success in providing actionable insights, empowering Sinkumunchis to optimize its operations efficiently.

5. SUMMARY AND CONCLUSION

This project aimed to streamline attendance tracking in schools by leveraging technology. Initially, a MySQL database was designed and implemented to store attendance data along with student and school information. Subsequently, an automated attendance system was developed, utilizing photos for efficient and accurate tracking. This system was integrated with Tableau, a powerful data visualization tool, to provide insightful visualizations.

In Tableau, a bar chart was created to depict the schools with the highest attendance counts. By extracting data from the MySQL database, the chart effectively showcased attendance trends across different schools, to identify schools with consistently high attendance rates.

The Sinkumunchis project successfully addressed the challenge of attendance tracking in schools through a comprehensive technological solution. By combining database management, automated attendance systems, and data visualization techniques, the project provided a robust framework for monitoring attendance patterns. The integration with Tableau facilitated data-driven decision-making by presenting attendance data in an accessible and visually appealing format.

ACKNOWLEDGEMENTS

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5. "MySQL Cookbook: Solutions for Database Developers and Administrators" by Paul DuBois published November 4, 2014
6. Official Website of sinkumunchis : www.sinkumunchis.com

APPENDIX A

In the following section, the queries used to create the database tables for the Sinkumunchis database are presented. These queries outline the database schema designed to efficiently store and manage various types of data, including student information, attendance records, and school details.

```sql
CREATE DATABASE Sinkumunchis;
USE Sinkumunchis;
CREATE TABLE schools ( school_id INT AUTO_INCREMENT PRIMARY KEY,
school_identification VARCHAR(50),
community varchar(255));
CREATE TABLE students(student_id VARCHAR(50) PRIMARY KEY,
    school_identification VARCHAR(50),
    first_name VARCHAR(255),
    last_name VARCHAR(255),
    date_of_birth varchar(50),
    age varchar(50),
    category VARCHAR(255),
    gender_id varchar(255),
    student_level VARCHAR(255),
    shoe_size varchar(50),
    phone_number VARCHAR(20),
    parent_guardian_name VARCHAR(255),
    parent_guardian_phone VARCHAR(20),
    community varchar(255),
    agregado VARCHAR(255),
    shorts_size varchar(50),
    tshit_size varchar(50),
   registration_date varchar(50),
   transport varchar(255),
   evaluation varchar(50),
   DNI_padre varchar(255),
   DNI_Alumno varchar(255),
   Authorization varchar(255));
    CREATE TABLE attendance (attendence_id INT AUTO_INCREMENT PRIMARY KEY,
    student_id VARCHAR(50),
    school_identification VARCHAR(50),
    attendance_count varchar(50),
    FOREIGN KEY(student_id) REFERENCES students(student_id));
    CREATE TABLE Photos (photo_id INT PRIMARY KEY AUTO_INCREMENT,
    student_id VARCHAR(50),
    photo VARCHAR(50),
    photoPG_link VARCHAR(255),
    photoPM_link VARCHAR(255),
    FOREIGN KEY (student_id) REFERENCES students(student_id));
```

APPENDIX B

In here, some of the codes used to create automated attendance sheet is given.

```
Option Explicit
Private Sub ComboBox1_Change()

   If Me.ComboBox1.Value <> "" Then
      Dim stud_id As Variant
      If IsNumeric(Me.ComboBox1.Value) Then
         stud_id = CLng(Me.ComboBox1.Value)
      Else
         stud_id = Me.ComboBox1.Value
      End If

         Me.TextBox2.Value = Application.WorksheetFunction.VLookup(stud_id,
ThisWorkbook.Sheets("StudentMaster").Range("A:K"), 2, 0)
         Me.TextBox3.Value = Application.WorksheetFunction.VLookup(stud_id,
ThisWorkbook.Sheets("StudentMaster").Range("A:K"), 3, 0)
         Me.TextBox6.Value = Application.WorksheetFunction.VLookup(stud_id,
ThisWorkbook.Sheets("StudentMaster").Range("A:K"), 5, 0)
         Me.TextBox9.Value = Application.WorksheetFunction.VLookup(stud_id,
ThisWorkbook.Sheets("StudentMaster").Range("A:K"), 9, 0)
         Me.TextBox4.Value =
Format(Application.WorksheetFunction.VLookup(stud_id,
ThisWorkbook.Sheets("StudentMaster").Range("A:K"), 4, 0), "D-MMM-YYYY")
         Me.TextBox5.Value = Application.WorksheetFunction.VLookup(stud_id,
ThisWorkbook.Sheets("StudentMaster").Range("A:K"), 6, 0)
         Me.TextBox10.Value = Application.WorksheetFunction.VLookup(stud_id,
ThisWorkbook.Sheets("StudentMaster").Range("A:K"), 10, 0)
         Me.TextBox7.Value = Application.WorksheetFunction.VLookup(stud_id,
ThisWorkbook.Sheets("StudentMaster").Range("A:K"), 11, 0)
         Me.TextBox8.Value = Application.WorksheetFunction.VLookup(stud_id,
ThisWorkbook.Sheets("StudentMaster").Range("A:K"), 7, 0)
      End If
End Sub

Private Sub CommandButton1_Click()

'"validation
If Me.ComboBox1.Value = "" Then
```

```
            MsgBox "Please select the Student ID", vbCritical
            Exit Sub
        End If

        If Me.ComboBox2.Value = "" Then
            MsgBox "Please select the attendance.", vbCritical
            Exit Sub
        End If

        Dim sh As Worksheet
        Set sh = ThisWorkbook.Sheets("Attendance")

        "'check the duplicate data
        If Application.WorksheetFunction.CountIfs(sh.Range("B:B"), Me.ComboBox1.Value,
sh.Range("E:E"), Me.TextBox1.Value) > 0 Then
            MsgBox "This student's ID is already marked", vbCritical
```