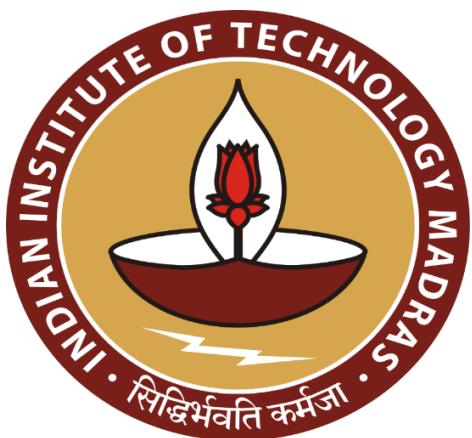


# From Financial Strain to Financial Gain: Restructuring a Debt-Ridden School

BUSINESS DATA  
MANAGEMENT-CAPSTONE  
PROJECT  
MIDTERM REPORT



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ROLL NO- 24F1002359

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### **Declaration Statement**

I am working on a Project titled "**From Financial Strain to Financial Gain: Restructuring a Debt-Ridden School**". I extend my appreciation to [**MAGADH INTERNATIONAL SCHOOL**], for providing the necessary resources that enabled me to conduct my project.

I hereby assert that the data presented and assessed in this project report is genuine and precise to the utmost extent of my knowledge and capabilities. The data has been gathered from primary sources and carefully analyzed to assure its reliability.

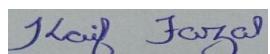
Additionally, I affirm that all procedures employed for the purpose of data collection and analysis have been duly explained in this report. The outcomes and inferences derived from the data are an accurate depiction of the findings acquired through thorough analytical procedures.

I am dedicated to adhering to the principles of academic honesty and integrity, and I am receptive to any additional examination or validation of the data contained in this project report.

I understand that the execution of this project is intended for individual completion and is not to be undertaken collectively. I thus affirm that I am not engaged in any form of collaboration with other individuals, and that all the work undertaken has been solely conducted by me. In the event that plagiarism is detected in the report at any stage of the project's completion, I am fully aware and prepared to accept disciplinary measures imposed by the relevant authority.

I understand that all recommendations made in this project report are within the context of the academic project taken up towards course fulfilment in the BS Degree Program offered by IIT Madras. The institution does not endorse any of the claims or comments.

Signature of Candidate:



Name: Kaif Fazal

Date: 7<sup>th</sup> March, 2025

## Executive Summary

This report presents an analysis of data obtained from **Magadh International School**, a primary institution located in Phulwari Shareef, Patna, Bihar. The school operates under the CBSE curriculum and offers Urdu as a primary subject. Despite its commitment to affordable quality education, the school is facing financial challenges due to a high debt burden and lower-than-expected student enrolment. These financial constraints limit its ability to invest in infrastructure, hire additional staff, and expand its reach in the local education sector.

The primary objectives of this study are to identify opportunities for financial sustainability, optimize cost structures, and explore business expansion opportunities. The school struggles with debt repayment, inefficient cost management, and limited revenue streams. Additionally, operational inefficiencies, such as underutilization of resources and suboptimal enrolment strategies, contribute to financial strain.

The analysis is conducted using financial data, enrolment trends, parental feedback, and market research. By evaluating debt obligations, expenses, revenue streams, and student demographics, we aim to propose cost-saving measures, new income-generating initiatives, and strategies to boost enrolment. Key solutions include debt restructuring, resource optimization, tuition pricing adjustments, and the introduction of after-school programs or facility rentals.

Furthermore, competitive analysis will help assess how Magadh International School compares to other institutions in the area. Parental feedback provide insights into satisfaction levels regarding teaching quality, facilities, and fee structures. The implementation of data-driven financial and operational strategies will help the school achieve financial stability, increase student enrollment, and align its mission with long-term sustainability.

# Proof of Originality

## 2.1. Letter from organization in letter head with stamp and sign

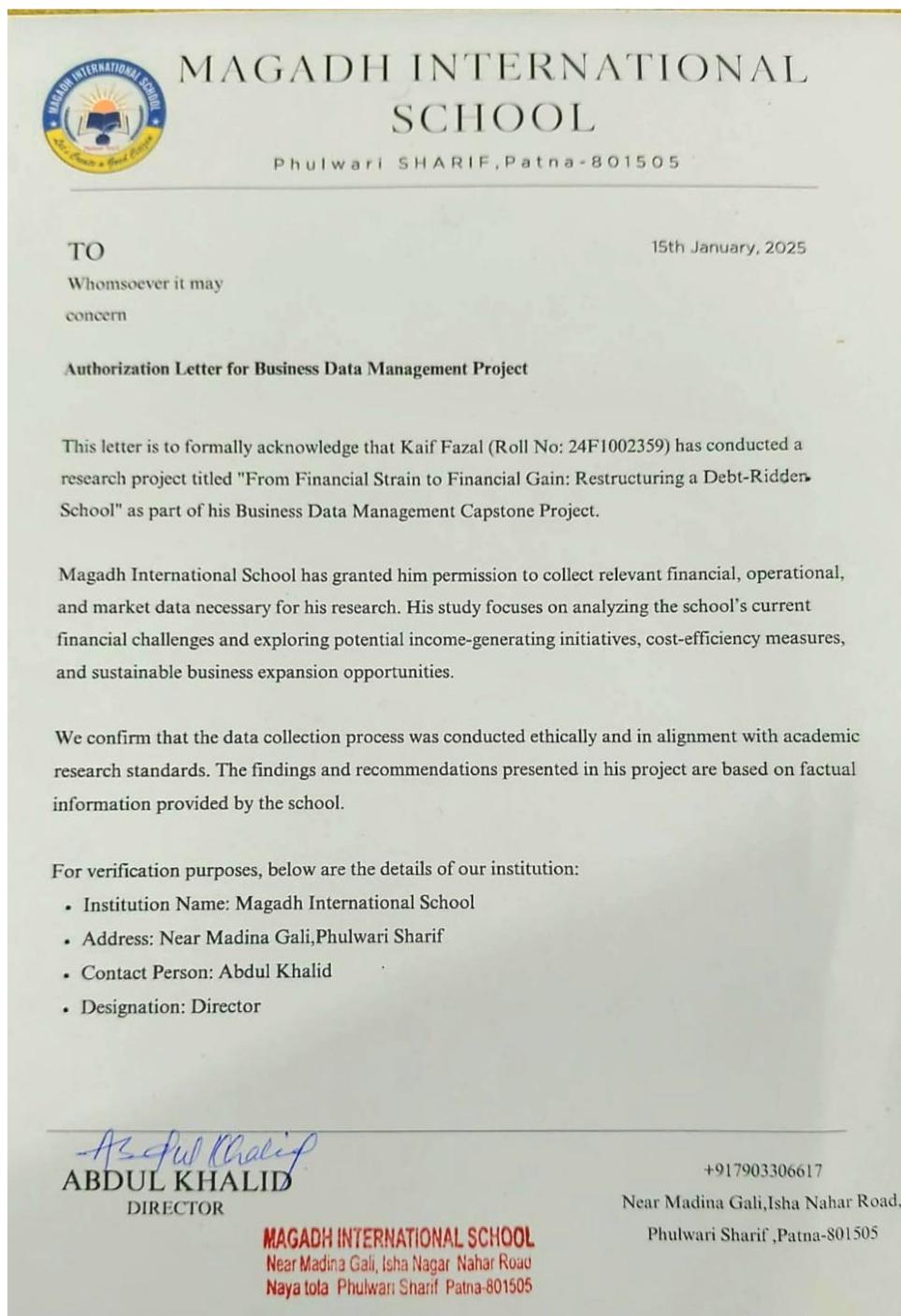


Fig1.Letter

## 2.2 Images related to organization



Fig 2. Exterior of School

Fig 3. Food Festival



Fig 4. Classroom photos

## 2.3. Recorded video in the organization

Interaction with Business Owner: [Video Link](#)

# Metadata

\* Link to the Project Data : [MAGADH INTERNATIONAL SCHOOL DATA](#)

\* Link to the more images and raw data - [Images](#)

The **Magadh International School Data (2024-2025)** dataset contains information about students, employees, financial transactions, and operational activities. The data is sourced from **school administrative records and financial reports**, ensuring accuracy and reliability. The dataset was collected for the **academic year 2024-2025**.

The dataset includes the following key variables:

- **Enrolment & Student Data:** Maintains records of student details and admissions.
- **Debt Data:** Monitors the school's outstanding financial liabilities.
- **Employee Data:** Stores staff information, including roles and salaries.
- **Revenue Data:** Tracks monthly revenue collection over different months.
- **Expenses Data:** Documents the school's operational expenditures.
- **Market & Competitor Analysis Data:**
- **Parents Feedback Survey:**

Field	Details
School Name	Magadh International School
Address	Near Sattar B.Ed College, Isha Nagar Nahar Road, Phulwari Sharif ,Patna-801505
Contact	+917903306617
Email	Magadhintlschool@gmail.com
Operating Hours	Monday to Saturday, 8:00 AM to 2:00 PM Friday 8:00 AM to 11:30 AM
Description	Magadh International School is a primary school (Nursery to 5th Standard) that operates under the CBSE curriculum. Magadh International School is dedicated to providing quality education to young

Field	Details
	learners. The school aims to foster academic excellence, character development, and holistic growth in students. With a dedicated faculty and a well-structured curriculum, it ensures a nurturing learning environment.

Table 1. School Information

## Metadata for Worksheets

### 1. Enrolment & Student Data Worksheet

YEAR 2024-2025			
NAME OF STUDENT	CLASS	GENDER	ADMISSION YEAR

- Student Name:** Contains the names of enrolled students.
- Grade/Class:** Indicates the grade or class of each student.
- Gender :** Contains the gender of student i.e boy/girl
- Admission Year:** The academic year when the student was admitted to the school.

### 2. Employee Data Worksheet

YEAR 2024-2025		
NAME	DESIGNATION	SALARY

- Employee Name:** Contains the names of staff members.
- Designation:** Specifies the role of each employee.
- Salary:** Indicates the monthly salary of the employee.

### 3. Revenue Data Worksheet

**YEAR 2024-2025**

Revenue Source	Fee per Student (₹) / Fixed Amount	No. of Students / Units	Frequency	Total Revenue (₹)
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- Revenue Source:** The category or stream generating income (e.g., tuition fees, transportation, extracurricular activities, etc.).
- Fee per Student (₹) / Fixed Amount:** The charge per student or a fixed fee for a particular service.
- No. of Students / Units:** The number of students or units contributing to the revenue stream.
- Frequency:** How often the revenue is collected (e.g., monthly, annually, per session).
- Total Revenue (₹):** The total amount generated from the revenue source.

**4. Expenses Data Worksheet****YEAR 2024-2025**

Expense Category	Description	Frequency	Amount (₹)	Annual Cost (₹) (Estimated)
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- Expense Category:** The type of expense (e.g., salaries, utilities, maintenance, supplies).
- Description:** Additional details about the expense.
- Frequency:** How often the expense occurs (e.g., monthly, quarterly, annually).
- Amount (₹):** The cost of a single instance of the expense.
- Annual Cost (₹) (Estimated):** The projected total cost for the entire year.

**5. Debt Data Worksheet****YEAR 2024-2025**

Loan Provider	Loan Type	Principal Amount (₹)	Interest Rate (%)	Monthly EMI (₹)	Total Amount Due (₹)	Outstanding Amount	Repayment Schedule	Start Date	Due Date
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- Lender Provider:** Contains the names of lenders or institutions the school owes money to.
- Loan Type –** Type of loan (e.g., business loan, education loan).
- Principal Amount:** The amount borrowed.

- Interest Rate (%)**: The percentage of interest applied to the loan.
- Monthly EMI (₹)**: The fixed monthly installment to repay the loan.
- Total Amount Due (₹)**: The total payable amount, including interest.
- Outstanding Amount**: The remaining loan balance yet to be paid.
- Repayment Schedule**: The frequency of repayments (e.g., monthly, quarterly).
- Repayment Due Date**: The deadline for repaying the debt.
- Start Date**: The loan initiation date.
- Due Date**: The final due date for full repayment.

## 6. Market & Competitor Analysis Data

YEAR 2024-2025				
Competitor School	Tuition Fees Monthly	Facilities	Student Count	Urdu as additional subject

- Competitor School**: Name of the competing school being compared.
- Tuition Fees Monthly**: The monthly tuition fee charged by the competitor school.
- Facilities**: Available infrastructure, resources, and amenities at the competitor school.
- Student Count**: Number of students enrolled in the competitor school.
- Urdu as an Additional Subject**: Whether the competitor school offers Urdu as an optional subject.

## 7. Parents Feedback

Sample Survey on Parents Feedback					
Parent Name	Child Grade	Teaching Quality (Rating out of 10)	Facilities (Rating out of 10)	Fees (Rating out of 10)	Other Comments

- Parent Name**: The name of the parent providing feedback.
- Child Grade**: The grade/class of the child (e.g., Nursery, Class 1, Class 2, etc.).
- Teaching Quality (Rating out of 10)**: Parents' rating of the teaching staff's effectiveness.
- Facilities (Rating out of 10)**: Parents' rating of school infrastructure and amenities.
- Fees (Rating out of 10)**: Parents' perception of the affordability of school fees.
- Other Comments**: Additional remarks from parents about their experience with the school.

# Descriptive Statistics

Here is the descriptive statistics analysis conducted based on the collected data.

## Students vs Class

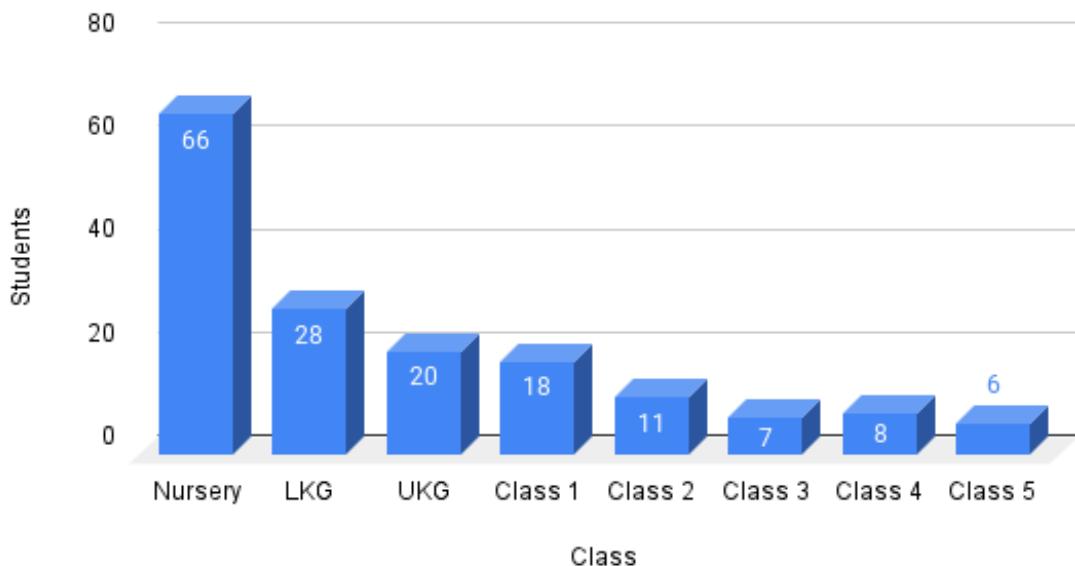


Fig 5. Student vs class chart

### Key Metrics:

- Total students: **164**
- Most popular class: **Nursery** (66 students)
- Least popular class: **Class 5** (6 students)

## ***Gender Distribution***

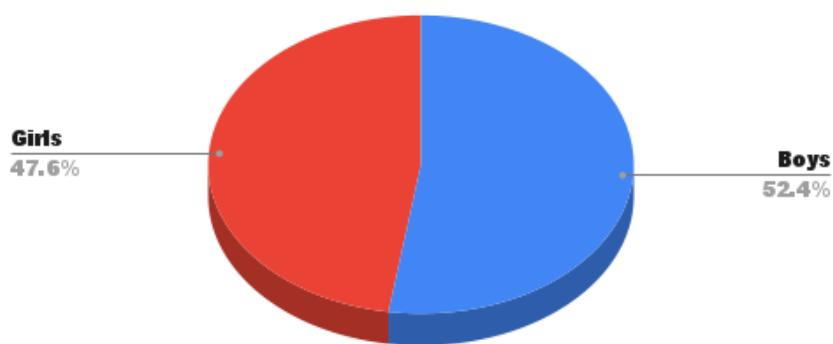


Fig 6. Gender Distribution chart

Employee Data Table		
Metric	Value	Details
Total Employees	18	- Teachers: 14 - Staff: 3 - Vice Principal: 1
Mean Salary	₹5277/month	Average salary across all employees.
Median Salary	₹4,000/month	Middle value of all salaries (50% above, 50% below).
Mode Salary	₹4,000/month	Most common salary (paid to 6 employees).
Salary Range	₹2,000 - ₹8,500	Lowest salary: ₹2,000 Highest salary: ₹8,500

Table 2. Employee Summary

### Annual Expense Breakdown

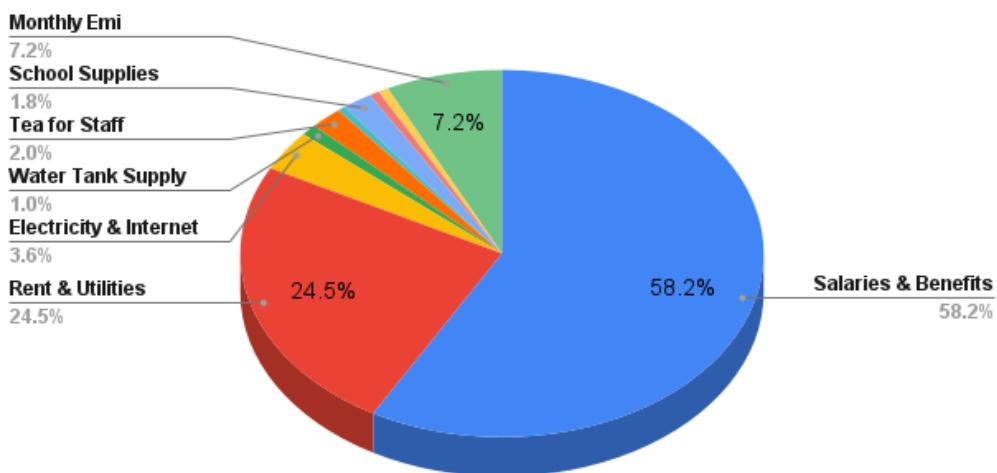


Fig 7.Expense breakdown pie chart

### Key Metrics:

- **Total Monthly Expenses:** ₹1,57,005
  - Salaries: ₹95,000
  - Rent & Utilities: ₹40,000

- Electricity & Internet: ₹7,000
- Tea for Staff: ₹3,750
- Loan EMIs: ₹11,755
- **Total Annual Expenses:** ₹19,57,560

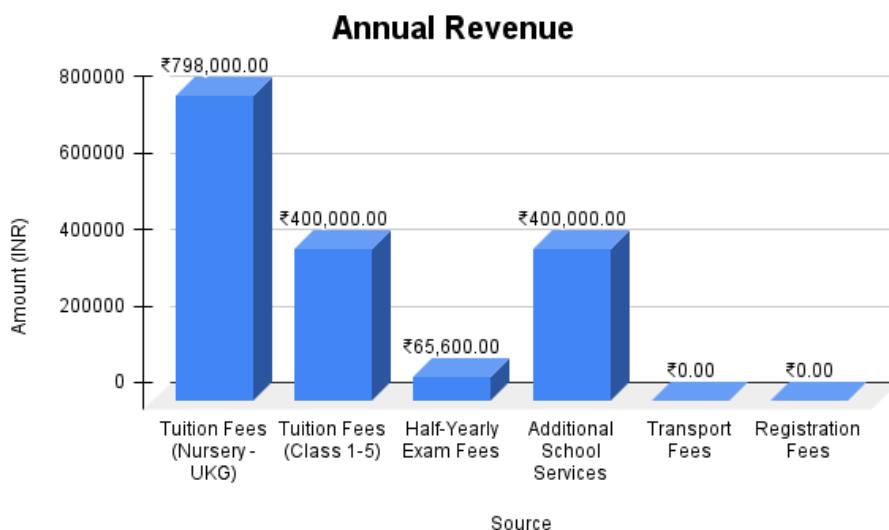


Fig 8. Annual Revenue bar chart

#### Key Metrics:

- **Total Monthly Revenue:** ₹1,40,820
- **Total Annual Revenue:** ₹1,759,440.00
- **Other Revenue Sources:**
  - Half-Yearly Exam Fees: ₹65,600
  - Additional Services: ₹4,00,000

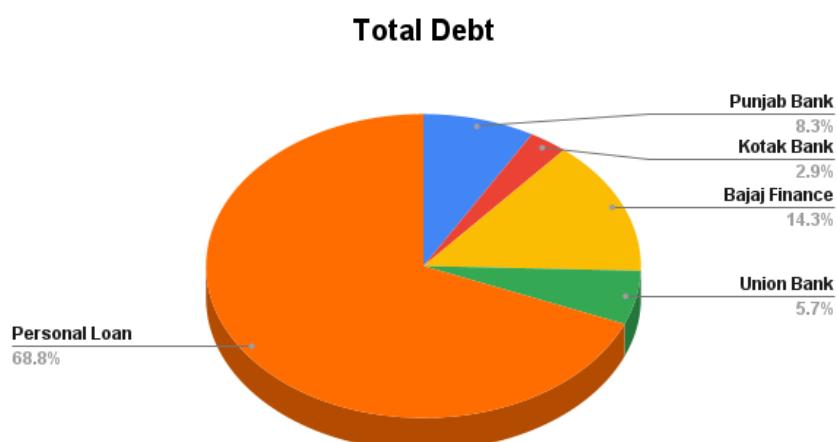


Fig 9. Debt Pie chart

### Key Metrics:

- **Total Debt:** ₹ 17,05,212
- **Monthly EMI Burden:** ₹11,755

## Detailed Explanation of Analysis Process/Method

### Introduction

The analysis process for this project incorporates a **blend of quantitative and qualitative methods** to comprehensively understand the financial and operational challenges faced by Magadh International School. Since the school was established in **2024**, data collection was conducted for the entire year to gain a complete picture of its financial health and operations. The primary objectives of this analysis include:

- **Evaluating financial sustainability and challenges:** Ensuring the school can continue operations without excessive debt.
- **Identifying income-generating opportunities:** Helping the school grow and invest in better facilities.
- **Implementing cost efficiencies:** Reducing unnecessary expenses to improve profitability.
- **Assessing potential business expansion:** Aligning with the school's mission to provide quality education to more students.

### Data Collection and Preprocessing

Data collection was an extensive and detailed process, covering all aspects of the school's financial and operational performance. The data was initially available in raw form and required structuring for effective analysis. The main sources of data included:

- **School Records:** Enrolment numbers, student demographics, employee salaries, tuition fees, and expenses.

- **Parent-Teacher Meetings (PTMs):** Feedback from 30 parents provided valuable insights into school operations, expectations, and areas requiring improvement.
- **Locality Surveys:** Analysis of 7 competitor schools to assess their facilities, fee structures, and value propositions.
- **Financial Records:** Income sources, expenditure, and debt data.

To ensure data accuracy and usability, the following preprocessing techniques were applied:

- **Data Cleaning:** Handled missing values (e.g., filling in missing admission years with the most common year), removed duplicate entries, and corrected formatting errors (e.g., inconsistent date formats).
- **Data Structuring:** Organized financial and student records into structured tables using **Google Sheets & Excel** for efficient calculations and visualizations.
- **Standardization:** Ensured uniform formatting across financial and student data for consistency.

## **Analytical Approach and Methods Used**

### **1. Google Sheets & Excel for Data Processing:**

- Used for structuring data, applying formulas, and generating visual representations.
- **Key formulas used:**
  - **SUM:** Calculates total revenue, expenses, and salaries.
  - **AVERAGE:** Determines average tuition fee per student.
  - **COUNTIF:** Analyzes student demographics (e.g., gender distribution).
  - **PIVOT TABLES:** Helps analyze revenue, expenses, and enrolment trends efficiently.

### **2. Descriptive Statistics (Python & Google Sheets):**

- Python libraries such as **Pandas, NumPy, and Matplotlib** were employed to compute:
  - Revenue trends

- Student-to-teacher ratio
  - Gender-wise distributions
  - Expense breakdowns
- **Visualization tools** such as bar charts, pie charts, and line graphs helped in trend identification.

### 3. Stakeholder Engagement:

- Discussions with school management provided qualitative insights on financial decision-making.
- Parent feedback helped align recommendations with community expectations.
- Comparative analysis of local competitors identified areas for improvement.

## Justification for Methods

- **Descriptive Statistics:** Ideal for summarizing the current state of the school and identifying trends.
- **Stakeholder Engagement:** Provides qualitative insights that complement quantitative data.

## Limitations of the Analysis

- **Data Availability:** Limited to one year of data (since the school was established in 2024).
- **Scope:** Focuses on financial and operational challenges, not academic performance.
- **Qualitative Data:** Parent feedback is subjective and may not represent all stakeholders.

## Results and Findings

### 1. Teacher-to-Student Ratio

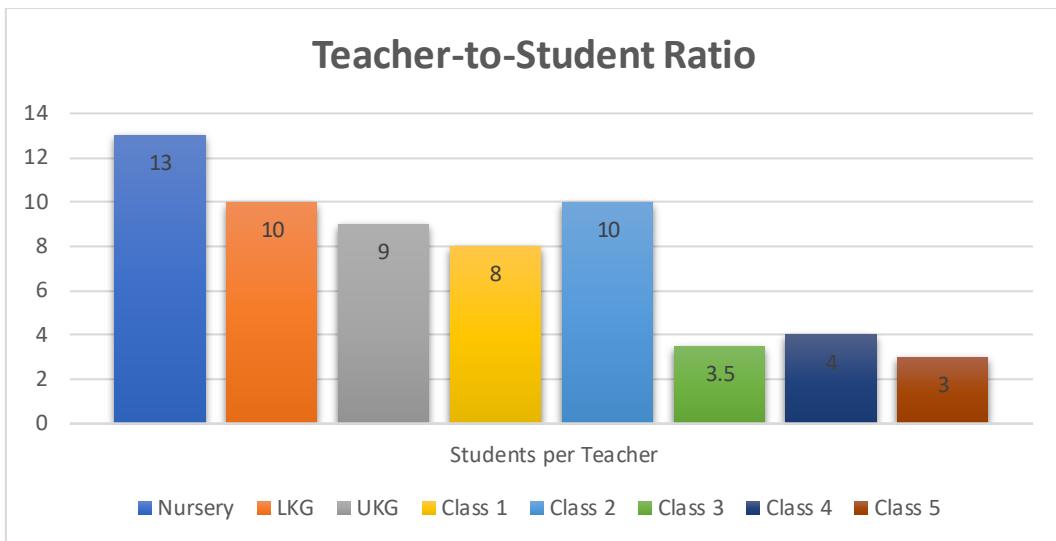


Fig 10. Teacher Student Ratio

### Key Findings

- The overall **Teacher-to-Student Ratio** in the school is **1:11.7**, meaning **one teacher for every 12 students**.
- **Class-wise Analysis:**
  - **Nursery has the highest ratio (1:13)**, while **Class 5 has the lowest (1:3)**.
  - Most other classes range between **1:8 to 1:10**

The school has **more teachers than necessary** based on typical student-teacher ratios.

The **recommended ratio** for primary education is **30:1**.

## 2. Enrolment Trends

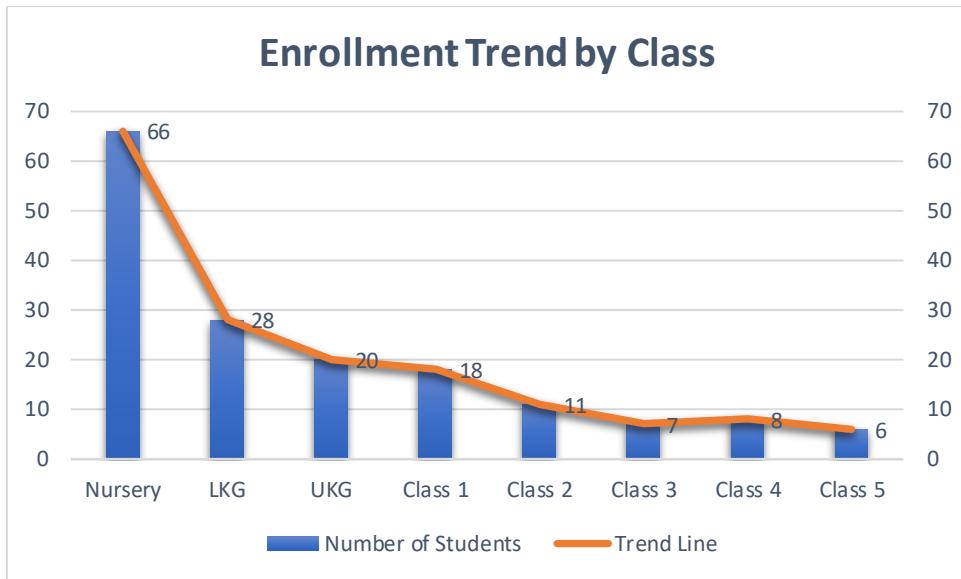


Fig 11. Enrollment Trend

- **Key Observations:**

- The **Nursery** class has the highest enrolment ( $\approx 66$  students), indicating strong admissions at the entry level.
- Enrolment gradually declines as students progress to higher classes, with a significant drop observed from **Nursery to LKG**.
- Enrolment in **Classes 3 and 4** stabilizes, but numbers remain low in higher classes (e.g., Class 5 has only 6 students).

### **Insights & Interpretation**

#### **1. Strong Early-Stage Admissions:**

- The school successfully attracts students at the foundational level (Nursery), indicating strong brand recognition and trust among parents in the local community.

#### **2. Declining Retention:**

- Parental preference for other institutions after early education.
- Lack of advanced facilities or curriculum for higher grades.