



Lesson 5

DATA ANALYSIS AND

WRITING A PROJECT REPORT



หัวข้อเรื่อง (Topics)

1. Introduction to Data Analysis and Writing a Project Report
2. Basic Data Analysis
3. Presenting Data with Graphs
4. Writing a Project Report

1. Introduction to Data Analysis and Writing a Project Report



Data analysis is a key step in understanding and interpreting information to make better decisions. It helps us identify patterns, trends, and important insights from data. Writing a project report ensures that the results and findings are presented clearly and effectively. Together, these skills are essential for managing projects and solving problems in real-world situations.

2. Basic Data Analysis

What is Basic Data Analysis?

Basic data analysis helps us understand data by summarizing key points, such as the average (mean), middle value (median), or the spread of data (range).



How to Calculate Basic Statistics :

- Mean : Add all values and divide by the number of data points.
- Median : The middle value when data is arranged in order.

Example

values

Ages of students: 18, 20, 19, 21, 18, 22

- Mean = $(18 + 20 + 19 + 21 + 18 + 22) \div 6 = 19.67$
- Median = $(19 + 20) \div 2 = 19.5$
- Range = $22 - 18 = 4$



Exercise 1 : Read the article below and use the data provided to calculate basic statistics and show your calculations step by step.

Article :

A company conducted a survey to understand employee satisfaction. The results include the number of hours employees worked each week :

Employee ID	Hours Worked
1	40
2	35
3	42
4	38
5	45
6	37
7	41

Tasks :

- Calculate the mean hours worked.

.....

- Find the median hours worked.

.....

- Determine the range of hours worked.

.....

3. Presenting Data with Graphs

Why Use Graphs?

Graphs help us visualize data, making patterns and trends easier to see.

Types of Graphs:

- Bar Graph : Compares values between groups.

Example

Monthly sales: January = 5000, February = 5200, March = 4800, April = 5500
Create a line graph to show sales trends and identify the month with the highest sales.



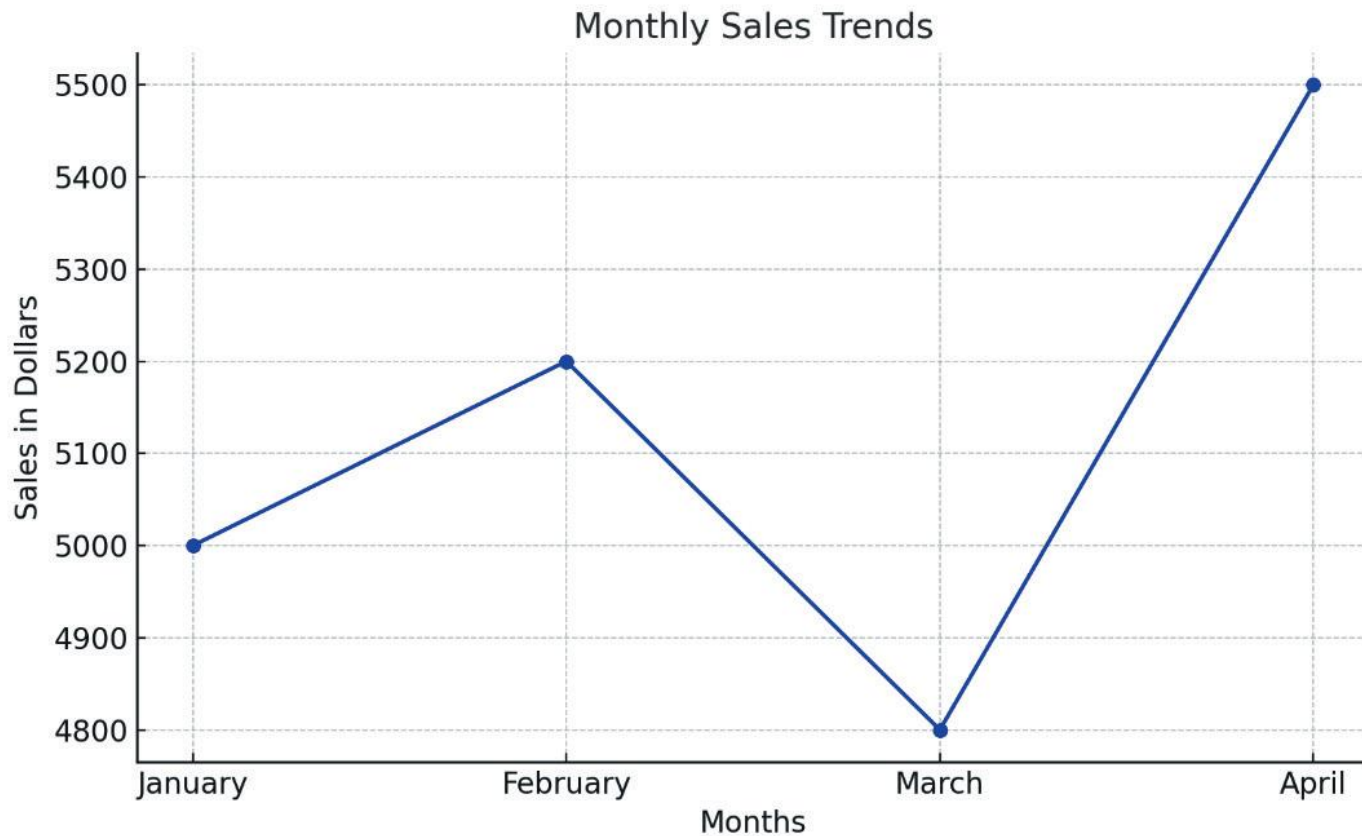
Bar Graph Example:



This data can also be represented as a bar graph to compare sales visually.

It helps identify April as the month with the highest sales.

Line Graph Example:



This data can be represented as a line graph to show trends over time.

From the graph, it's clear that April had the highest sales.



Exercise 2

1. Draw a bar graph to compare the number of units sold for each product. Label the x-axis as “Products” and the y-axis as “Units Sold.” Identify the product with the highest sales based on your graph.

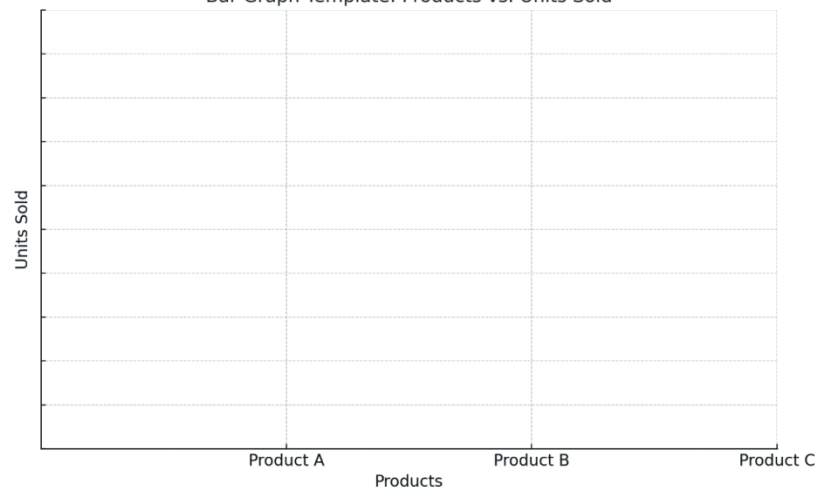
Use this data :

Product A : 50 units

Product B : 30 units

Product C : 40 units

Bar Graph Template: Products vs. Units Sold



2. Draw a line graph to show how sales changed over the three months.

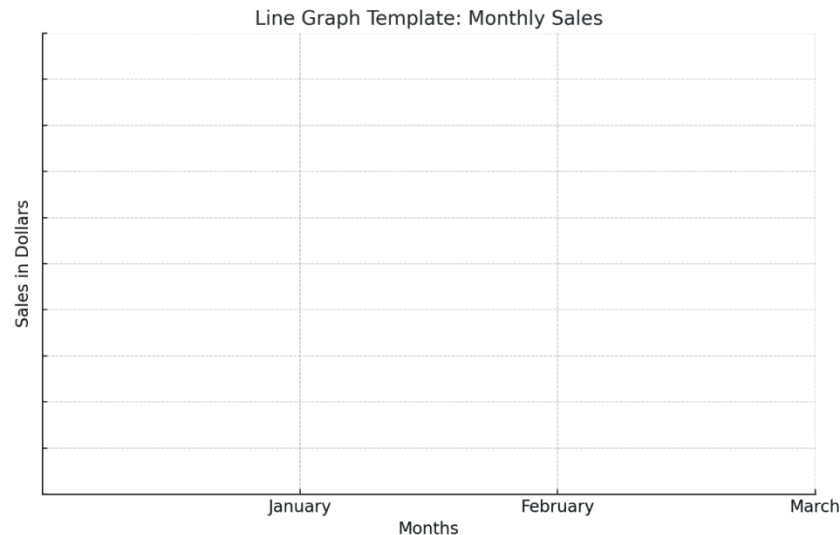
Label the x-axis as “Months” and the y-axis as “Sales in Dollars.”

Identify which month had the highest sales and the overall trend.
Use this data :

January : \$6000

February : \$6500

March : \$7000



4. Writing a project report



Writing a project report is an important skill that helps you present your findings, analysis, and recommendations in a clear and structured way. A good report ensures that your audience understands your ideas and can act on your

Steps to Write a Project Report :

1. Title Page : Include the report title, your name, date, and any project details.

Example :

Workplace Safety Report

Prepared by : [Your Name]

Date : [Insert Date]

Workplace Safety Report

Prepared by: [Your Name]

Date: April 26, 2025



2. Table of Contents : Provide a list of the sections in the report with their page numbers.

Example :

1. Introduction
2. Methodology
3. Results
4. Conclusion
5. Recommendations

Table of Contents	
1. Introduction	Page 1
2. Methodology	Page 3
3. Results	Page 7
4. Conclusion	Page 10
5. Recommendations	Page 12

3. Introduction : Explain the purpose of the project and its importance.

Example :

The purpose of this report is to identify safety risks in the factory and suggest improvements to create a safer work environment.

Table of Contents	
1. Introduction	Page 1
2. Methodology	Page 3
3. Results	Page 7
4. Conclusion	Page 10
5. Recommendations	Page 12



4. Methodology : Describe how you collected your data and what tools or methods you used.

Example :

Data was collected by observing the factory for one week and interviewing workers about safety issues.

Methodology

Data was collected by observing the factory for one week and interviewing workers about safety issues.

The process followed these steps:

1. Initial Observation: Walkthrough inspections were conducted across all production areas to identify visible hazards and safety risks.
2. Interviews: Workers from different departments were interviewed using a structured questionnaire focusing on safety concerns, past incidents, and suggestions for improvement.
3. Documentation Review: Safety reports, accident logs, and maintenance records were analyzed to gather historical data on workplace incidents.
4. Photographic Evidence: Photos were taken (with permission) to document areas of concern and to support findings with visual proof.

The main tools used for data collection included observation checklists, interview forms, and a digital camera for recording site conditions.



5. Results : Present the main findings of your project. Use bullet points or simple sentences.

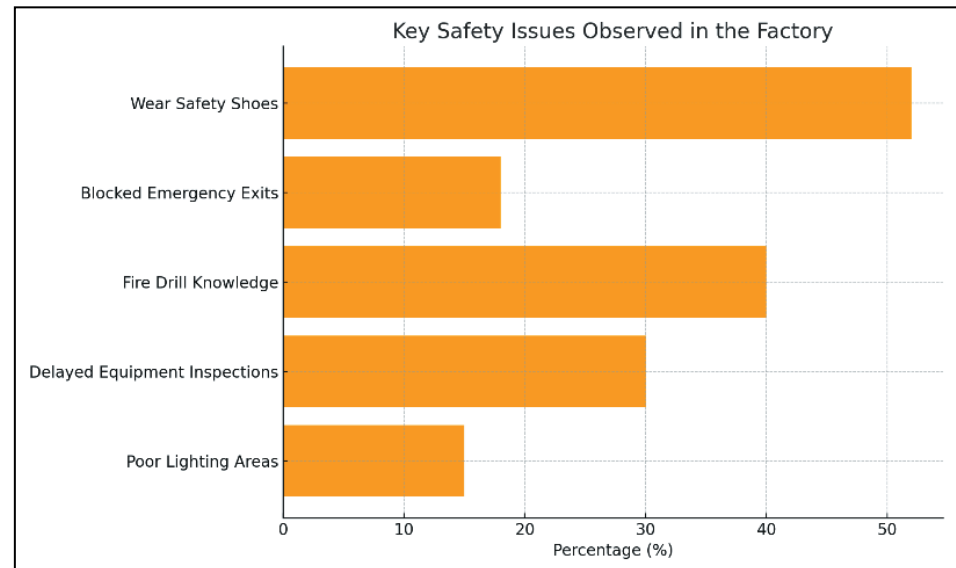
Example :

- Workers often slip near wet areas.
- Only 50% of workers wear safety shoes.
- There is no first-aid kit in some departments.

Results

Based on the observations, interviews, and document analysis, the following safety issues were identified:

- 27% of production areas have wet floors without proper warning signs, increasing the risk of slipping accidents.
- Only 52% of workers consistently wear their assigned safety shoes, despite company regulations.
- 18% of emergency exits were found to be partially blocked by stored materials.
- Interviews revealed that 40% of workers lacked clear knowledge about fire drill procedures.
- A review of maintenance records showed that 30% of critical equipment had delayed inspections in the past six months.
- 5 out of 12 departments lacked fully stocked first-aid kits, and some kits contained expired supplies.
- Photographic evidence highlighted that 15% of warehouse areas had poor lighting conditions, making it harder to notice floor hazards.



6. Conclusion : Summarize your findings and explain their significance.

Example :

The report shows that improving workplace safety is essential to prevent accidents and injuries.

Conclusion

This report highlights several critical safety risks within the factory, including wet floors without warning signs, inadequate use of safety shoes, blocked emergency exits, limited fire drill knowledge, delayed equipment inspections, and insufficient first-aid supplies.

These findings indicate that workplace safety protocols are not consistently followed and that there are gaps in employee training and equipment maintenance. Addressing these issues is vital to reduce the likelihood of accidents, enhance operational efficiency, and create a safer working environment for all employees.

Implementing corrective measures based on these findings will not only help in preventing injuries but will also foster a stronger safety culture, reduce downtime caused by accidents, and improve employee morale and confidence.

7. Recommendations : Suggest practical solutions based on your findings.

Example :

- Provide safety shoes to all workers.
- Install anti-slip mats near wet areas.
- Train workers on how to handle emergencies.

Recommendations

Based on the findings of this report, the following actions are recommended to improve workplace safety:

- Install anti-slip mats in areas where wet floors are common and place clear warning signs nearby.
- Provide new safety shoes to all workers and enforce regular checks to ensure they are worn during work hours.
- Conduct monthly inspections to ensure emergency exits are clear and accessible at all times.
- Organize regular fire drill training sessions to improve workers' understanding of emergency procedures.
- Implement a preventive maintenance schedule to ensure timely inspections of critical equipment.
- Restock and regularly check first-aid kits in all departments to ensure they are complete and supplies are within expiry dates.
- Improve lighting conditions in warehouse areas to reduce hidden hazards and improve overall visibility.





Exercise 3 : Match the parts of a project report with their correct descriptions. Write the letter of the correct description next to each part.

Month	Sales (in dollars)
1. Title Page	a. Explains the purpose and objectives of the project.
2. Table of Contents	b. Summarizes the main findings and their importance.
3. Introduction	c. Lists all sections and page numbers for easy navigation.
4. Methodology	d. Provides suggestions for improvements based on findings.
5. Results	e. Presents the findings using data, charts, or bullet points.
6. Conclusion	f. Shows how the project data was collected and analyzed.

Exercise 4 : Put the report sections in the correct order. Write numbers 1–7 in the “Order” column.

Sections	Order (Number)
Recommendations	
Title Page	
Results	
Introduction	
Methodology	
Conclusion	
Table of Contents	

Example Template: Project Report with 7 Sections



1. Title Page :

- Title: School Recycling Program
- Prepared by: John Smith
- Date: January 25, 2025

2. Table of Contents :

1. Title Page
2. Table of Contents
3. Introduction
4. Methodology
5. Results
6. Conclusion
7. Recommendations

3. Introduction :

This project was about reducing waste at school by recycling. The goal was to teach students and teachers to recycle paper, plastic, and other materials.

4. Methodology :

We put recycling bins in five classrooms for one month. Posters and announcements explained how to separate recyclables. Every week, we checked the bins and counted the recyclables.

5. Results :

In one month, we collected 50 kg of recyclables. Most of it was paper (70%), followed by plastic bottles (20%). Many students helped and learned about recycling.

6. Conclusion :

The project worked well. We reduced waste by 30%. Students now understand how to recycle better.

7. Recommendations :

We suggest putting recycling bins in every classroom. We also recommend having monthly recycling contests to keep students interested.

Simple Tips for Writing a Project Report

Writing a project report doesn't have to be difficult. By following a clear structure and using simple language, you can organize your ideas and present your findings effectively. These tips will help you write a report step by step, even if your English skills are still improving





Simple Tips for Writing a Project Report

1. Start with the Basics :

- Write the Title Page with the project title, your name, and the date.
- Create a Table of Contents to list all sections.

2. Use Simple Sentences :

- Write short and clear sentences.

Example : “We cleaned the yard for one week.”

3. Follow the Structure :

- Introduction : Explain what the project is about and its purpose.
- Methodology : Describe what you did and how you did it.
- Results : Share what you achieved or found out.
- Conclusion : Summarize the project's success.
- Recommendations : Suggest what to do next.

4. Think in Your Language First :

- Recommendations: Suggest what to do next.
- Plan your ideas in your first language (e.g., Thai), then translate them into English.

5. Use Examples :

Example for “Methodology”: “We planted 10 trees around the school using shovels and watering cans.”

6. Don’t Worry About Mistakes :

- Focus on writing ideas clearly. It’s okay if grammar isn’t perfect.

7. Keep It Organized :

- Use bullet points or numbers to make your writing easy to read.

8. Be Positive :

- Highlight the good results and suggest improvements politely.



Exercise 5 : Use the blank template to create a project report for a topic of your choice, such as a school cleanup, a community service event, or a simple experiment.

Blank Template for Students

1. Title Page:

- Title :
- Prepared by :
- Date :

2. Table of Contents:

- Title Page
- Table of Contents
- Introduction
- Methodology
- Results
- Conclusion
- Recommendations



3. Introduction:

This project was about

.....

The goal was to

.....

4. Methodology :

We

.....

We used

.....

5. Results :

We found

.....

Most of the data showed

.....

6. Conclusion :

The project was

.....

Vocabularies for Data Analysis and Writing a Project Report



Vocabularies	Definition	Thai Meaning
Data Analysis	Understanding data to find useful information.	การวิเคราะห์ข้อมูล
Project Report	A document to share results and findings.	รายงานโครงการ
Mean	The total divided by the number of items.	ค่าเฉลี่ย
Median	The middle number in a group of numbers.	ค่ามัธยฐาน
Range	The difference between the highest and lowest numbers.	ช่วงค่า
Line Graph	A chart that shows changes over time with lines.	กราฟเส้น
Bar Graph	A chart using bars to compare groups of data.	กราฟแท่ง
Results	The findings or outcomes of work.	ผลลัพธ์

Vocabularies	Definition	Thai Meaning
Recommendations	Suggestions for improvement or action.	ข้อเสนอแนะ
Statistical Tools	Tools used to understand data.	เครื่องมือทางสถิติ
Visualization	Turning data into charts or graphs.	การแสดงข้อมูลเชิงภาพ
Conclusion	The final summary or decision.	บทสรุป
Table of Contents	A guide showing sections and pages in a document.	สารบัญ
Title Page	The first page showing the title and author.	หน้าปก
Survey	Questions asked to collect information.	แบบสำรวจ

Vocabularies	Definition	Thai Meaning
Trends	Regular patterns or changes in data.	แนวโน้ม
Hypothesis	A guess that can be tested.	สมมติฐาน
Background	Information to help understand the topic.	ข้อมูลพื้นฐาน
Objective	The purpose or goal of a project.	วัตถุประสงค์
Interpretation	Explaining the meaning of data.	การตีความ
Methodology	The steps or methods used in a project.	ระเบียบวิธี
Data Collection	Gathering information for analysis.	การเก็บรวบรวมข้อมูล
Statistical Analysis	Studying data to answer questions.	การวิเคราะห์เชิงสถิติ
Graph	A picture used to show data.	กราฟ
Patterns	Repeating elements or trends in data.	รูปแบบ
Data Analysis	Understanding data to find useful information.	การวิเคราะห์ข้อมูล