Chapter 5: Project – Interactive Data Dashboard & Presentation

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Introduction

In the world of Artificial Intelligence and Data Science, one of the most valuable skills is the ability to **present data in a clear, engaging, and interactive way**. Dashboards are widely used in various sectors—business, education, healthcare, sports, and more—for **visualizing data** to derive insights and support decision-making.

In this project-based chapter, students will apply their understanding of data types, collection methods, and visualization techniques to create an **Interactive Data Dashboard and a Presentation**. This hands-on approach helps students **develop practical skills**, enhances **critical thinking**, and strengthens their **communication and analytical capabilities**.

5.1 What Is a Dashboard?

A **dashboard** is a visual display of key data and metrics. It allows users to **monitor, analyze, and interact** with data on a single screen.

Features of a Good Dashboard:

- **Clarity**: Simple, not cluttered
- **Real-time or updated** data
- **Interactivity**: Filters, dropdowns, sliders
- **Visualization**: Charts, graphs, maps, gauges

5.2 Tools for Creating Interactive Dashboards

Some beginner-friendly and school-appropriate tools include:

1. Microsoft Excel / Google Sheets

- Can be used with pivot tables and charts
- Basic level of interactivity via filters

2. Google Data Studio (Looker Studio)

- Free and web-based
- Connects to Sheets, CSVs, and other sources
- Allows slicers, filters, and chart options

3. Tableau Public

- Advanced visualization tool
- Drag-and-drop interface for interactive dashboards

4. Canva / Infogram

- Good for static dashboards with limited interactivity
- Useful for beginner-level students

5.3 Steps to Create an Interactive Dashboard

Step 1: Choose a Theme or Topic

Select a real-world problem or interest area. Examples:

- Water usage in school
- Online gaming habits
- Social media usage among teens
- COVID-19 statistics
- School performance analysis

Step 2: Collect Data

Use any of the following:

- **Google Forms**: To conduct surveys
- **Government/Open Data Portals**: E.g., data.gov.in
- **Manual Collection**: Observations or school records

Step 3: Clean and Organize the Data

Ensure data is:

- Free from errors
- Consistent (same units, formats)
- Structured in a spreadsheet (rows = records, columns = fields)

Step 4: Analyze the Data

Use basic statistical techniques:

- Mean, mode, median
- Frequency and trends
- Comparative analysis

Step 5: Visualize the Data

Create:

- **Bar Graphs** for comparisons
- **Line Graphs** for trends over time
- **Pie Charts** for proportions
- **Tables** for summaries
- **Maps** for location-based data (optional)

Step 6: Build the Dashboard

Using tools like Google Data Studio or Excel:

- Import the cleaned data
- Add visual elements (charts, tables)
- Use filters to allow interactivity
- Label clearly

Step 7: Review and Test

- Test the dashboard's usability
- Check if data updates properly
- Ensure interactivity works

5.4 Creating a Presentation

After creating your dashboard, summarize your work in a presentation. A good structure is:

Slide 1: Title Slide

- Topic
- Your name and class

Slide 2: Problem Statement

- What issue are you addressing?
- Why is it important?

Slide 3: Data Collection Process

- Where and how was data collected?
- Number of participants (if survey)

Slide 4: Dashboard Snapshots

- Insert key charts and screenshots

Slide 5: Analysis and Insights

- What does the data show?
- Any surprising findings?

Slide 6: Conclusion

- Summary of findings
- Possible solutions or next steps

Slide 7: References

- Sources of data or tools used

5.5 Evaluation Criteria for the Project

Criteria	Weightage
Data Collection & Relevance	20%
Dashboard Design & Clarity	25%
Interactivity & Functionality	20%
Data Analysis & Interpretation	15%
Presentation & Communication	10%
Innovation & Creativity	10%

5.6 Real-World Applications of Dashboards

- **Business**: Sales dashboards, customer engagement reports
- **Healthcare**: Patient tracking, pandemic data
- **Education**: Student performance dashboards
- **Government**: Budget tracking, development metrics
- **Personal Use**: Fitness progress, daily goals

Summary

In this chapter, students explored how to design and build an **Interactive Data Dashboard** using real-world data. They also learned to **present insights** from that data using engaging visual storytelling. Through this project, learners gained:

- Hands-on experience with data tools
- Skills in collecting, cleaning, and visualizing data
- A deeper understanding of how AI uses data for decision-making

This chapter not only teaches technical skills but also nurtures **curiosity**, **problem-solving**, and **communication**—all essential for future AI professionals.