



MKSSS's Cummins College of Engineering For Women, Pune

(An Autonomous College affiliated to Savitribai Phule Pune University)

Department of INFORMATION TECHNOLOGY



Course Name: Data Science

Course Code: 23PCIT 603

Semester: 6

Year: TY

Date: 31/03/2026

Name of Course In-Charge: Dr. Dipti D. Patil

Name of Activity: Data Story Tellin with Role Play

Objective: To enhance students' analytical, communication, and collaborative skills through an experiential learning activity based on role play and data storytelling. The pedagogy aimed to help students understand the impact of present warfare conditions on industries and explore how data storytelling techniques can transform complex data into meaningful insights for decision-making. The activity also encouraged creativity, critical thinking, research aptitude, and effective presentation skills by integrating real-world issues with data science concepts.

Dissemination of Problem statement: Following document was shared with students and student's were ask to present the story through Role Play with theme taken and submit the report and recorded video. The topic given to students was "**Present Warfare Conditions Affecting Industry and the Role of Data Storytelling in Generating Insights**"

Data-to-Story Studio (D2S) Approach

1. Concept

Students transform **raw data into a compelling story** that influences a decision or communicates insights clearly.

The classroom becomes a **data newsroom or analytics studio** where students act as **data journalists or analysts**.

Pedagogical Framework

Phase 1: Data Discovery (Explore)

Activity:

Students are supposed to choose a **real-world dataset** (healthcare, climate change, e-commerce, education etc.)

Task

- Identify patterns and trends
- Detect anomalies
- Frame a key question



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Tools

- Excel / Google Sheets
- Tableau / Power BI

Outcome

Students identify **one key insight worth telling a story about**.

Phase 2: Story Framing (Think like a Storyteller)

Students learn the **3-act storytelling structure**:

1. **Context** – What is the problem?
2. **Conflict / Insight** – What does the data reveal?
3. **Resolution** – What decision or action should be taken?

Activity:

Students write a **100-word “data story script.”**

Phase 3: Visual Narrative Design

Students convert insights into **visual storytelling artifacts**.

Possible formats

- Infographics
- Interactive dashboards
- Short video explanation
- Storyboard slides

Rule:

Each visualization must answer a **specific question**.

Example:

- Bar chart → comparison
 - Line chart → trend
 - Heatmap → patterns
-

Phase 4: Role-play – “Data Press Conference” (Highly Innovative)

Each team presents their story as:



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- **Data Scientists**
- **Policy Advisors**
- **Business Analysts**
- **Journalists**

Other students act as **decision makers or reporters** asking questions.

This builds:

- Data interpretation
- Critical thinking
- Communication skills

Phase 5: Reflection and Peer Evaluation

Students evaluate presentations using a rubric:

Criteria	Weight
Clarity of Story	25%
Quality of Visualizations	25%
Insight from Data	25%
Presentation & Persuasion	25%

Instructions

Student work



Pedagogy: Data Story Telling



Dr. Dipti Patil • Mar 23

10 points

Due Mar 31

Dear Students,

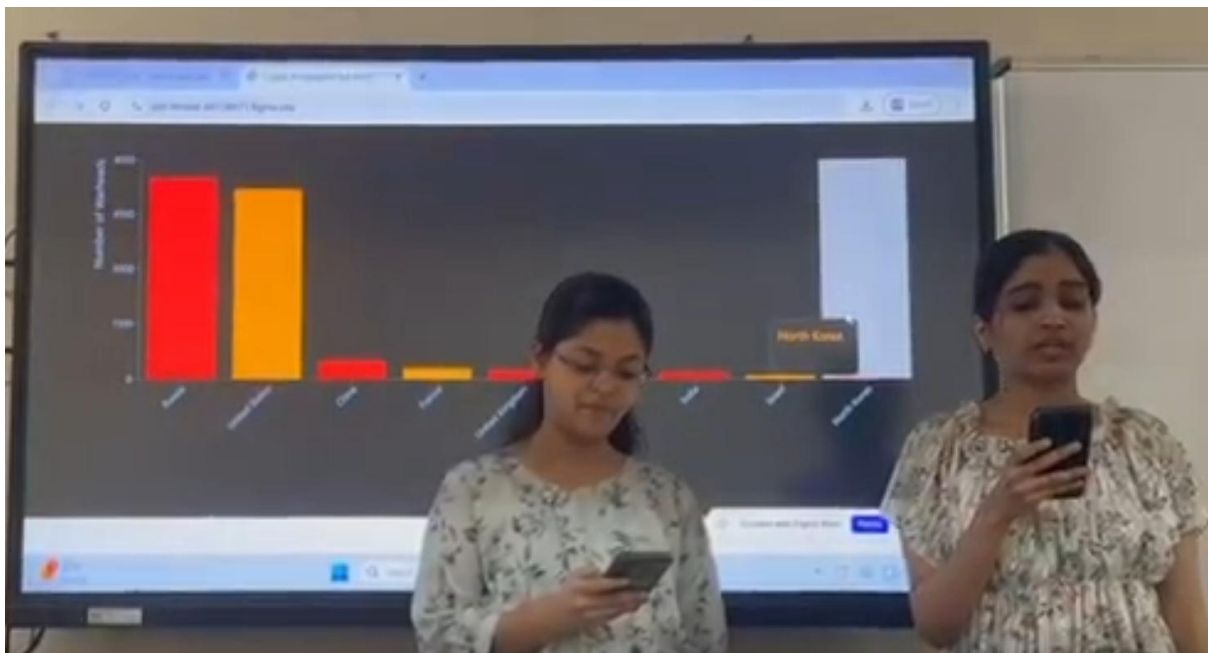
As we executed the interesting activity on "Data Story Telling". You are supposed to upload the complete report based on the given guidelines in the classroom and as per the attached document.

A small video of presentation will be effective.

[Role play story telling data science a...](#)

PDF

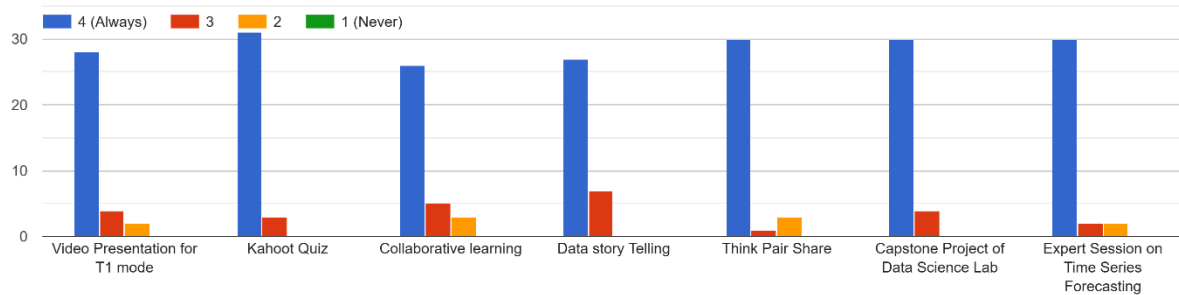




Sample of activity report attached:

Feedback of students:

Was the different pedagogy techniques used by teacher were effective for teaching learning process?



Contribution to Sustainable Development Goals (SDGs)

This assignment significantly aligns with global sustainability frameworks and directly contributes to the following SDGs:

SDGs Achieved Through This Activity

- SDG 4 – Quality Education**
 The activity promotes experiential, interdisciplinary, and skill-based learning through role-play, data analysis, storytelling, and presentation. Students develop analytical thinking, communication, collaboration, and problem-solving abilities aligned with modern education practices and NEP-oriented pedagogy.
- SDG 8 – Decent Work and Economic Growth**
 The discussion on how warfare conditions affect industries helps students understand economic disruptions, industrial resilience, supply chain challenges, and workforce impacts. Data storytelling enables better business decisions and strategic planning for sustainable economic growth.
- SDG 9 – Industry, Innovation and Infrastructure**
 Students explored how data science and storytelling techniques support industries during crisis situations by enabling data-driven decision-making, predictive analytics, and strategic innovation. The activity strengthens awareness of digital transformation and intelligent industrial systems.
- SDG 16 – Peace, Justice and Strong Institutions**
 By analyzing present warfare conditions and their societal and industrial implications, students develop awareness about global peace, responsible governance, ethical decision-making, and the importance of informed communication using factual data.
- SDG 17 – Partnerships for the Goals**
 The collaborative learning model involving teamwork, role-play, peer interaction, and interdisciplinary discussion reflects partnership-based learning and collective problem-solving approaches essential for achieving sustainable development.



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Impact assessment:

Students participated enthusiastically and demonstrated active engagement throughout the activity. They selected a highly relevant contemporary topic related to present warfare conditions and its impact on industries, showing strong contextual understanding and critical thinking abilities. Through collaborative teamwork, students effectively analyzed the theme and creatively presented the concept using role-play and data storytelling techniques. The activity enhanced communication skills, analytical thinking, teamwork, presentation abilities, and real-world problem-solving skills. Students successfully depicted the story in an interesting and impactful manner within the stipulated time period, reflecting effective planning, coordination, and experiential learning outcomes.

Action taken Thereof: Such Data Story telling approach for gaining data insights assignment will be continued to be given to students

Dr. Dipti Patil

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Sample Report submitted by students:

Data Story Telling Report

Nuclear Weapons and Global Power: Understanding Global Security Through Data

Student Name: Geetanjali Kulkarni

Subject: Data Science

Instructor: Dipti ma'am

Date: 31/03/2026

1. Introduction

Data storytelling is the process of transforming raw data into meaningful insights that can influence decisions and improve understanding. In this project, we analysed global nuclear weapons data to understand how nuclear power is distributed among countries and how it influences modern geopolitical tensions.

Nuclear weapons are the most powerful weapons ever created. Although they are rarely used in war, their existence strongly influences international relations, global security policies, and diplomatic negotiations.

This project focuses on analysing nuclear weapon distribution across countries and understanding how nuclear power shapes global conflicts, particularly in the context of rising tensions between the United States, Israel, and Iran.

2. Phase 1: Data Discovery (Explore)

Dataset Topic

Global Nuclear Weapons Inventory by Country

Data Sources

The data used in this project is based on publicly available estimates from international security research organizations such as:

- Stockholm International Peace Research Institute (SIPRI)
- Federation of American Scientists (FAS)

Key Question

How is nuclear power distributed among countries, and what does this reveal about global security and geopolitical influence?



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Observed Patterns and Trends

From the dataset, several important patterns were observed:

1. Nuclear weapons are concentrated in a small number of countries.
2. Two countries dominate global nuclear power.
3. Most other nuclear nations possess significantly smaller arsenals.
4. Nuclear weapons are mainly used as strategic deterrence rather than for battlefield use.

Nuclear Weapons by Country (Approximate Data)

Country	Estimated Warheads
United States	~5200
Russia	~5900
China	~500
France	~290
United Kingdom	~225
India	~170
Pakistan	~170
Israel	~90
North Korea	~50

Key Insight

Nearly **90% of the world's nuclear weapons belong to the United States and Russia**, indicating a strong concentration of nuclear power.

3. Phase 2: Story Framing

Data Story Script

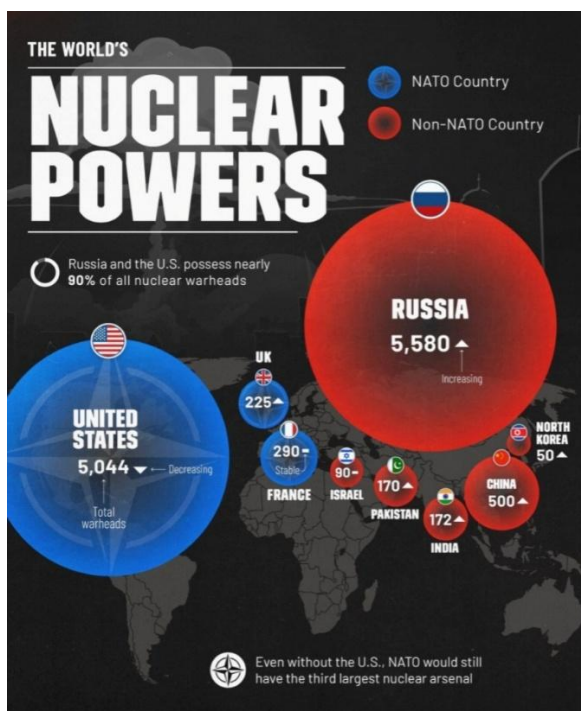
The world today possesses approximately 12,500 nuclear warheads, but this immense destructive power is concentrated in only a few countries. Russia holds around 5,900 warheads while the United

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States maintains about 5,200, together controlling nearly 90% of the global nuclear arsenal. Other countries such as China, France, and the United Kingdom possess significantly smaller stockpiles, while India and Pakistan maintain strategic balance in South Asia. Israel and North Korea hold comparatively smaller arsenals. In an era of geopolitical tensions, especially involving the United States, Israel, and Iran, nuclear weapons act as powerful deterrents. The global challenge is ensuring that these weapons remain tools of deterrence rather than instruments of destruction.

4. Phase 3: Visual Narrative Design

To effectively communicate insights from the dataset, several visualization techniques were used.



<https://ash-thread-69728971.figma.site/>



5. Phase 4: Role Play – Data Press Conference

In the presentation activity, we acted as **Data Scientists and Analysts** explaining nuclear weapons data.

The presentation highlighted:

- Global nuclear weapon distribution
- Strategic importance of nuclear deterrence
- Impact of nuclear weapons on international conflicts



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The presentation also connected the data with current geopolitical tensions, particularly between the United States, Israel, and Iran.

6. Phase 5: Reflection

This activity helped develop several important skills like -

Data Interpretation

Critical Thinking

Communication Skills

Visualization Skills

7. Conclusion

This data storytelling project demonstrates how nuclear weapons data reveals important insights about global power distribution and security strategies.

Although nuclear weapons have not been used in warfare since World War II, their existence continues to influence international relations and geopolitical tensions.

The data shows that nuclear power is concentrated in a small number of countries, particularly the United States and Russia. As global tensions rise, nuclear weapons remain a critical factor in international diplomacy and deterrence.

Understanding nuclear weapons through data storytelling helps us better understand global security challenges and highlights the importance of responsible nuclear policy.

Ultimately, the world hopes that nuclear weapons remain tools of deterrence and that humanity never enters an Earth-destroying nuclear era.
