SNS COLLEGE OF TECHNOLOGY

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

Department of Computer Science and Engineering

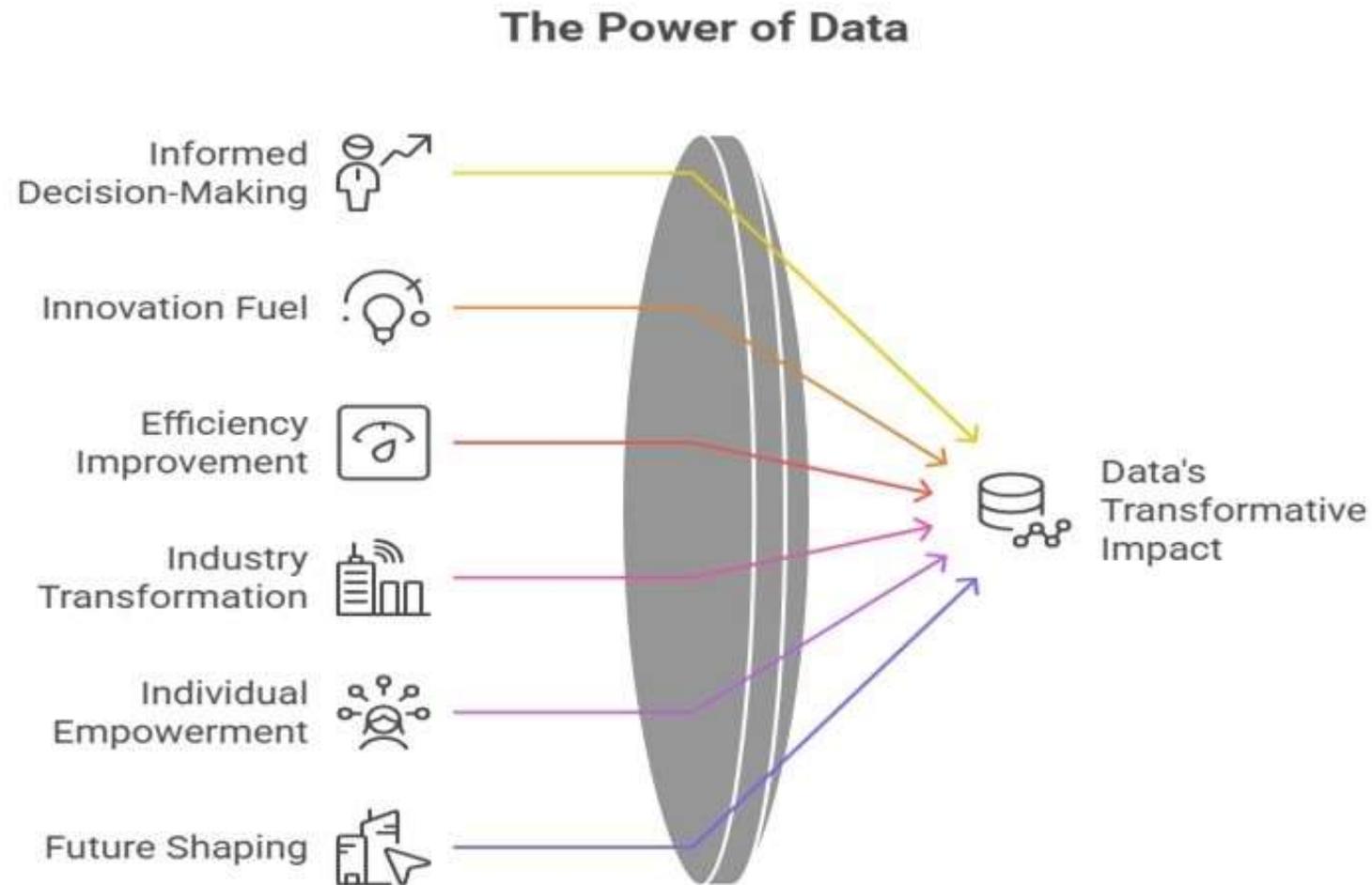## Course Code & Title : 23ADO201 - Data Science Fundamentals

III YEAR / VI SEMESTER - EEE
Unit 1 - INTRODUCTION TO DATA SCIENCE
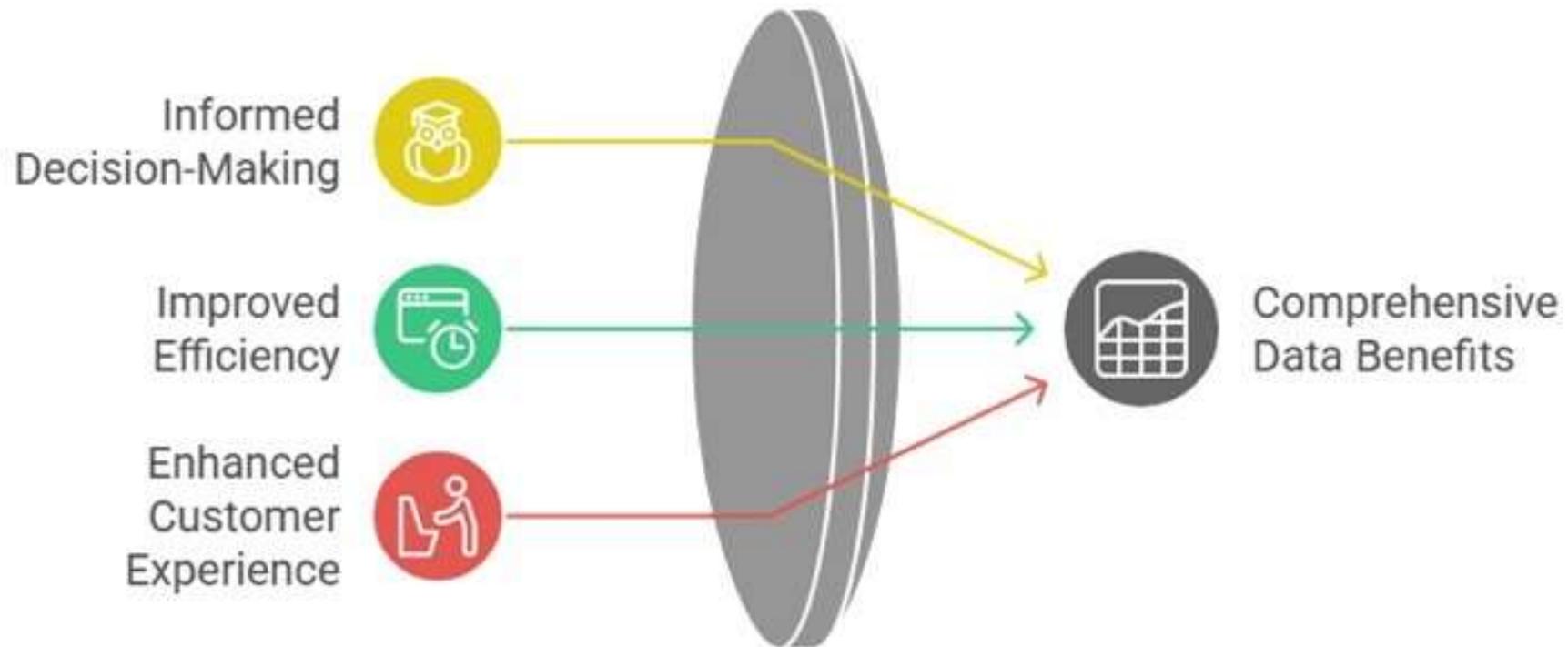Topic : Benefits and uses, Facets of Data, Data Science Process

K.Karthikeyan AP/CSE

RECALL IN POWER OF DATA

The Power of Data

Informed Decision-Making

Innovation Fuel

Efficiency Improvement

Industry Transformation

Individual Empowerment

Future Shaping

Data's Transformative Impact

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EMPATHY IN UNLOCKING DATA POTENTIAL

Unlocking Data's Potential

Informed Decision-Making

Improved Efficiency

Enhanced Customer Experience

Comprehensive Data Benefits

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Data Applications Across Sectors

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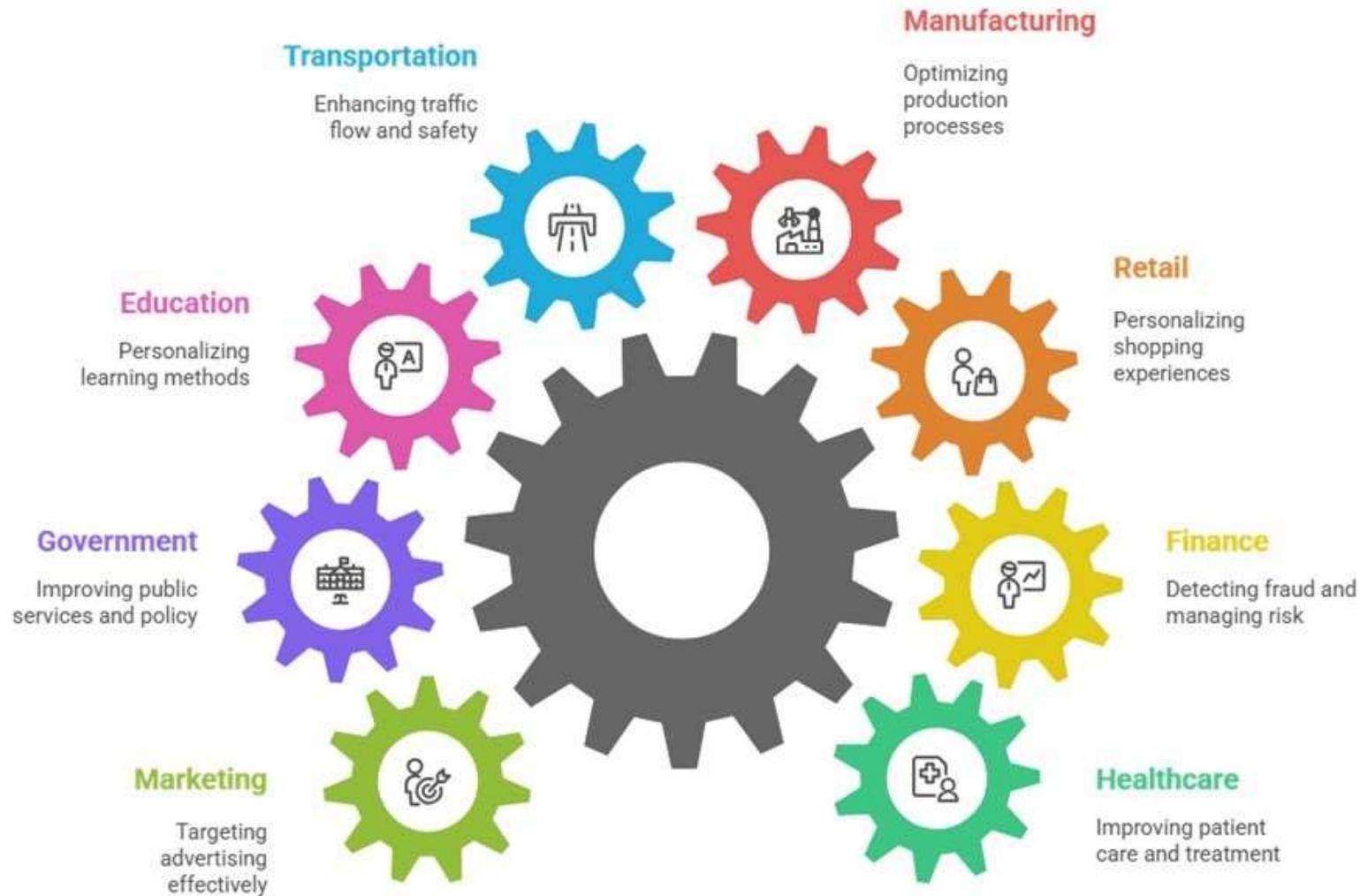
Facets of Data: Value and Impact

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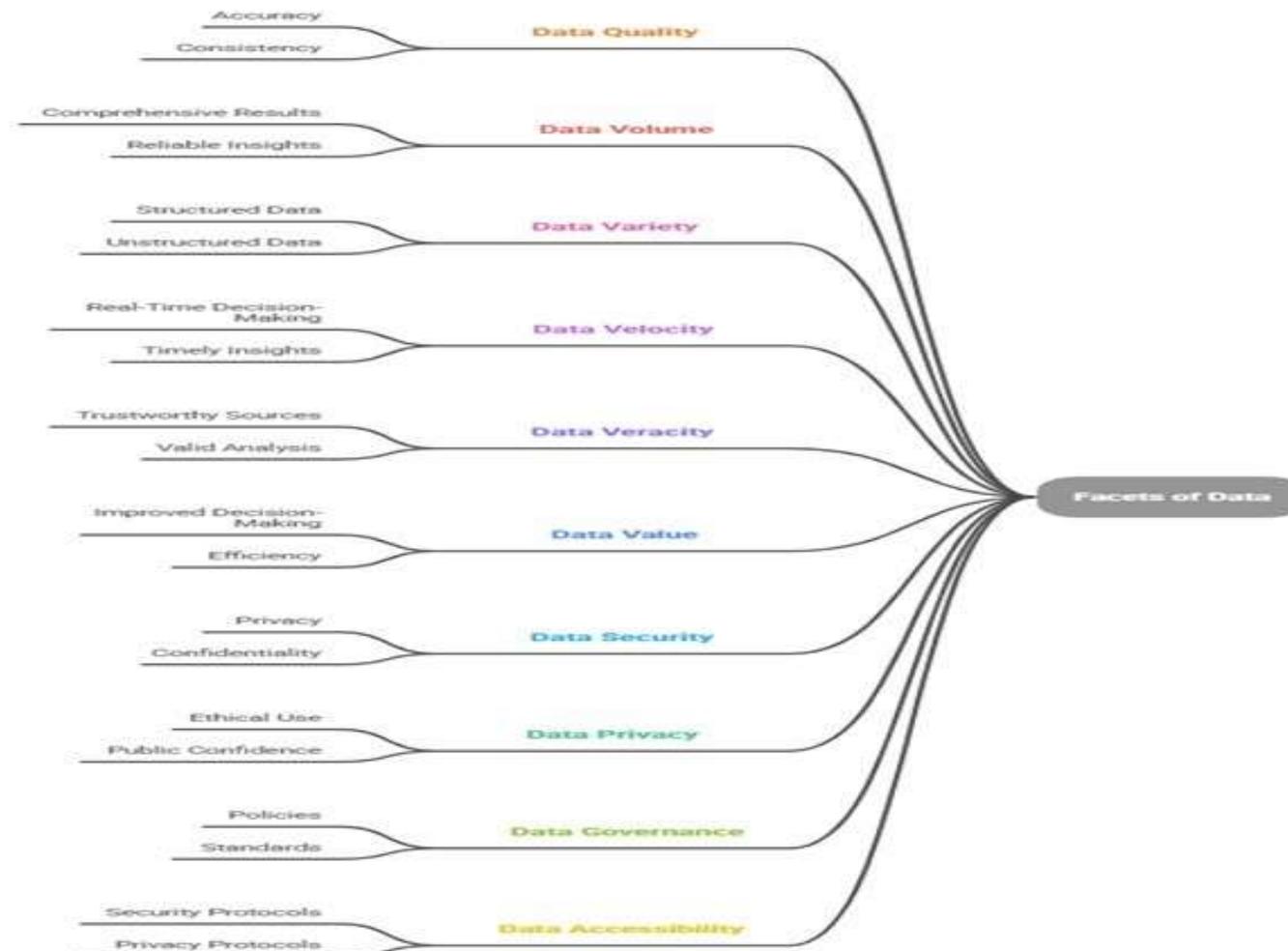
Activity

Activity: Understanding Data and Data Science

Objective

To understand the importance of data, its facets, and the steps involved in the data science process through real-life examples.

1. Benefits and Uses of Data (Activity)

Activity Task:

Students list real-life examples for each benefit of data.

Benefits & Uses:

•**Decision Making:** Data helps organizations make accurate and informed decisions.

•**Business Optimization:** Improves efficiency, reduces cost, and increases profit.

•**Predictive Analysis:** Predicts future trends like sales, weather, or demand.

•**Customer Insights:** Understands customer behavior and preferences.

•**Risk Management:** Identifies risks and prevents losses.

•**Innovation:** Helps develop new products and services.
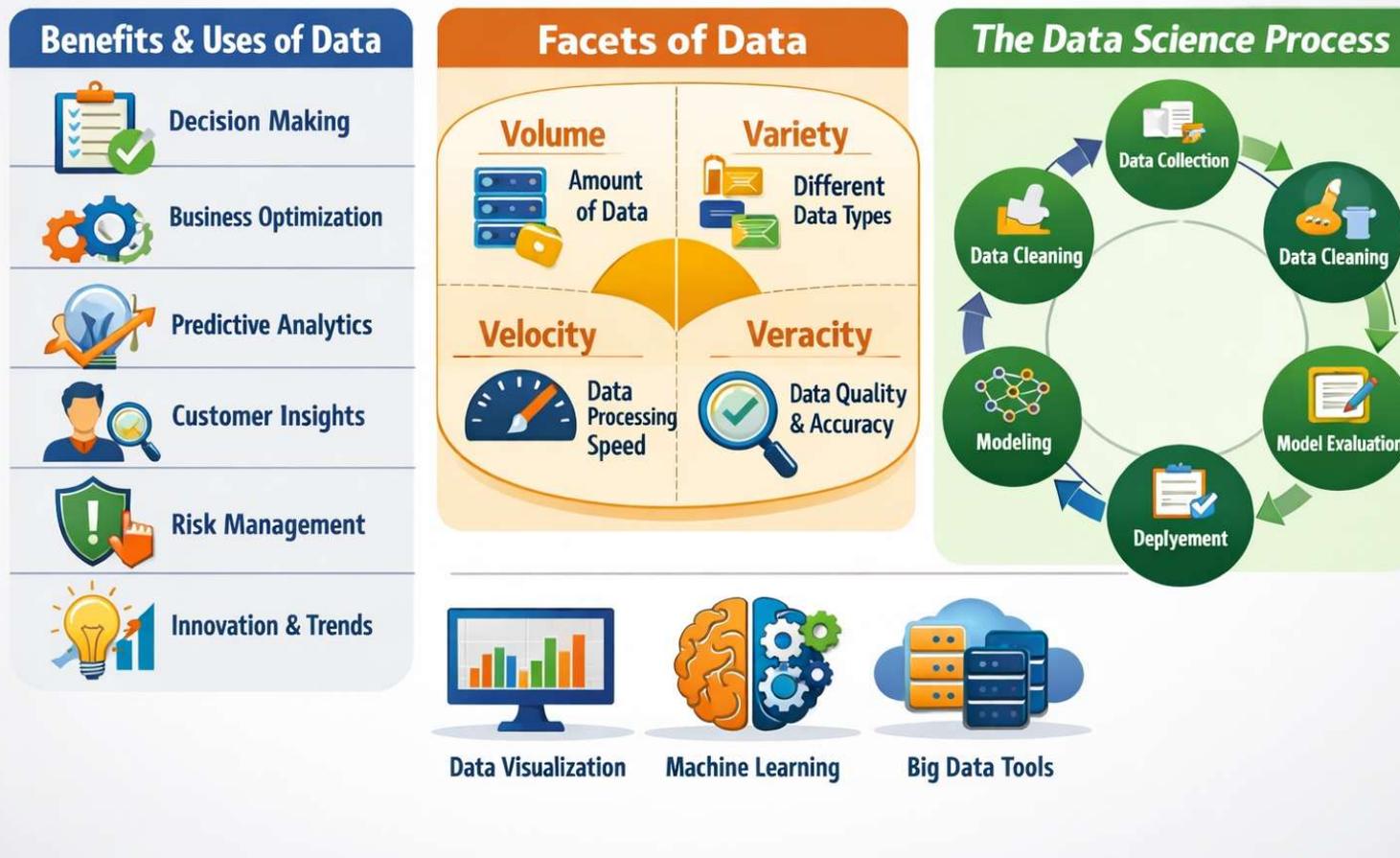
Example:

Online shopping apps use customer data to recommend products.

How to address challenges in working with data?

Develop Data Skills

Invest in training and education to build a skilled data workforce.

Enhance Data Security

Strengthen security measures to protect data from unauthorized access and ensure compliance.

Manage Data Overload

Use tools and techniques to filter and prioritize data for relevant insights.

Integrate Data Silos

Develop strategies to connect isolated systems for comprehensive analysis.

Address Ethical Concerns

Establish ethical guidelines and practices to ensure responsible data use.

Improve Data Quality

Implement data cleaning and validation processes to ensure accuracy and consistency.

MIND MAP

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ASSESSMENT

MCQs: Data and Data Science

A. Benefits and Uses of Data

1. Which of the following is a major benefit of using data in organizations?
a) Guesswork
b) Decision making
c) Manual work
d) Trial and error

Answer: b

2. Data helps businesses to understand customer behavior. This is known as:
a) Risk management
b) Data storage
c) Customer insights
d) Data cleaning

Answer: c

3. Predicting future sales using past data is called:
a) Data collection
b) Predictive analytics
c) Data entry
d) Data variety

Answer: b

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REFERENCE BOOKS

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2.Sanjeev J. Wagh, Manisha S. Bhende, Anuradha D. Thakare, "Fundamentals of Data Science", CRC Press, 2022.
3.Chirag Shah, "A Hands-On Introduction to Data Science", Cambridge University Press, 2020.
4.Vineet Raina, Srinath Krishnamurthy, "Building an Effective Data Science Practice: A Framework to Bootstrap and Manage a Successful Data Science Practice", A press, 2021.

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