



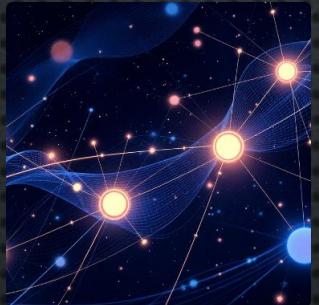
Internship Presentation

Task 1

Company name : ***Take it
smart (OPC) Pvt Ltd.***

MOHAMMAD AFNAN ALLAUDIN KUMBARI.(2KD22CS054)

What is Data Science, AI, and Machine Learning?



Data Science

The art and science of extracting insights from structured and unstructured data using programming, statistics, and domain knowledge.



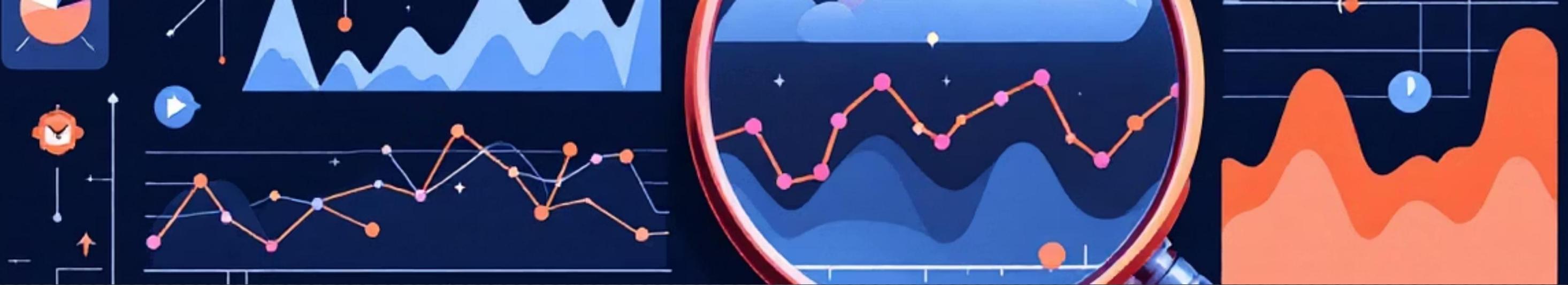
Artificial Intelligence (AI)

Systems designed to mimic human intelligence, enabling machines to learn, reason, and make decisions.



Machine Learning (ML)

A subset of AI where algorithms learn patterns from data to make predictions or decisions without explicit programming.



Types of Data Analysis Before Tackling Business Problems

Descriptive Analysis

What happened? Summarizes historical data (e.g., sales reports).

Diagnostic Analysis

Why did it happen? Investigates causes behind trends.

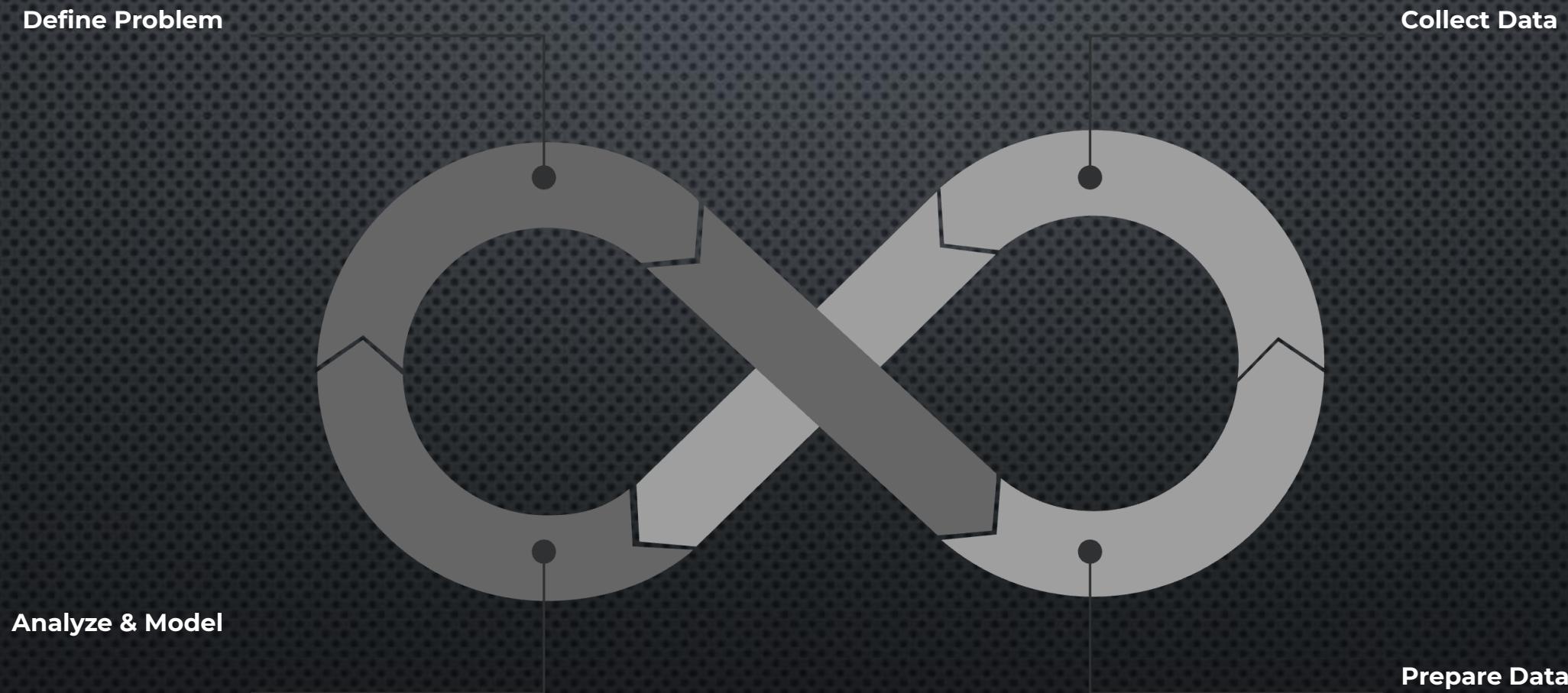
Predictive Analysis

What will happen? Uses models to forecast future outcomes.

Prescriptive Analysis

What should we do? Recommends actions based on predictions.

Data Science Project Life Cycle: From Problem to Solution

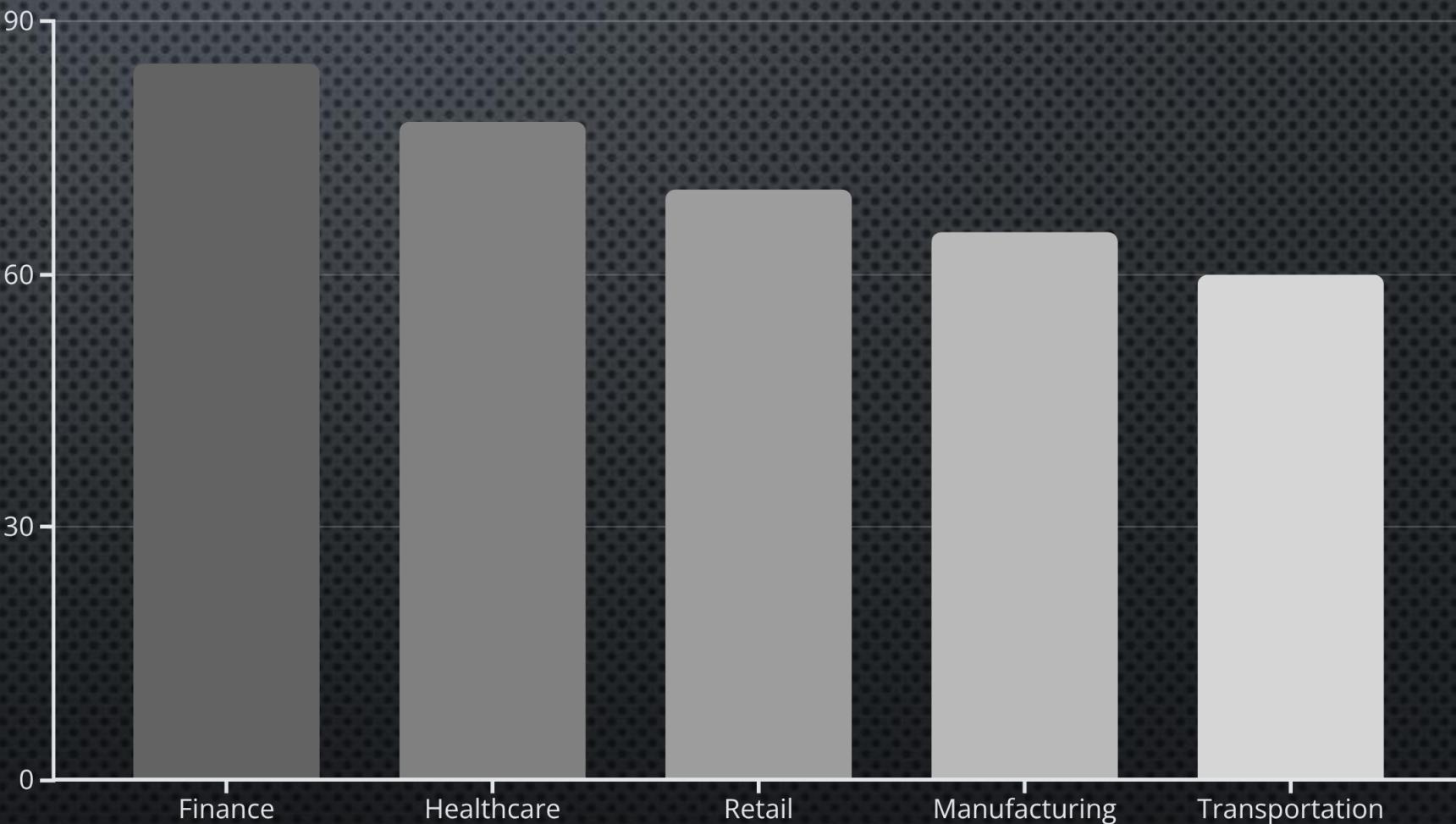


This iterative process ensures comprehensive data utilization and continuous improvement in business solutions.

Applications of Data Science Across Industries

Data science is revolutionizing diverse sectors, driving innovation and efficiency.

- **Healthcare:** Predict patient outcomes, personalize treatments.
- **Finance:** Fraud detection, credit scoring, algorithmic trading.
- **Retail:** Customer segmentation, demand forecasting.
- **Manufacturing:** Predictive maintenance, quality control.
- **Transportation:** Route optimization, autonomous vehicles.



What is Python Programming & Why Use It in Data Science?

Python is a versatile, beginner-friendly programming language with clean syntax, making it ideal for data science.

Advantages:

- *Extensive libraries for data science, AI, and ML.*
- *Strong community support and continuous development.*
- *Easy integration with other tools and platforms.*

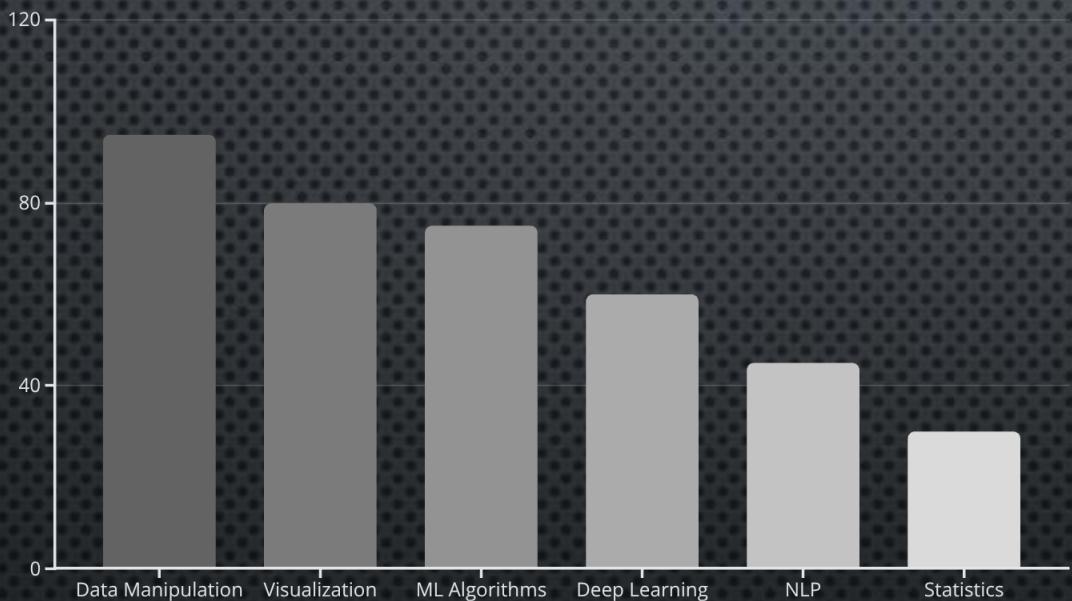
Features:

- *Dynamic typing, interpreted language.*
- *Supports procedural, object-oriented, and functional programming.*
- *Rich ecosystem: Jupyter notebooks, visualization tools.*

Python's simplicity and power make it the language of choice for data professionals.



Key Python Libraries for Data Science, AI & ML



NumPy & Pandas

For efficient data manipulation and numerical computing.

Matplotlib & Seaborn

Powerful tools for creating insightful data visualizations.

Scikit-learn

Offers a wide range of classic machine learning algorithms.

TensorFlow & PyTorch

Leading frameworks for developing advanced deep learning models.

NLTK & SpaCy

Essential libraries for natural language processing tasks.

Statsmodels

Comprehensive library for statistical modeling and hypothesis testing.

Roles You Can Explore in Data Science & AI



Data Analyst

Cleans and interprets data to generate reports.



Data Scientist

Builds predictive models and extracts insights.



Data Engineer

Designs and maintains data infrastructure.



ML Engineer

Develops and deploys ML models.



AI Developer

Creates intelligent systems and applications.



Research Scientist

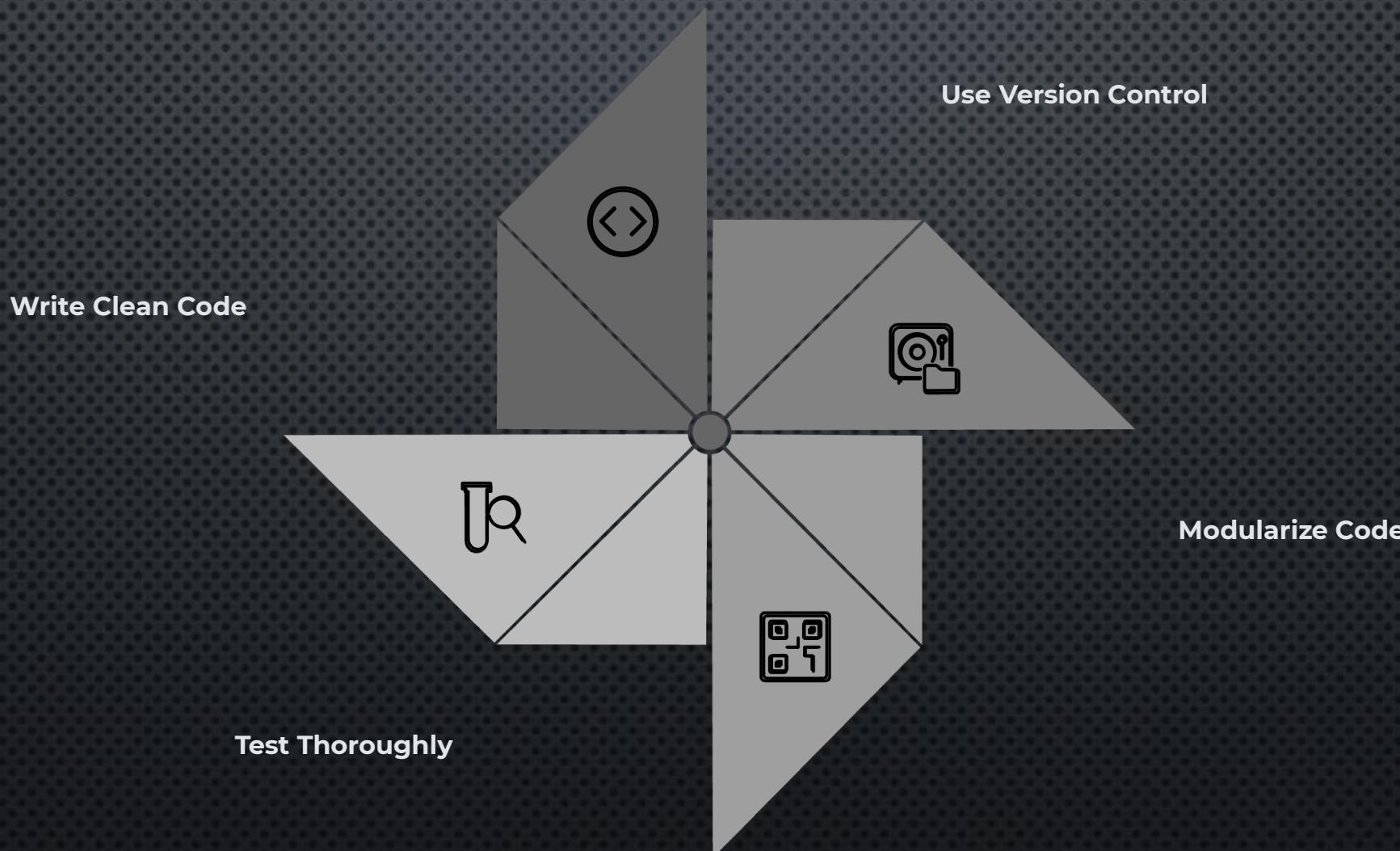
Innovates new algorithms and techniques.



BI Analyst

Translates data into strategic business insights.

Essential Rules of Programming for Data Science Success



Adhering to these principles fosters robust, maintainable, and scalable data science projects.

The Future is Data-Driven: Your Journey Starts Here

- 1** *Data science, AI, and ML are transforming every industry.*
- 2** *Python and its ecosystem empower you to unlock data's potential.*
- 3** *Diverse roles offer exciting career paths with high demand.*
- 4** *Embrace continuous learning and hands-on projects.*
- 5** *Start solving real-world problems today – the data revolution awaits!*