



# Internship Presentation

## Task 1

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

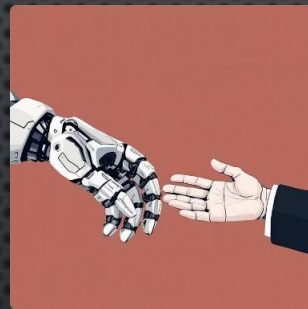
MOHAMMAD AFNAN ALLAUDIN KUMBARI.(2KD22CS054)

# 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.*



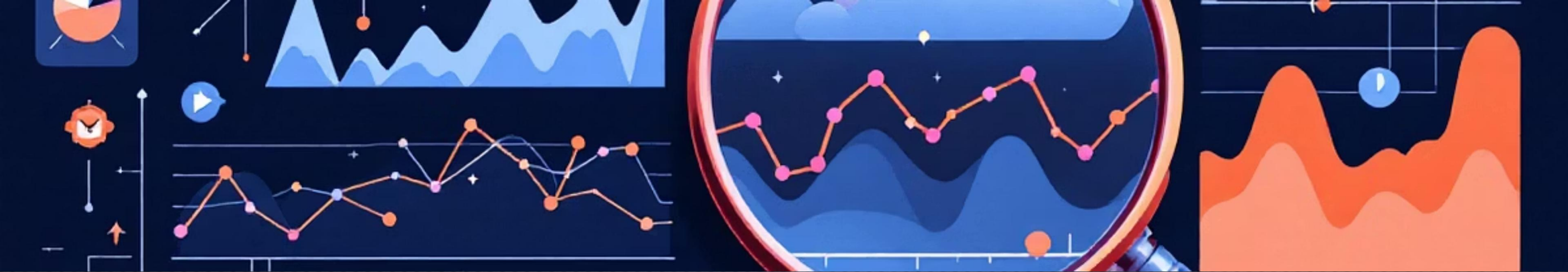
## Artificial Intelligence (AI)

*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.*

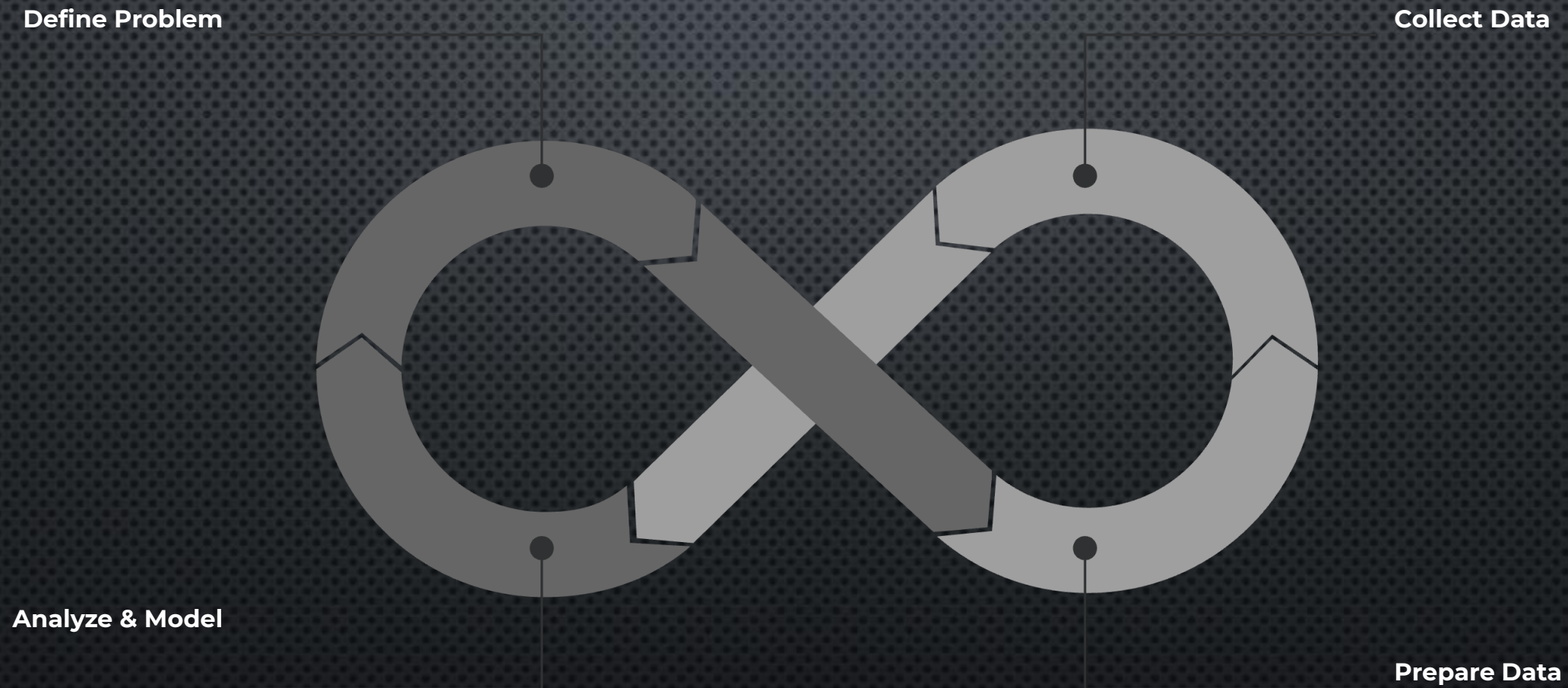
## **Predictive Analysis**

*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

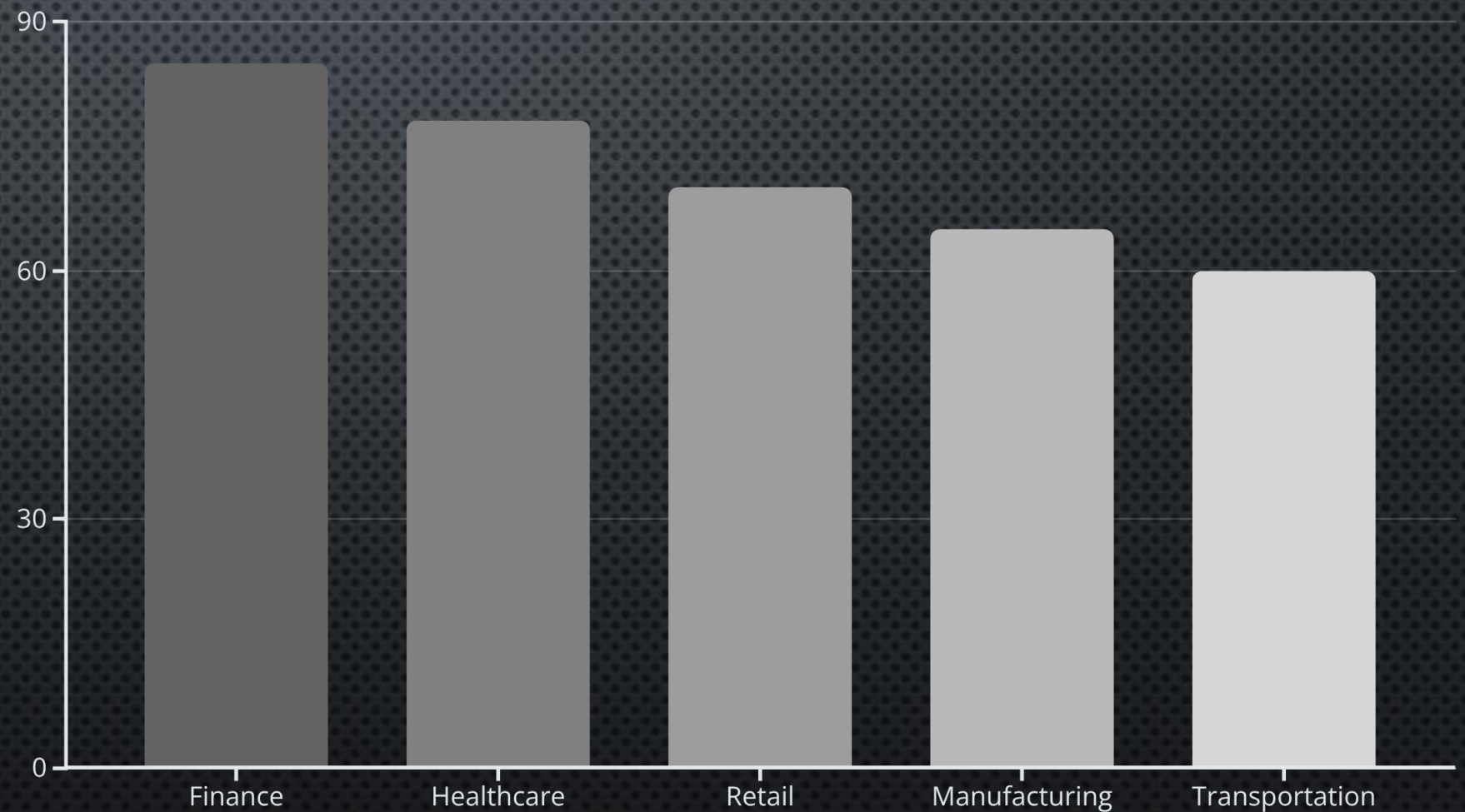


*This iterative process ensures comprehensive data utilization and continuous improvement in business solutions.*

# 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.

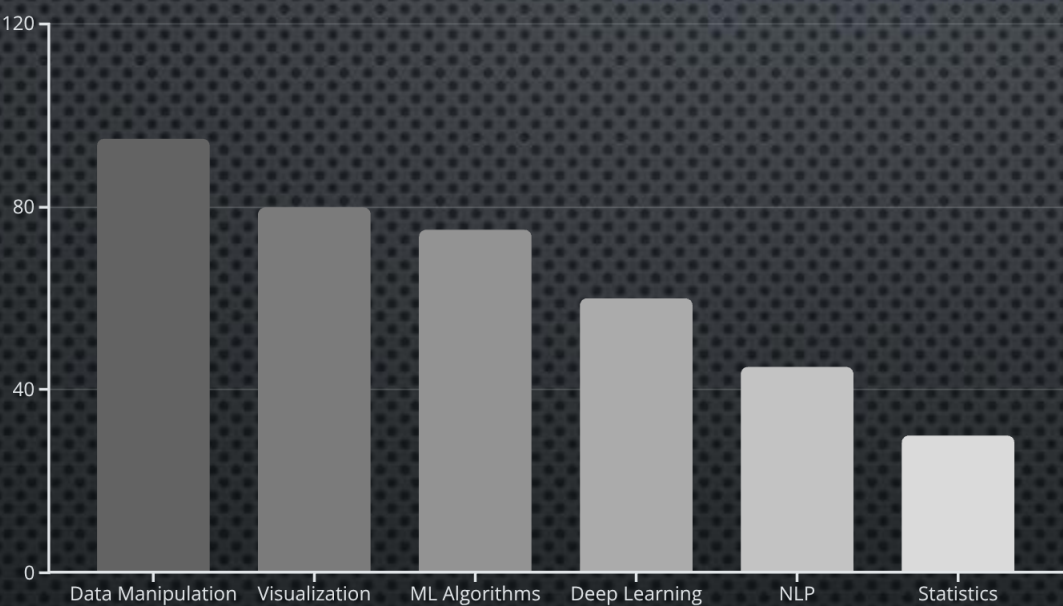
## Features:

- 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



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## NumPy & Pandas

*For efficient data manipulation and numerical computing.*

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## Matplotlib & Seaborn

*Powerful tools for creating insightful data visualizations.*

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## Scikit-learn

*Offers a wide range of classic machine learning algorithms.*

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## TensorFlow & PyTorch

*Leading frameworks for developing advanced deep learning models.*

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## NLTK & SpaCy

*Essential libraries for natural language processing tasks.*

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## 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

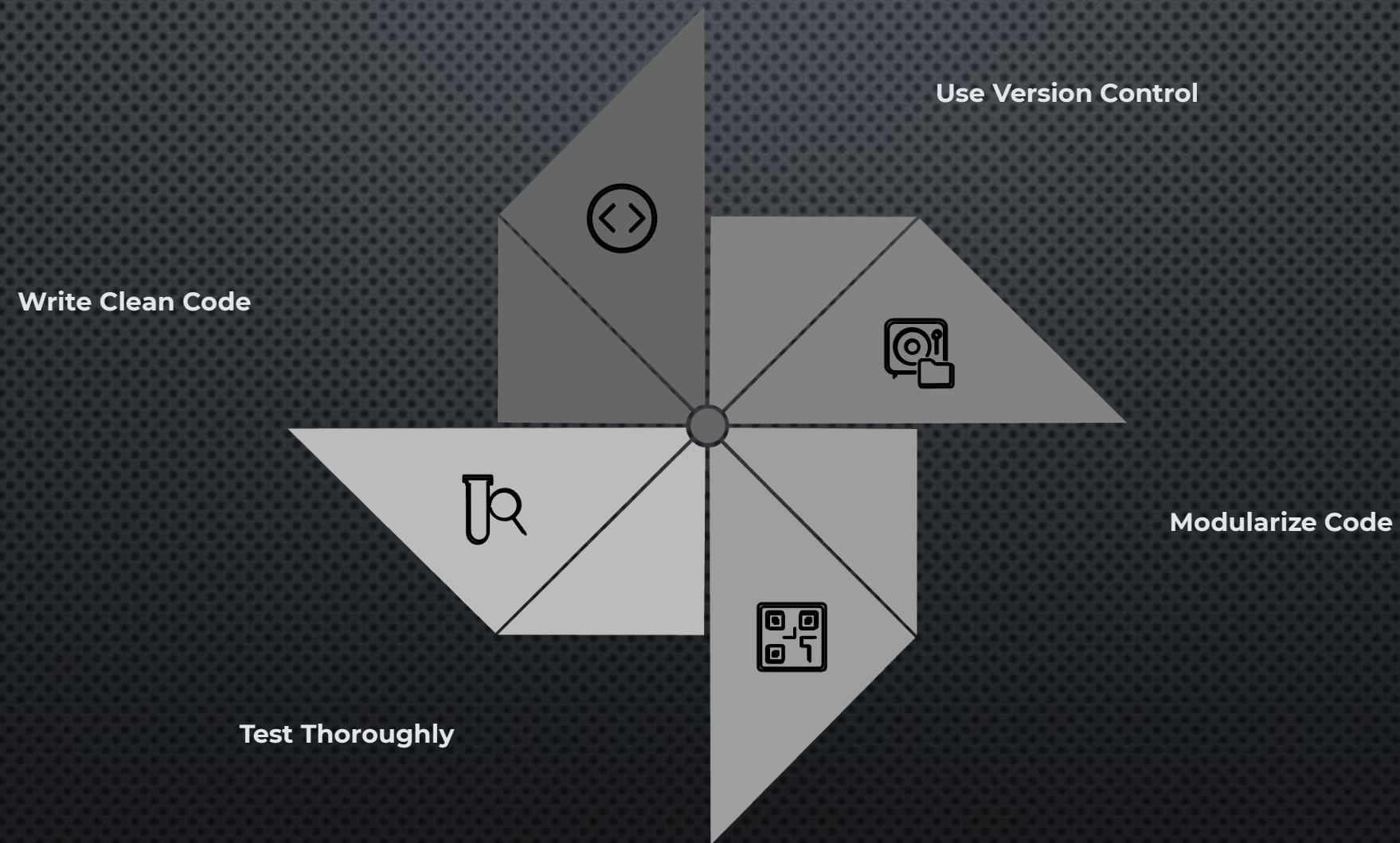
*Innovates new algorithms and techniques.*



## 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!*