

# **Deep Explanation of Data Science and Big Data Analytics**

**Driving Innovation and Solving Real-World Problems**

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# What is Data Science?

The process of collecting, analyzing, and interpreting data to extract insights.

- Combines mathematics, statistics, computer science, and domain-specific knowledge.
- Examples:
  - Amazon analyzing purchases to recommend products.
  - Healthcare: Predicting disease spread and developing personalized treatments

# Tools and Technologies in Data Science

- Programming Languages: Python, R.
- Data Visualization Tools: Tableau, Power BI.
- Use of algorithms to identify patterns and trends.

# What is Big Data Analytics?

Focuses on analyzing extremely large datasets.

- Sources: Social media, e-commerce, IoT devices.
- Examples:
  - Facebook optimizing platforms and targeting ads.
  - Finance: Fraud detection by analyzing transactions.

# Applications of Data Science and Big Data Analytics

Entertainment: Netflix/Spotify recommendations.

- Manufacturing: Optimizing production and predicting maintenance.
- Education: Personalized learning plans.
- Public Safety: Predicting crime patterns.

# Conclusion

Data Science and Big Data Analytics are transformative fields.

- Essential tools for innovation and addressing real-world problems.
- Opportunities for professionals are rapidly growing.