

CH10 - Data Analytics



หลักสูตร วม.เทคโนโลยีธุรกิจดิจิทัล มหาวิทยาลัยราชภัฏจันทรเกษม

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ผู้ช่วยศาสตราจารย์ ดร.สุรชาติ บัวชุม

Data Analytics

CH10 focuses on the techniques and tools used for analyzing data to gain insights and make informed business decisions. It highlights various methods and best practices for performing effective data analytics.

Introduction to Data Analytics

Introduction to Data Analytics

- **Definition:** Data analytics involves examining raw data to draw conclusions and identify patterns.
- **Importance:** Helps organizations make data-driven decisions, improve efficiency, and gain competitive advantages.

Types of Data Analytics

Types of Data Analytics

- **Descriptive Analytics:** Summarizes historical data to understand what has happened in the past.
- **Diagnostic Analytics:** Investigates the reasons behind past outcomes.
- **Predictive Analytics:** Uses statistical models and machine learning to forecast future outcomes.
- **Prescriptive Analytics:** Provides recommendations based on data analysis to inform decision-making.

Data Analytics Techniques

Data Analytics Techniques

- **Statistical Analysis:** Techniques such as regression analysis, hypothesis testing, and variance analysis.
- **Data Mining:** Discovering patterns and relationships in large datasets using algorithms.
- **Machine Learning:** Applying algorithms to learn from data and make predictions or classifications.
- **Text Analytics:** Analyzing text data to extract meaningful insights.

Tools and Technologies for Data Analytics

Tools and Technologies for Data Analytics

- **Software Tools:** Overview of popular data analytics tools like R, Python, SAS, and SQL.
- **Visualization Tools:** Tools such as Tableau, Power BI, and Qlik for visualizing data insights.
- **Big Data Technologies:** Hadoop, Spark, and other technologies for handling large volumes of data.

Implementing Data Analytics

Implementing Data Analytics

- **Data Preparation:** Cleaning, transforming, and organizing data for analysis.
- **Model Building:** Developing and testing analytical models to derive insights.
- **Evaluation:** Assessing the accuracy and effectiveness of analytical models.
- **Deployment:** Implementing models in a production environment and integrating with business processes.

Challenges in Data Analytics

Challenges in Data Analytics

- **Data Quality:** Ensuring accuracy, completeness, and consistency of data.
- **Data Privacy:** Protecting sensitive information and complying with regulations.
- **Skill Gaps:** Addressing the need for skilled data analysts and data scientists.
- **Integration:** Integrating analytics solutions with existing systems and workflows.

Best Practices in Data Analytics

Best Practices in Data Analytics

- **Data Governance:** Implementing policies and practices to manage data effectively.
- **Collaboration:** Encouraging collaboration between data analysts, IT, and business stakeholders.
- **Continuous Improvement:** Regularly updating models and techniques to reflect new data and insights.
- **Ethical Considerations:** Ensuring ethical use of data and transparency in analytics processes.

Conclusion

CH10 emphasizes the importance of data analytics in transforming data into actionable insights. By adopting the right techniques, tools, and best practices, organizations can enhance their decision-making capabilities and drive business success.

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Q&A



Power BI Workshop



<https://www.microsoft.com/en-us/power-platform/products/power-bi>