Title: **Introduction to Analytics** Date:

Topic: **Section 1: Careers and Goals** Continued from:

	Notes
Define data analytics	Data analytics refers to the process of **examining and interpreting data to derive insights and knowledge**. It involves using statistical and computational methods to identify patterns, trends, and relationships in data. The ultimate goal is to inform business decisions, improve processes, and solve problems.
Define data science	Data science involves using **statistical and computational methods to extract insights from complex datasets**. It goes beyond data analytics by incorporating machine learning, predictive modeling, and advanced algorithms to gain a deeper understanding of data and generate predictions.
Differentiate between data analytics & science	**Data analytics** focuses on using existing models to analyze data, while **data science** focuses on developing new algorithms and models. (Data science is more research-based, while data analytics is more focused on the practical applications of data analytics.)
Identify data analytics projects	• **Descriptive** - focuses on summarizing past events and understanding what happened. • **Diagnostic** - analyzes past data to identify the root causes of specific outcomes or events. • **Predictive** - uses historical data to forecast future outcomes. • **Prescriptive** - recommends actions that can be taken to optimize or improve a situation. • **Exploratory** - is often used when there is no clear objective or question to answer, to identify potential trends, patterns, and relationships.

Summary

Title: Introduction to Analytics Date:

Topic: Section 1: Careers and Goals Continued from: Section 1.1

Identify the functions of a specific career	Notes • **Data Analyst:** Collects and analyzes data to identify patterns and trends. Works closely with stakeholders to understand data needs and provides actionable insights. • **Business Intelligence (BI) Analyst:** Designs and develops strategies for analyzing and presenting data. Focuses on creating data visualizations, forecasting, and developing dashboards for effective communication. • **Data Scientist:** Conduct statistical analysis and machine learning modeling. • **Decision Scientist/Analyst:** Applies mathematical and statistical techniques to optimize decision-making processes. Works on analyzing complex decision scenarios and providing data-driven recommendations. • **Machine Learning Engineer:** Develops, designs, and deploys AI models to solve complex problems. Focuses on creating, training, and implementing machine learning models in real-world applications. • **Data Engineer:** Designs and implements data storage solutions that enable efficient and effective processing, storage, and retrieval. They ensure efficient data pipeline development and maintenance for effective data management. • **Database Administrator:** Ensures the project's data is organized, secure, and easily accessible. They manage database systems, including installation, security, backup, recovery, and optimization.

Summary

Title: Introduction to Analytics Date:

Topic: Section 1: Careers and Goals Continued from: Section 1.2

List roles	Notes Data analytics projects includes the various roles: **Data Analyst**, **Business Intelligence (BI) Analyst**, **Data Scientist**, **Decision Scientist**, **Machine Learning Engineer**, **Data Engineer**, and **Database Administrator**. These roles contribute to different aspects of a data analytics project, from data analysis to model development, infrastructure management, and stakeholder interaction.
Identify data analyst responsibilities in the data analytics project	Data analysts are responsible for **collecting and analyzing data, creating reports, forecasting future trends, creating dashboards, ensuring data accuracy and security, and contributing to continuous improvement**.
Identify key stakeholders	Key stakeholders include **Project Sponsors**, **Project Managers**, **Financial Operations**, **Database Administrators**, **Researchers**, **Partners**, and **End Users**.
Interact with stakeholders	Stakeholders interact by **collaborating, communicating, and ensuring alignment with project goals and objectives**.

Summary

Title: Introduction to Analytics Date:

Topic: Section 1: Careers and Goals Continued from: Section 1.3

List job skills for each role	**Notes** 1. **Data Analyst:** Will have Analytical, Data Visualization, Reporting, SQL Proficiency, Excel, Basic Programming (e.g., in Python, R,) and Data cleaning and preprocessing skills. 2. **Business Intelligence (BI) Analyst:** Will have data visualization, dashboards, and reporting skills. (Business intelligence analysts are responsible for designing and maintaining data visualizations and dashboards to communicate business insights to stakeholders.) They use business intelligence tools like Excel, Tableau, and Power BI. 3. **Data Scientist:** Will have Statistical Analysis, Machine learning, Programming (e.g., in Python, R,) Data modeling, Data preprocessing, Data exploration, Domain Knowledge, and Communication skills. (Responsible for analyzing complex datasets using statistical analysis and machine learning techniques. This typically involves cleaning and preprocessing data, conducting exploratory data analysis, building and testing models, and communicating insights to business stakeholders.) 4. **Decision Scientist/Analyst:** Will have Statistical Analysis, Modeling, Risk Analysis, Decision Theory, Optimization Technique, Critical Thinking, and Business Acumen skills. 5. **Machine Learning Engineer:** Will have Data Preprocessing, Model Development, Software Engineering, Programming (e.g., in Python, Java, etc.,) Machine Learning Framework (e.g., in TensorFlow, PyTorch,) Algorithm Development, and Model Deployment skills.

Summary

Title: Introduction to Analytics Date:

Topic: Section 1: Careers and Goals Continued from: Section 1.4

List job skills for each role	Notes

6. **Data Engineer:** Will have Data Pipeline Development, Data Storage Management, Data Security, Database Design, ETL (Extract, Transform, Load) Processes, SQL Proficiency, and Big Data Technologies (e.g., in Hadoop, Spark) skills.
7. **Project Sponsor:** Will have Strategic Thinking, Leadership, Stakeholder Management, Budgeting and Financial Understanding, Decision-making, and Risk Management skills.
8. **Project Manager:** Will have Project Planning and Execution, Team Management, Communication, Risk Management, Budgeting and Financial Understanding, Stakeholder Management, and Leadership skills.
9. **Financial Operations:** Will have Financial Analysis, Budgeting and Forecasting, Risk Management, Accounting Principles, Financial Modeling, and Regulatory Compliance skills.
10. **Database Administrator:** Will have Database Management Systems (e.g., in MySQL, Oracle,) SQL Proficiency, Database Design, Performance Tuning, Backup and Recovery, and Security Management skills.
11. **Researchers:** Will have to Conduct Research to support the project's objectives and provide evidence-based insights. Design and Execute research studies, Collect and Analyze data, and Interpret Research findings to provide key insights and recommendations.
12. **Partners:** Will have to Collaborate, have Interpersonal and Communication skills, Relationship Management, Industry knowledge, and Problem-solving skills.
13. **End Users:** Will have Familiarity with relevant tools and software, Training on systems, Communication skills for feedback, Problem-solving in the context of system usage, and Domain-specific Knowledge skills, (depending on the role).

Summary

Title: Introduction to Analytics Date:

Topic: Section 1: Careers and Goals Continued from: Section 1.5

Define stakeholders' roles in the data analytics projects	Notes • **Project Sponsors**: Provides support, resources, and aligns with strategic goals. • **Project Managers**: Oversees operations, coordinates with stakeholders, and ensures project success. • **Financial Operations**: Manages project budget, financial reporting, and cost control. • **Database Administrators**: Ensures data organization, security, and accessibility. • **Researchers**: Conducts research studies, and interprets findings. • **Partners**: Contributes expertise, resources, and collaborates on project development. • **End Users**: Provide requirements, test and provide feedback, and participate in design decisions.

Summary