Introduction to Data Analytics

1) What is Data Analytics?

Data Analytics refers to the set of quantitative and qualitative approaches for deriving valuable insights from data. It involves many processes that include extracting data and categorizing it in data science, in order to derive various patterns, relations, connections, and other valuable insights from it.

2) What are the tools useful for Data Analysis?

<u>Top 9 Data Analytics Tools</u>

- R Programming
- Python
- Excel
- Tableau
- QlikView
- Power BI
- SAS
- KNIME
- Apache Spark

3) What are the various steps involved in any analytics project?

- Find an Interesting Topic
- Obtain and Understand Data
- Data Preparation
- Data Modelling
- Model Evaluation
- Deployment and Visualization

4) What are the responsibilities of a Data Analyst?

A data analyst is responsible for organizing data related to sales numbers, market research, logistics, linguistics, or other behaviours. They utilize technical expertise to ensure data is accurate and high-quality. Data is then analyzed, designed, and presented in a way that assists individuals, businesses, and organizations make better decisions.

- Using automated tools to extract data from primary and secondary sources

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- Removing corrupted data and fixing coding errors and related problems

- Developing and maintaining databases, data systems – reorganizing data in a readable format

- Performing analysis to assess quality and meaning of data

- Filter Data by reviewing reports and performance indicators to identify and correct code problems

- Using statistical tools to identify, analyze, and interpret patterns and trends in complex data sets that could be helpful for the diagnosis and prediction

- Assigning numerical value to essential business functions so that business performance can be assessed and compared over periods of time.

- Analyzing local, national, and global trends that impact both the organization and the industry

- Preparing reports for the management stating trends, patterns, and predictions using relevant data

- Working with programmers, engineers, and management heads to identify process improvement opportunities, propose system modifications, and devise data governance strategies.

- Preparing final analysis reports for the stakeholders to understand the data-analysis steps, enabling them to take important decisions based on various facts and trends.

Another integral element of data analyst job description is EDA or Exploratory Data Analysis Project. In such data analyst projects, the analyst needs to scrutinize data to recognize and identify patterns. The next thing data analysts do is use data modelling techniques to summarize the overall features of data analysis.

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5) Write some key skills usually required for a data analyst

- Knowledge of reporting packages (Business Objects), coding languages (e.g., XML, JavaScript, ETL), and databases (SQL, SQLite, etc.) is a must.
- Ability to analyze, organize, collect, and disseminate big data accurately and efficiently.
- The ability to design databases, construct data models, perform data mining, and segment data.
- Good understanding of statistical packages for analyzing large datasets (SAS, SPSS, Microsoft Excel, etc.).
- Effective Problem-Solving, Teamwork, and Written and Verbal Communication Skills.
- Excellent at writing queries, reports, and presentations.
- Understanding of data visualization software including Tableau and Qlik.
- The ability to create and apply the most accurate algorithms to datasets for finding solutions

6) What are the common problems that data analysts encounter during analysis?

- Duplicate entries and spelling errors. Data quality can be hampered and reduced by these errors.
- The representation of data obtained from multiple sources may differ. It may cause a delay in the analysis process if the collected data are combined after being cleaned and organized.
- Another major challenge in data analysis is incomplete data. This would invariably lead to errors or faulty results.
- You would have to spend a lot of time cleaning the data if you are extracting data from a poor source.
- Business stakeholders' unrealistic timelines and expectations
- Data blending/ integration from multiple sources is a challenge, particularly if there are no consistent parameters and conventions
- Insufficient data architecture and tools to achieve the analytics goals on time.

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7) What is the difference between data analytics and data science?

Feature	Data Science	Data Analytics
Coding Language	Python is the most commonly used language for data science along with the use of other languages such as C++, Java, Perl, etc.	The Knowledge of Python and R Language is essential for Data Analytics.
Programming Skills	In- depth knowledge of programming is required for data science.	Basic Programming skills is necessary for data analytics.
Use of Machine Learning	Data Science makes use of machine learning algorithms to get insights.	Data Analytics doesn't make use of machine learning.
Other Skills	Data Science makes use of Data mining activities for getting meaningful insights.	Hadoop Based analysis is used for getting conclusions from raw data.
Scope	The scope of data science is large.	The Scope of data analysis is micro i.e., small.
Goals	Data science deals with explorations and new innovations.	Data Analysis makes use of existing resources.
Data Type	Data Science mostly deals with unstructured data.	Data Analytics deals with structured data.
Statistical Skills	The statistical skills are necessary in the field of Data Science.	The statistical skills are of minimal or no use in data analytics.

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