**Name:**

**Roll. No:**

**Ques.No.1 - What is Difference between Data Analytics and reporting?**

**Answer:** Data analytics and reporting are both important components of business intelligence, but they serve different purposes and involve different methods.

Reporting involves presenting data in a clear and concise way, often in the form of tables, charts, and graphs. The main purpose of reporting is to provide stakeholders with accurate and timely information about business performance. Reports typically focus on predefined metrics and key performance indicators (KPIs) that help decision-makers monitor progress toward goals and identify areas that need attention.

Data analytics, on the other hand, involves the use of statistical and machine learning techniques to analyse and interpret large volumes of data. The main purpose of data analytics is to uncover insights and patterns that can help organizations make better decisions. Data analytics can be used to identify trends, forecast future outcomes, and uncover hidden relationships between different variables.

In summary, reporting provides a snapshot of business performance, while data analytics involves deeper analysis of data to identify trends and insights. While reporting is focused on providing information to stakeholders, data analytics is focused on discovering new information and providing insights that can lead to more informed decision-making.

**Ques.No.2 – What are the Characteristics of good Data?**

**Answer:**

1. **Accuracy**: Data should be free from errors and should represent the actual values or facts. The accuracy of data is critical in ensuring that decisions made based on it are reliable.
2. **Completeness**: The data should be complete and not missing any important information. Missing or incomplete data can lead to incorrect analysis and decision-making.
3. **Consistency:** Data should be consistent and uniform throughout, without any contradictions or discrepancies. Inconsistencies in data can lead to confusion and incorrect decisions.
4. **Timeliness:** The data should be up-to-date and relevant to the current situation. Timely data is essential for making informed decisions**.**
5. **Relevance:** The data should be relevant to the problem or situation being analysed. Irrelevant data can be a distraction and can lead to incorrect conclusions.
6. **Validity:** Data should be collected and measured using valid methods and tools. Invalid data can lead to incorrect conclusions and decisions**.**
7. **Reliability:** Data should be reliable and consistent over time. Reliable data can be used for making consistent and accurate decisions.
8. **Accessibility**: Data should be easily accessible to authorized users when needed. Data that is difficult to access or is not available can delay decision-making and reduce its effectiveness.

**Ques.No.3 – What are the steps involve in Data Analytics?**

**Answer:**

1. Define the problem: Identify the problem or question that needs to be answered through data analysis.
2. Collect the data: Gather the relevant data from various sources, such as databases, spreadsheets, surveys, or web applications.
3. Clean the data: The collected data may contain errors, duplicates, missing values, or outliers that need to be cleaned and pre-processed before analysis.
4. Explore the data: Use exploratory data analysis techniques to understand the data, identify patterns, and visualize the relationships between variables.
5. Analyse the data: Apply statistical and machine learning algorithms to analyse the data and extract meaningful insights and patterns.
6. Interpret the results: Interpret the findings and insights derived from the data analysis in the context of the problem or question that was initially defined.
7. Communicate the results: Present the results and insights in a clear and concise manner to stakeholders, using visualization tools, reports, or dashboards.
8. Take action: Use the insights gained from data analytics to make informed decisions and take actions that drive business success.
9. Monitor and iterate: Monitor the results of the actions taken based on the insights gained from data analytics, and iterate the process as needed to improve outcomes.

**Ques.No.4 – What is Data Filtering?**

**Answer:**

Data filtering in data analytics typically involves using tools such as SQL queries or programming languages such as Python or R to filter data based on specific conditions. This can include filtering data based on date ranges, specific values, or certain categories or groups.

Data filtering is an important step in data analytics because it allows analysts to isolate the data that is most relevant to their analysis, helping to ensure that they are working with accurate and meaningful data. Additionally, by filtering out data that is not relevant, analysts can save time and resources and focus their efforts on the most important data.

Some common data filtering techniques in data analytics include:

1. **Single-condition filtering:** This involves selecting data based on a single criterion, such as filtering out all customers who have not made a purchase in the last year.
2. **Multi-condition filtering:** This involves selecting data based on multiple criteria, such as filtering out customers who have not made a purchase in the last year and are not located in a specific geographic region.
3. **Range-based filtering:** This involves selecting data based on a range of values, such as filtering out orders with a total value less than a certain amount.
4. **Top/bottom filtering:** This involves selecting the top or bottom n number of records based on a specific variable, such as selecting the top 10 customers who have spent the most.

**Ques.No.5 – what are the challenges faced by a data analyst during analysis of data?**

**Answer:** Data analysis can be a complex and challenging process, and data analysts may encounter various challenges during the course of their work. Some of the common challenges faced by data analysts include:

1. **Data quality issues:** Data may contain errors, inconsistencies, or missing values that can affect the accuracy and reliability of analysis results.
2. **Data processing and storage:** Analysing large volumes of data can be computationally intensive and require specialized tools and resources.
3. **Data privacy and security**: Data privacy regulations and security concerns may limit access to certain types of data or require additional measures to ensure data protection.
4. **Data integration:** Combining data from different sources can be challenging and require expertise in data integration techniques.
5. **Data bias:** Data may be biased or contain preconceived notions that can affect the accuracy and reliability of analysis results.
6. **Lack of domain expertise:** Understanding the context and domain-specific knowledge related to the data being analysed is essential for drawing meaningful conclusions from the data.
7. **Communication and presentation**: Presenting analysis results in a clear and concise manner to stakeholders can be challenging and require strong communication and presentation skills.

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