PROG 8460

ASSIGNMENT #1

**Task 2 - BI and Data-related Questions [30 marks]**

1. **What are the 3 Vs of Data, and explain each in detail? [4 marks]**

The 3 Vs of data are Volume, Velocity, and Variety.

**Volume:** Data Volume, the amount of data gathered, triples every two years, leaving a massive amount to manage.

**Velocity:** Data velocity, the time between capture and reporting, is under increasing pressure to ensure current information for decision-making and quick data flow for faster business response.

**Variety:** Data variety refers to the diverse sources of business data, including in-store sales, online transactions, web traffic, and social media conversations, which presents challenges in normalizing and efficiently analyzing the collected data.

1. **List capabilities of Business Intelligence systems. [5 marks]**

Data Management

Data Lineage Tracking

Interactive Data Visualizations

Cloud Deployment

Customization and Integration

Reporting

Dashboard Management

Collaboration

Predictive Analytics and Modeling

1. **Different types of data with examples for each type. [3 marks]**

**Structured Data –** They have a pre-defined model. Example - number of characters, name, date, number

**Unstructured Data –** Images, video files, Emails, and SMS are considered unstructured data

**Big Data –** Data gathered since the 1960s; in the last 20 years, there has been an increase in the amount of data and complex data sets being handled.

1. **Define data visualization. [2 marks]**

Data visualization is the visual representation of information and data, utilizing tools like charts, graphs, and maps to identify trends, outliers, and patterns. This is crucial for data-driven decision-making in the Big Data world.

1. **What is a KPI, and provide an example (apart from one that has already been provided within the lecture) [2.5 marks**]

Business processes should have base-level performance metrics combined with higher-level scores for a broader view, with key performance indicators (KPIs) providing objective measurement of critical business aspects.

Example: **Sales Revenue**

This is the total income generated from sales of goods or services. It is the starting point for any sales analysis and is a critical indicator of business health and growth potential.

1. **What is a BI system? [1 mark]**

It’s a technology-driven process that executes and manages business data to transform them into actionable insights.

**What are the 5 Cs of data preparation data, and what is each purpose? [5 marks]**

**Clean -** Remove or edit incomplete, incorrect, inaccurate, or irrelevant data points.

**Consistent -** The relationship between data points and how to compare them must be standard throughout the system.

**Conformed -** The data analysis protocols must be standard throughout the system.

**Current -** Determine how quickly new data will be made available

**Comprehensive -** Ensure that the data required to support any decision is available

1. **What are some key success factors of a successful BI program? Explain each factor. [7.5 marks]**

**Measure Success –** Companies struggle to measure BI success, with ROI providing a vague number based on imprecise inputs, while cost savings offer a more precise input.

**Develop A Data Strategy –** The most crucial pillar in BI architecture is data, with 78% of respondents stating that clean, relevant data is essential for successful deployment. Data warehouse teams should start with high data quality and address discrepancies between reporting environments, ensuring trust and consistency.

**Manage The Program Well –** BI projects can run smoothly if project managers prioritize time, resources, and scope. Stakeholders want everything done yesterday, so budget upfront, budget for required resources, and prioritize requirements. Establish data governance early to avoid never-ending costs and ensure executive support.

**Ensure Executive Support –** Executive support can be improved by bringing in tech-savvy executives with BI experience. Even small project success can gain trust and support.

**Choose Appropriate Tools –** BI tools have improved, making selection harder. Understanding users and recognizing diverse needs is crucial for success in a consolidated toolset.

**Standardized On a Platform –** Companies often have multiple BI tools due to the need for different vendor solutions. However, unsatisfied users may seek their solutions. Standardization can lead to BI success, but it's not an easy drive. Aggressive adoption can focus resources on the new BI platform and eliminate multiple data versions quickly.

**Align BI Strategy with Business –** The relationship between business and IT often focuses on "us versus them," with IT acting as a gatekeeper and a valuable contributor to business strategy sessions.