

Roll No.

Total No. of Pages : 03

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MBA (Sem.-4)

**DATA VISUALIZATION FOR MANAGERS**

Subject Code : MBA-963-18

M.Code : 78031

Date of Examination : 16-05-2024

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A contains EIGHT questions carrying TWO marks each and students has to attempt ALL questions.
2. SECTIONS-B consists of FOUR Subsections : Units-I, II, III & IV. Each Subsection contains TWO questions each carrying EIGHT marks each and students have to attempt any ONE question from each Subsection.
3. SECTION-C is COMPULSORY and consists of ONE Case Study carrying TWELVE marks.

**SECTION-A**

**1. Write briefly:**

- a) What are the applications of Pie Charts?
- b) What is a Pivot Grid?
- c) What is ELT?
- d) What is a Semantic Layer?
- e) What is the importance of KPI?
- f) What is a storyboard?
- g) What are the applications of Infographics?
- h) What is a snowflake schema?

## SECTION-B

### UNIT-I

2. Discuss the need and relevance of Data Visualization. Explain by citing examples.
3. **Write notes on:**
  - a) Exploratory Visualization
  - b) Various visualization techniques.

### UNIT-II

4. Discuss the need for Data Warehouse. Also, explain the components of the Data Warehouse.
5. **Write notes on:**
  - a) Difference between Star and Snowflake schema
  - b) Need for Predictive Modeling.

### UNIT-III

6. Why proper selection of KPI's is important for accurate data visualization?
7. Discuss the need and relevance of Shaffer's 4C's of Data Visualization.

### UNIT-IV

8. Why does storytelling matter the most in Data Visualization? Explain by citing examples.
9. **Write notes on:**
  - a) Importance of context in Data Visualization
  - b) How to choose an effective visual tool?

## SECTION-C

10. Data visualization is a field that has inputs from many disciplines. Psychology studies data perception or the impact of some elements on perception, such as colors and shapes. Computer science and statistics developed several new areas like machine learning and data mining techniques. Graphical and multimedia designs are critical to building infographic dashboards. It may be materialized in the production of infographics and dynamic dashboards. These dashboards are materialized in several elements: data, scales, lines, bars, and colored and shaped sizes. These elements by specifying that data aims to measure things (quantitative data) and to classify (categorical data). Scales, on the other hand, can be nominal, ordinal, and interval. Nominal scales have no particular order; they can be represented to categorize a population, for instance. Ordinal scales have an intrinsic order; usually, numerical and interval scales are a result of quantitative and

ordinal scales. Lines are used to representing connections or series of points. Lines help the audience to understand the trend, for example. Bars have a visual impact on the weights of some phenomena, dividing those phenomena into groups and giving different perceptions of quantitative measures or quantitative data. The use of shapes and colors also helps the audience to interpret qualitative values rather than quantitative data. Although shapes and colors are important in infographics, when using them, one must pay attention to avoid some pitfalls. For example, the misuse or overusing of certain colors may have a contrary effect; they might mislead the interpretation. Another common pitfall is to highlight unimportant information rather than focus attention on the aim of the measured reality. Most visualization designs are to aid decision-making and serve as tools that augment cognition. In designing and building a data visualization prototype, one must be guided by how the Visualization will be applied. Data visualization is more than just representing numbers; it involves selecting and rethinking the numbers on which the Visualization is based. Visualization of data is an important branch of computer science and has a wide range of application areas. Several application-specific tools have been developed to analyze individual datasets in many fields of medicine and science. Large, time-varying datasets pose a great challenge for data visualization because of the enormous data volume. Real-time data visualization can enable users to respond proactively to issues that arise. The animation generation approach is used for the interactive exploration process of time-varying data. It visualizes temporal events by mimicking the composition of storytelling techniques. Users differ in their ability to use data visualization and make decisions under tight time constraints. It is hard to quantify the merit of a data visualization technique. This is the reason for having a multitude of visualization algorithms and associated software. Most of this software has not taken advantage of the new devices multi-touch interactions and direct manipulation capabilities. Big data, structured and unstructured, introduces a unique set of challenges for developing visualizations. This is due to the fact that we must take into account the speed, size, and diversity of the data. A new set of issues related to performance, operability, and degree of discrimination challenge large data visualization and analysis. It is difficult and time-consuming to create a large simulated data set. It is also difficult to decide what visual might be the best to use.

### Case Study Questions

- a) "Data visualization is a field that has inputs from many disciplines". Comment on this statement.
- b) "Large, time-varying datasets pose a great challenge for data visualization because of the enormous data volume". Comment on this statement.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**