ELEC IT-E1

IT ELECTIVE 1

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ASSIGNMENT #1 - DATA SCIENCE

Instructions: Kindly read all the questions and write your answer in yellow pad paper together with your Name, Year, Section and Signature.

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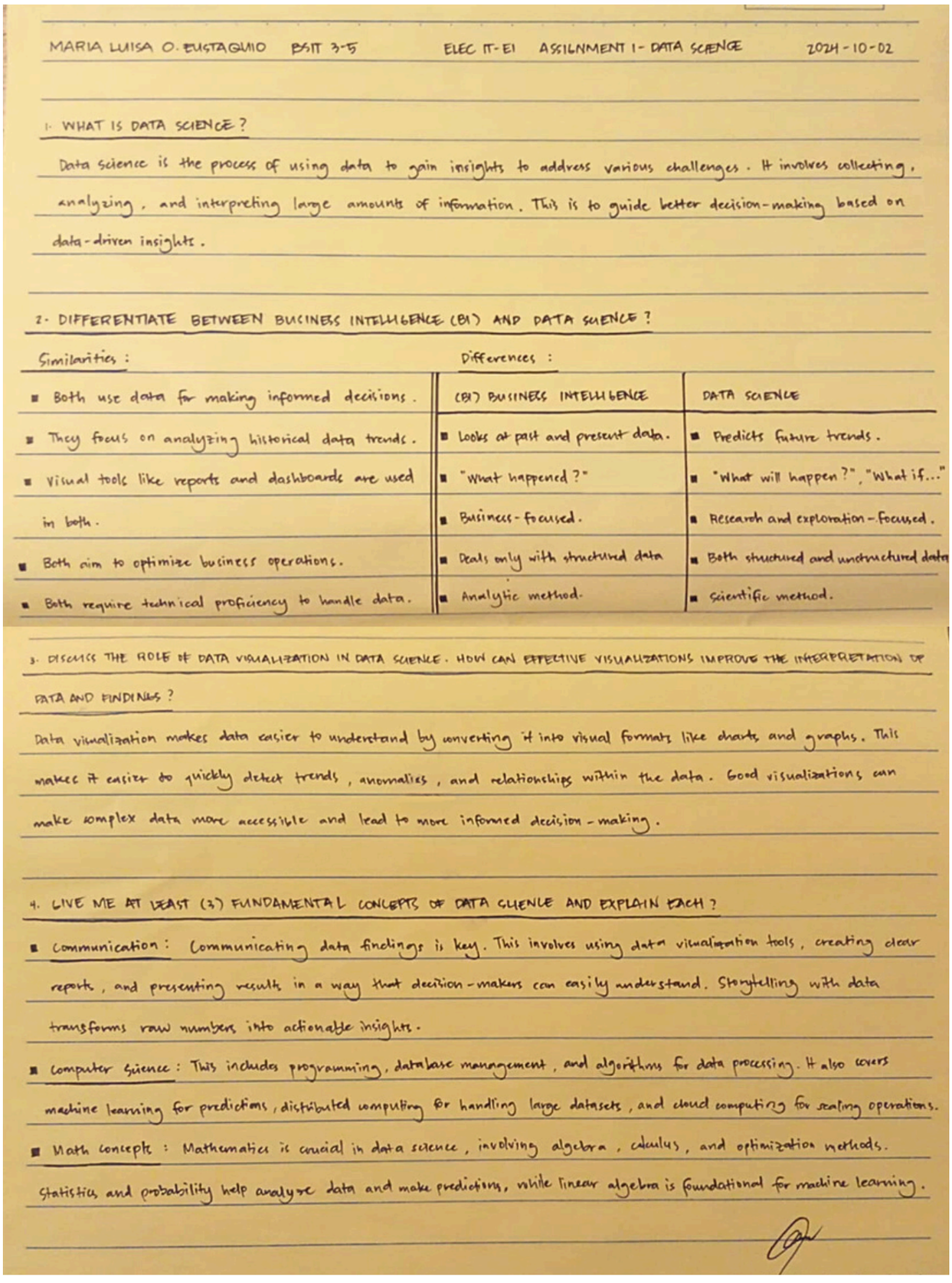

MARIA LUISA O. EUSTAQUIO BSIT 3-5 ELEC IT-E1 ASSIGNMENT 1- DATA SCIENCE 2024-10-02

1. WHAT IS DATA SCIENCE?

Data science is the process of using data to gain insights to address various challenges. It involves collecting, analyzing, and interpreting large amounts of information. This is to guide better decision-making based on data-driven insights.

2. DIFFERENTIATE BETWEEN BUSINESS INTELLIGENCE (BI) AND DATA SCIENCE?

Similarities:

- Both use data for making informed decisions.
- They focus on analyzing historical data trends.
- Visual tools like reports and dashboards are used in both.
- Both aim to optimize business operations.
- Both require technical proficiency to handle data.

Differences:

(BI) BUSINESS INTELLIGENCE	DATA SCIENCE
■ Looks at past and present data.	■ Predicts future trends.
■ "What happened?"	■ "What will happen?", "What if..."
■ Business-focused.	■ Research and exploration-focused.
■ Deals only with structured data	■ Both structured and unstructured data
■ Analytic method.	■ Scientific method.

3. DISCUSS THE ROLE OF DATA VISUALIZATION IN DATA SCIENCE. HOW CAN EFFECTIVE VISUALIZATIONS IMPROVE THE INTERPRETATION OF DATA AND FINDINGS?

Data visualization makes data easier to understand by converting it into visual formats like charts and graphs. This makes it easier to quickly detect trends, anomalies, and relationships within the data. Good visualizations can make complex data more accessible and lead to more informed decision-making.

4. GIVE ME AT LEAST (3) FUNDAMENTAL CONCEPTS OF DATA SCIENCE AND EXPLAIN EACH?

- Communication: Communicating data findings is key. This involves using data visualization tools, creating clear reports, and presenting results in a way that decision-makers can easily understand. Storytelling with data transforms raw numbers into actionable insights.
- Computer Science: This includes programming, database management, and algorithms for data processing. It also covers machine learning for predictions, distributed computing for handling large datasets, and cloud computing for scaling operations.
- Math concepts: Mathematics is crucial in data science, involving algebra, calculus, and optimization methods. Statistics and probability help analyze data and make predictions, while linear algebra is foundational for machine learning.