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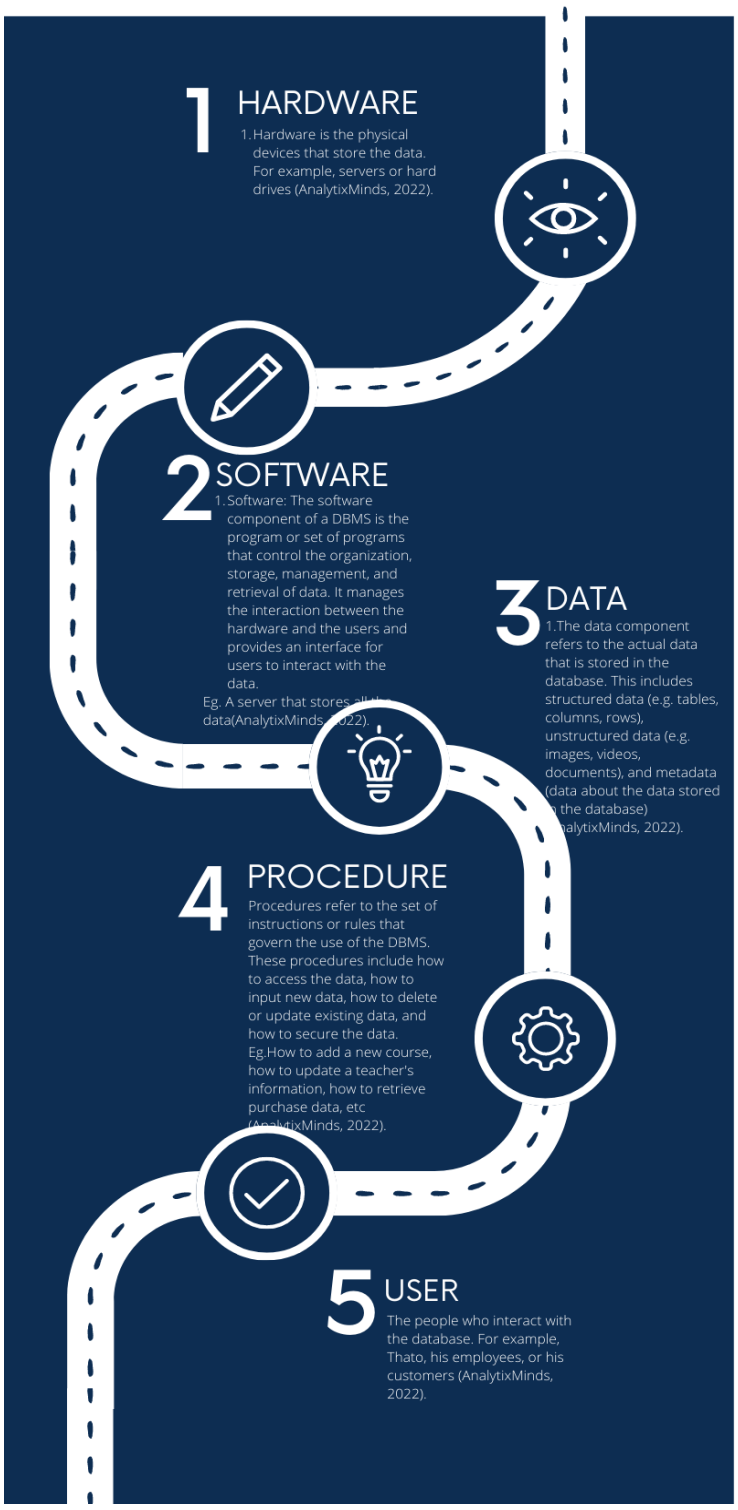
Student Number :ST10153576
Module Code :DBAS6211
Assessment Type: Assignment

## Question 1

### DBMS COMPONENT & DESCRIPTION

A DATABASE MANAGEMENT SYSTEM (DBMS) IS A SOFTWARE SYSTEM THAT ALLOWS USERS TO MANAGE, ORGANIZE, AND STORE DATA. HAVING A DBMS FOR THATO'S COURSE MARKETPLACE WOULD BE HELPFUL BECAUSE IT WOULD ALLOW HIM TO STORE ALL THE NECESSARY DATA IN ONE PLACE, MAKING IT EASIER TO MANAGE AND RETRIEVE THE INFORMATION (ANALYTIXMINDS, 2022).



## Question 2

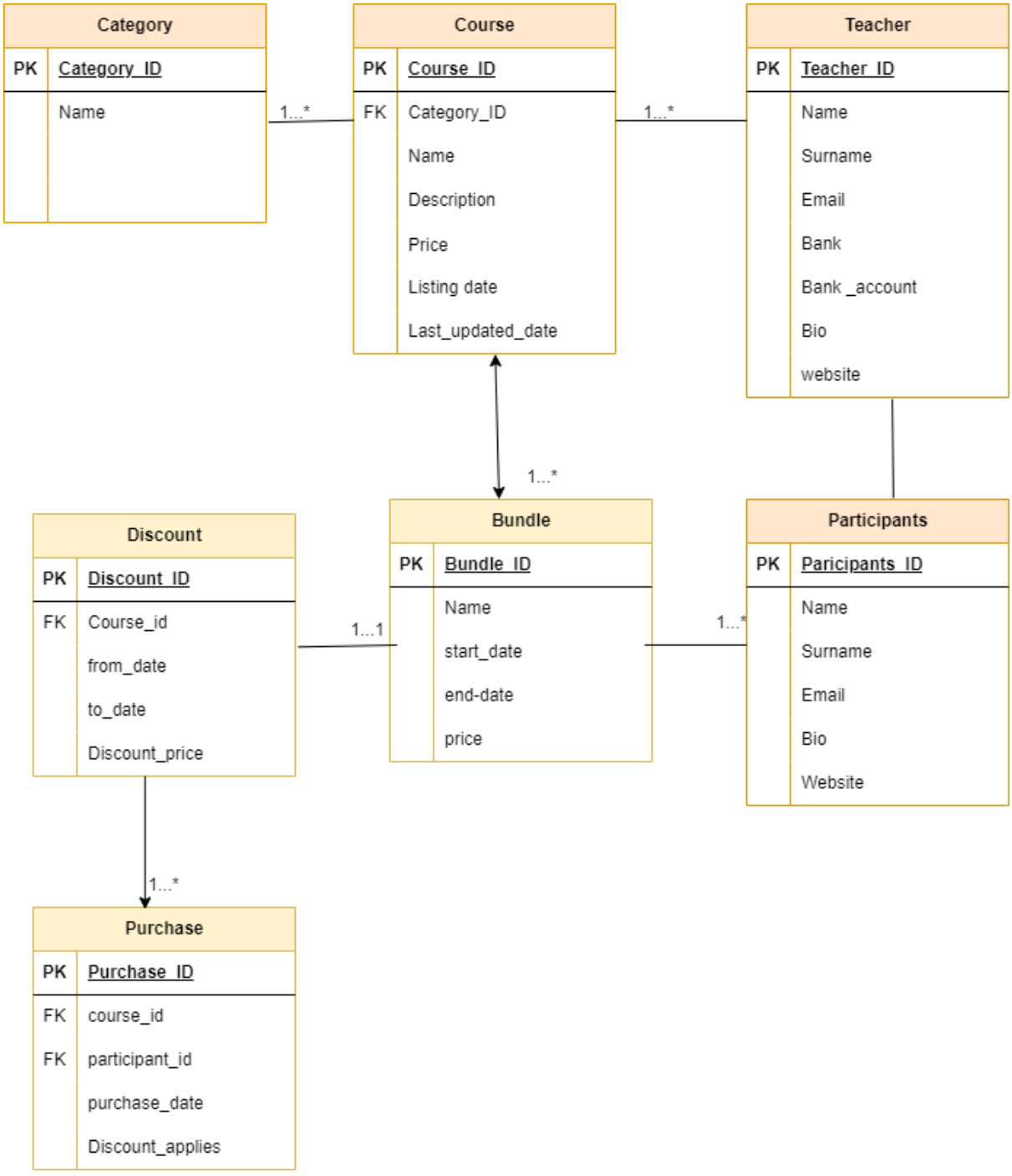
### Q.2.1

I suggest using a relational database for Q.2.1. A relational database is a organized way of keeping information that's separated into different tables. The database has a set plan for how the tables will be set up. It is perfect for organized information, like information about classes. Relational databases make sure data is correct, can answer difficult questions, and keep everything the same throughout. We can use a special type of computer file called a relational database to keep track of information about courses. This includes things like the course name, who made it, what category it falls under, and other important details(Microsoft, 2022).

### Q.2.2

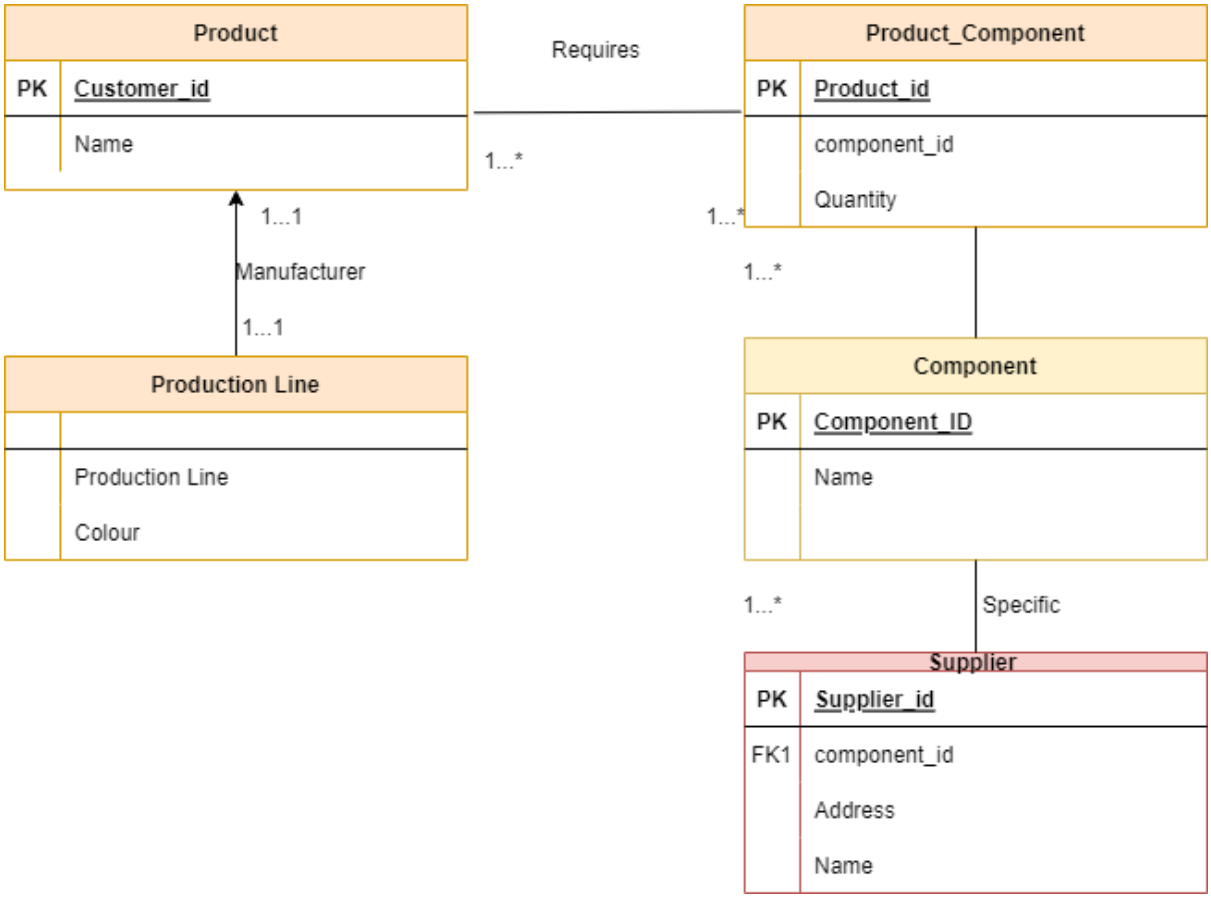
I would recommend a NoSQL database. NoSQL databases are designed for handling unstructured data, such as videos, pictures, and files. These databases can store and retrieve large amounts of data quickly and efficiently. NoSQL databases are often used for big data and real-time web applications because they can scale horizontally, meaning they can handle large amounts of data across multiple servers. In this case, a NoSQL database can be used to store the videos, pictures, and files that the course creators want to make available to those purchasing their courses(Microsoft, 2022).

## Question 3


Category
PK
Category_ID
Name
1...*
Course
PK
Course_ID
FK
Category_ID
Name
Description
Price
Listing date
Last_updated_date
1...*
Teacher
PK
Teacher_ID
Name
Surname
Email
Bank
Bank _account
Bio
website
1...*
Discount
PK
Discount_ID
FK
Course_id
from_date
to_date
Discount_price
1...1
Bundle
PK
Bundle_ID
Name
start_date
end-date
price
1...*
Participants
PK
Paricipants_ID
Name
Surname
Email
Bio
Website
1...*
Purchase
PK
Purchase_ID
FK
course_id
FK
participant_id
purchase_date
Discount_applies

Question 4

After reviewing the ERD that Thato created, I would recommend the following changes to improve the diagram to align with the business rules:




These changes will improve the diagram to align with the business rules by ensuring that all tables have primary keys, relationships between tables are clearly defined and enforced, and the many-to-many relationships are represented using separate tables.

To make it possible to implement the design in a relational database, it is also important to ensure that the relationships between tables are properly defined using foreign keys and that the data types of each column are consistent with the data that will be stored in them. It is also important to ensure that the database is properly normalized to eliminate redundancy and improve data consistency.

Reference List

AnalytixMinds. 2022. The 5 Components of DBMS 17 November 2022. [Online]. Available at:https://analytixminds.com/the-5-components-of-dbms/

[Accessed 13 April 2023].

Relational vs. NoSQL. 2022. 06 April 2022.[Online]. Available at:https://learn.microsoft.com/en-us/dotnet/architecture/cloud-native/relational-vs-nosql-data

[Accessed 14 April 2023].