




MARCH 18, 2024

DBAS 6211 ASSIGNMENT 1

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MODULE NAME:	MODULE CODE:
DATABASES	DBAS6211/d

ASSESSMENT TYPE: ASSIGNMENT 1 (PAPER ONLY)
TOTAL MARK ALLOCATION: 100 MARKS
TOTAL HOURS: 10 HOURS

By submitting this assignment, you acknowledge that you have read and understood all the rules as per the terms in the registration contract, in particular the assignment and assessment rules in The IIE Assessment Strategy and Policy (IIE009), the intellectual integrity and plagiarism rules in the Intellectual Integrity and Property Rights Policy (IIE023), as well as any rules and regulations published in the student portal.

INSTRUCTIONS:

- No material may be copied from original sources, even if referenced correctly, unless it is a direct quote indicated with quotation marks. No more than 10% of the assignment may consist of direct quotes.*
- Your assignment must be submitted through SafeAssign.*
- Save a copy of your assignment before submitting it.*
- Assignments must be typed unless otherwise specified.*
- All work must be adequately and correctly referenced.*
- This is an individual assignment.*

ACADEMIC HONESTY DECLARATION

Please complete the Academic Honesty Declaration below.

Please note that your assessment will not be marked, and you will receive 0% if you have not completed ALL aspects of this declaration.

Declaration

	SIGN
I have read the assessment rules provided in this declaration.	
This assessment is my own work.	
I have not copied any other student's work in this assessment.	
I have not uploaded the assessment question to any website or App offering assessment assistance.	
I have not downloaded my assessment response from a website.	
I have not used any AI tool without reviewing, re-writing, and re-working this information, and referencing any AI tools in my work.	
I have not shared this assessment with any other student.	
I have not presented the work of published sources as my own work.	
I have correctly cited all my sources of information.	
My referencing is technically correct, consistent, and congruent.	
I have acted in an academically honest way in this assessment.	

Referencing Rubric

Providing evidence based on valid and referenced academic sources is a fundamental educational principle and the cornerstone of high-quality academic work. Hence, The IIE considers it essential to develop the referencing skills of our students in our commitment to achieve high academic standards. Part of achieving these high standards is referencing in a way that is consistent, technically correct and congruent. This is not plagiarism, which is handled differently.

Poor quality formatting in your referencing will result in a penalty of according to the following guidelines a maximum of ten percent being deducted from the overall percentage. Please note, however, that evidence of plagiarism in the form of copied or uncited work (not referenced), absent reference lists, or exceptionally poor referencing, may result in action being taken in accordance with The IIE's Intellectual Integrity Policy (0023).

Markers are required to provide feedback to students by indicating (circling/underlining) the information that best describes the student's work.

Minor technical referencing errors: 5% deduction from the overall percentage. – the student's work contains five or more errors listed in the minor errors column in the table below.

Major technical referencing errors: 10% deduction from the overall percentage. – the student's work contains five or more errors listed in the major errors column in the table below.

If both minor and major errors are indicated, then 10% only (and not 5% or 15%) is deducted from the overall percentage. The examples provided below are not exhaustive but are provided to illustrate the error.

Required: Technically correct referencing style	Minor errors in technical correctness of referencing style Deduct 5% from overall percentage. Example: if the response receives 70%, deduct 5%. The final mark is 65%.	Major errors in technical correctness of referencing style Deduct 10% from the overall percentage. Example: if the response receives 70%, deduct 10%. The final mark is 60%.
Consistency <ul style="list-style-type: none"> The same referencing format has been used for all in-text references and in the bibliography/reference list. 	Minor inconsistencies. <ul style="list-style-type: none"> The referencing style is generally consistent, but there are one or two changes in the format of in-text referencing and/or in the bibliography. For example, page numbers for direct quotes (in-text) have been provided for one source, but not in another instance. Two book chapters (bibliography) have been referenced in the bibliography in two different formats. 	Major inconsistencies. <ul style="list-style-type: none"> Poor and inconsistent referencing style used in-text and/or in the bibliography/ reference list. Multiple formats for the same type of referencing have been used. For example, the format for direct quotes (in-text) and/or book chapters (bibliography/ reference list) is different across multiple instances.
Technical correctness <ul style="list-style-type: none"> Referencing format is technically correct throughout the submission. The correct referencing format for the discipline has been used, i.e., either APA, OR Harvard OR Law Position of the reference: a reference is directly associated with every concept or idea. For example, quotation marks, page numbers, years, etc. are applied correctly, sources in the bibliography/reference list are correctly presented. 	Generally, technically correct with some minor errors. <ul style="list-style-type: none"> The correct referencing format has been consistently used, but there are one or two errors. Concepts and ideas are typically referenced, but a reference is missing from one small section of the work. Position of the references: references are only given at the beginning or end of every paragraph. For example, the student has incorrectly presented direct quotes (in-text) and/or book chapters (bibliography/reference list). 	Technically incorrect. <ul style="list-style-type: none"> The referencing format is incorrect. Concepts and ideas are typically referenced, but a reference is missing from small sections of the work. Position of the references: references are only given at the beginning or end of large sections of work. For example, incorrect author information is provided, no year of publication is provided, quotation marks and/or page numbers for direct quotes missing, page numbers are provided for paraphrased material, the incorrect punctuation is used (in-text); the bibliography/reference list is not in alphabetical order, the incorrect format for a book chapter/journal article is used, information is missing e.g. no place of publication had been provided (bibliography); repeated sources on the reference list.
Congruence between in-text referencing and bibliography/ reference list <ul style="list-style-type: none"> All sources are accurately reflected and are all accurately included in the bibliography/ reference list. 	Generally, congruence between the in-text referencing and the bibliography/ reference list with one or two errors. <ul style="list-style-type: none"> There is largely a match between the sources presented in-text and the bibliography. For example, a source appears in the text, but not in the bibliography/ reference list or vice versa. 	A lack of congruence between the in-text referencing and the bibliography. <ul style="list-style-type: none"> No relationship/several incongruencies between the in-text referencing and the bibliography/reference list. For example, sources are included in-text, but not in the bibliography and vice versa, a link, rather than the actual reference is provided in the bibliography.
In summary: the recording of references is accurate and complete.	In summary, at least 80% of the sources are correctly reflected and included in a reference list.	In summary, at least 60% of the sources are incorrectly reflected and/or not included in reference list.

Overall Feedback about the consistency, technical correctness and congruence between in-text referencing and bibliography:

Question 1: Database Management Systems

WHAT IS A DATABASE MANAGEMENT SYSTEM

A database management system (DBMS) is a software application that enables users to interact with databases. It allows for the creation, management, retrieval, and manipulation of data stored in a structured format. DBMS provides various functionalities

such as data organisation, storage, retrieval, security, and integrity enforcement. It serves as an interface between users and databases, ensuring efficient data management and accessibility while maintaining data integrity and security.

DATABASE MANAGEMENT SYSTEM

THE ADVANTAGES OF HAVING A DATABASE MANAGEMENT SYSTEM

A database management system (DBMS) is essential because it efficiently organises and manages large amounts of data. It guarantees data integrity, security, and reliability, enabling multiple users to access and manipulate data simultaneously while ensuring consistency.

Moreover, a DBMS offers tools for data analysis and retrieval, empowering businesses to make well-informed decisions using precise and current information. In summary, a DBMS streamlines data operations, boosts productivity, and facilitates informed decision-making, all vital for the smooth functioning and success of any organisation.

Having a DBMS in place would be helpful for Thato as it would provide a centralised and organised approach to store and manage the vast amount of data associated with the course marketplace. It would ensure data integrity, security, and efficient access to information, ultimately enhancing the overall functionality and user experience of the website.

COMPONENTS OF A DBMS

HARDWARE

The hardware component consists of the physical devices and resources that the DBMS runs on. This includes servers, storage devices, and networking equipment. For Thato's website, the hardware would include web servers, storage servers, and networking infrastructure to ensure the website's availability and performance.

SOFTWARE

The software component includes the DBMS software itself, as well as any applications used to access and manipulate the data. For Thato's marketplace, the software component would involve the DBMS software, web application frameworks, and other tools for managing and presenting course information on the website.

PEOPLE

This component encompasses the individuals who interact with the database system, including administrators, developers, and end-users. For Thato's marketplace, people would include website administrators, course instructors, and students who access and enroll in courses.

PROCEDURES

Procedures are the rules and guidelines for the use and maintenance of the database. In the context of Thato's website, procedures would include data entry protocols, backup and recovery processes, and data security measures to protect sensitive information.

DATA

This component refers to the raw facts and figures that need to be stored. For Thato's course marketplace, data would include information about courses, instructors, students, and transactions. An example relevant to Thato's marketplace would be a table containing course details such as course name, instructor, price, and duration.

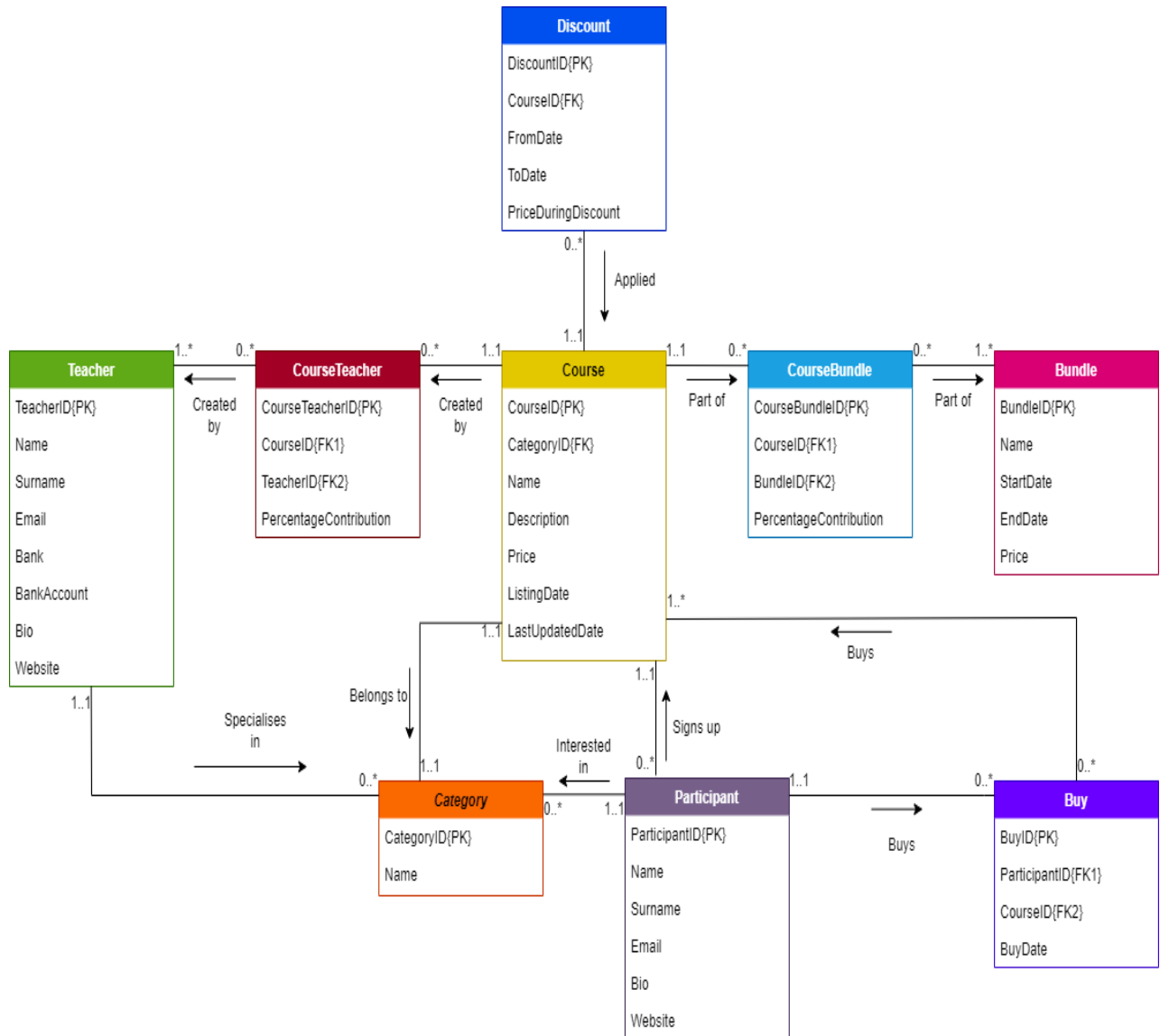
Question 2: Types of Databases

Q.2.1. I recommend using a relational database to store information about courses, creators and categories on Thato's course website. Relational databases are the best option for structured data and provide a reliable and consistent method for storing and retrieving data. By utilising a relational database, Thato can easily organise course data based on the course name, creator and category. Additionally, relational databases provide a flexible way to establish relationships between different types of data, making them an ideal choice for managing course details.

Q.2.2. I would recommend using a NoSQL database for storing videos, pictures and files that course creators make available to those purchasing their course. NoSQL databases are highly scalable and flexible, making them ideal for handling unstructured or semi-structured data such as multimedia files. They can handle high volumes of data efficiently to provide fast and easy access to files.

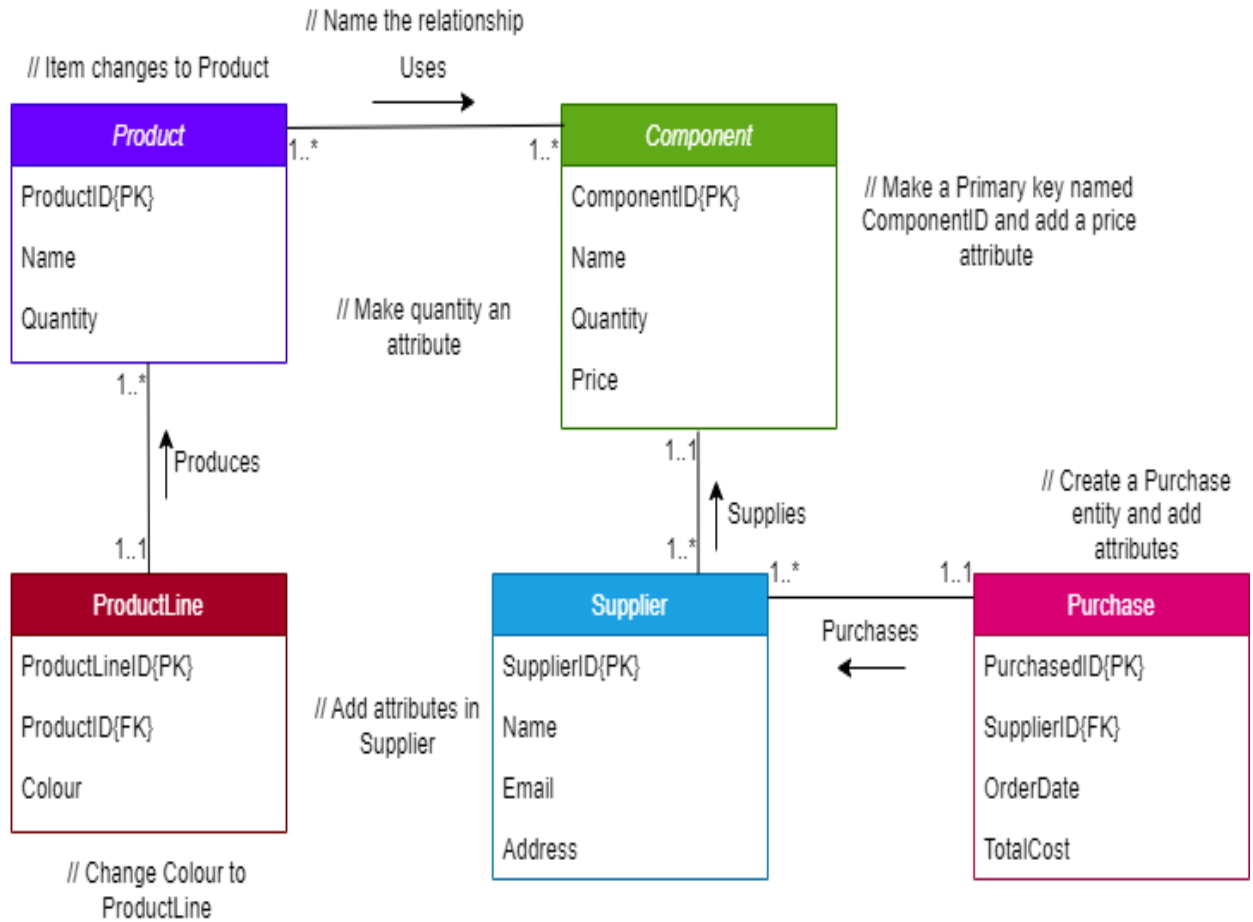
Combining relational and NoSQL databases provides the best of both worlds. Relational databases handle structured data while NoSQL databases cater to unstructured data.

Question 3: Entity Relationship Diagrams



Question 4: Entity Relationship Diagram Review

1. **Rename the “Item” entity to “Product”:** To avoid confusion and to be consistent with the business rules, use “product”.
2. **Add Primary keys:** Each entity has a primary key. This ensures uniqueness and allows easy data retrieval in the database. Example: ComponentID{PK}.
3. **Include supplier information:** Add attributes such as “SupplierID”, “Name”, “Email” and “Address” to the supplier entity. This ensures that information about each supplier is stored in the database making it easier to manage supplier data.
4. **Relationship between “Component” and “Supplier”:** This relationship indicates that each component is supplied by a specific supplier.
5. **Relationship between “Product” and “Component”:** Each Product requires different Components during manufacturing. The product should also have a foreign key to the component (ComponentID), indicating that components are required for each product.
6. **Add Quantity to “Component” and “Product” relationship:** The product requires different quantities and because of this we need to add a “Quantity” attribute.
7. **Change “Colour” to “ProductLine”:** The “ProductLine” will include “ProductLineID” and “Colour” to distinguish between different product lines.
8. **Relationship between “ProductLine” and “Product”:** Each productline manufactures one type of product at a time. Add a foreign key attribute “ProductID” to the “ProductLine”.
9. **Introduce a “Purchase” entity:** Create a purchase entity to represent each transaction between the company and its suppliers. Include the following attributes: “PurchaseID”, “SupplierID”, “OrderDate”, “TotalCost”.
10. **Include “Price” in the Component entity:** The “price” attribute to the component entity allows for tracking the cost of each component.



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