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| **Project Case** |  |
| ISYS6084 | ISYS6123  Database | Introduction to Database Systems |
| **Information Systems** | **E212-ISYS6123-LE02-00** |
| ***Valid on*** *Even Semester Year 2020/2021* | **Revision 00** |

1. Seluruh kelompok tidak diperkenankan untuk:

*The whole group is not allowed to:*

* + - Melihat sebagian atau seluruh proyek kelompok lain,

*Seeing a part or the whole project from another groups*

* + - Menyadur sebagian maupun seluruh proyek dari buku,

*Adapted a part or the whole project from the book*

* + - Mendownload sebagian maupun seluruh proyek dari internet,

*Downloading a part or the whole project from the internet,*

* + - Mengerjakan soal yang tidak sesuai dengan tema yang ada di soal proyek,

*Working with another theme which is not in accordance with the existing theme in the matter of the project,*

* + - Melakukan tindakan kecurangan lainnya,

*Committing other dishonest actions,*

* + - Secara sengaja maupun tidak sengaja melakukan segala tindakan kelalaian yang menyebabkan hasil karyanya berhasil dicontek oleh orang lain / kelompok lain.

*Accidentally or intentionally conduct any failure action that cause the results of the project was copied by someone else / other groups.*

1. Jika kelompok terbukti melakukan tindakan seperti yang dijelaskan butir 1 di atas, maka **nilai kelompok** yang melakukan kecurangan (menyontek maupun dicontek) akan di – **NOL** – kan.

*If the group is proved to the actions described in point 1 above, the score of the group which committed dishonest acts (cheating or being cheated) will be “Zero”*

1. Perhatikan jadwal pengumpulan proyek, segala jenis pengumpulan proyek di luar jadwal tidak dilayani.

*Pay attention to the submission schedule for the project, all kinds of submission outside the project schedule will not be accepted*

1. Bila Anda tidak membaca peraturan ini, maka Anda dianggap telah membaca dan menyetujuinya

*If you have missed to read these regulations, so you are considered to have read and agreed on it*

1. Persentase penilaiaan untuk matakuliah ini adalah sebagai berikut:

*Marking percentage for this subject is described as follows:*

|  |  |
| --- | --- |
| **Tugas Mandiri**  *Assignment* | **Proyek**  *Project* |
| 40% | 60% |

1. Software yang digunakan pada matakuliah ini adalah sebagai berikut:

*Software will be used in this subject are described as follows:*

|  |
| --- |
| **Software**  *Software* |
| SQL Server Management Studio 18.5.1  SQL Server Developer 2019  Microsoft Office 365  Visual Paradigm Community Edition 16.1 |

## Ekstensi file yang harus disertakan dalam pengumpulan tugas mandiri, dan proyek untuk matakuliah ini adalah sebagai berikut:

*File extensions should be included in assignment project and final exam collection for this subject are described as follows:*

|  |  |
| --- | --- |
| **Tugas Mandiri**  *Assignment* | **Proyek**  *Project* |
| SQL | SQL, VPP, Image Files (JPG / PNG) |

## Soal

*Case*

**NTESLE**

**NTESLE** is a company engaged in the food and beverage sector. **NTESLE** manage transactions like **sales** and **purchase transactions**. **Sales transaction** is the transaction that happened when customer wants to buy a product which will be handled by a staff. **Purchase transaction** is the transaction that happened when staff wants to restock some ingredient from a supplier.

In **NTESLE Company**, every customer who wants to buy a product in **NTESLE** must be following the **sales transaction procedures**, which are:

* **Customer** that wants to buy a product must complete personal information like name, phone number, and address. Every customer has an identification number with the following format:

“CSXXX”

X => number between 0 – 9

* **Customer** can purchase **more than one product** in every transaction.
* Every **sales transaction** made by the customer have all the information about the staff, the customer, the sales date, the product(s) purchased, and the quantity of each product. Each **sales transaction** has an identification number with the following format:

“SLXXX”

X => number between 0 – 9

* Every **product** has a complete information like product name, price, expired date, and an identification number with the following format:

“PDXXX”

X => number between 0 – 9

* Each product is classified based on their **type**. Every **type** has a name and an identification number with the following format:

“PTXXX”

X => number between 0 – 9

* Every **staff** has completed personal information like name, gender, phone number, DOB, salary, and an identification number with the following format:

“STXXX”

X => number between 0 – 9

In **NTESLE Company**, every staff that wants to restock some products in **NTESLE** must be following the **purchase procedures**, which are:

* Every **purchase transaction** made by the staff have all the information about the staff, the supplier, the purchase date, the ingredient(s) purchased, and the quantity of each ingredient. Each **purchase transaction** has an identification number with the following format:

“PUXXX”

X => number between 0 – 9

* Each **supplier** has completed personal information like name, phone number, address and an identification number with the following format:

“SUXXX”

X => number between 0 – 9

* Supplier can sell **more than one ingredient** in every transaction.
* Every **ingredient** has a complete information like ingredient name, price, expired date, and an identification number with the following format:

“IGXXX”

X => number between 0 – 9

**Notes**:

* Staff gender can only be filled with “Male” or “Female” value (without quote).
* Staff salary must be between 1000000 and 10000000.
* Customer phone number must be start with “+62” (without quote).
* Ingredient expired date must be more than 2022
* Product name must be more than or equals 5 characters
* Product price must be more than or equals 5000
* Product expired date must be more than 2020

Now **NTESLE company** still using manual management system to maintain their **sales transactions** and **purchase transactions**. You as database administrator in NTESLE Company are asked to create a database system that can store data and maintain the **sales transactions** and **purchase transactions**. The tasks that you must do are:

1. Create Entity Relationship Diagram to maintain **sales transactions** and **purchase transactions.**
2. Create a database system using DDL syntax that relevant with **sales transaction** and **purchase** **transaction** procedures. The database system must include primary key and foreign key with suitable relationship
3. Create query using DML syntax to simulate the transactions process for **sales transaction** and **purchase transaction**. Before start to create query to simulate the transactions, first do the following tasks:

* **Master** table must be filled with more than or equals 10 data
* **Transaction** table must be filled with more than or equals 15 data
* **Transaction detail** table must be filled with more than or equals 25 data
* For the **Product Type** table, the table must be filled with the following data:

|  |  |
| --- | --- |
| Product Type Names | |
| Biscuits | Mineral Water |
| Milk | Noodle |
| Vitamin | Cereals |
| Pet Food | Frozen Food |
| Coffee | Candy |

1. Create query using DML syntax to simulate the transactions process for **sales** and **purchase transactions**.

**Note**: DML syntax to **fill database** and DML syntax to **simulate** the **transactions process** should be a **different query**.

1. To support database management process in **NTESLE Company** themanager of **NTESLE Company** asked you to provide some query that resulting important data. The requirements that asked from the manager are:
2. Display SupplierName, IngredientName, Total Quantity (obtained from the sum of quantity purchased) for every Ingredient whose name contains “sugar” and bought in May.
3. Display StaffName, StaffGender, StaffSalary, and Total Transaction (obtained from the total number of sales) for every staff whose salaries are between 6 million to 7 million and the total transaction is more than 1.
4. Display CustomerName, Customer Phone Number (obtained by replacing “+62” with “0”), ProductName, Total Transaction (obtained from the total number of transaction), and Total Product Price (obtained from the sum of all product price purchased) for every product whose name has at least two words and expired year after 2021.
5. Display Total Price (obtained from the sum of ingredient price), IngredientName, and Total Transaction (obtained from the count of purchase transaction) for every purchase transaction which done by a staff whose age is more than 19 years old in 2020 and the ingredient’s expired year after 2024. Then sort the data in ascending format based on the total price.
6. Displays StaffName, Gender (obtained from the first character Staff Gender), StaffDOB, StaffSalary, and SalesTransactionID for every purchase made by staff whose salary is more than the average of all salaries combined and were born after 2000. Then sort the data in an ascending format based on the year of birth of the staff.

(**alias subquery**)

1. Display Supplier Number (obtained from the last 3 character Supplier ID), SupplierName, IngredientName, Ingredient Price (obtained by adding ‘Rp. ’ in front of the Ingredient Price), and IngredientExpiredDate for every Ingredient whose price is more than or equal the average of all price combined and the expired year after 2022.

(**alias** **subquery**)

1. Display SupplierID, SupplierName, Supplier Local Phone Number (obtained by changing the first number to ‘+62’), SupplierAddress, and Total Price (obtained from sum of Ingredient Price times Quantity) for every purchase from a supplier whose last name is food and the total price is greater than the average total price. Then sort the data in descending format based on the total price.

(**alias** **subquery**)

1. Display CustomerName, SalesTransactionID, SalesDate (obtained from SalesDate in ‘dd Mon yyyy’ format), DateName (obtained from the Name of the Day in SalesDate), Quantity (obtained by adding ‘ Piece(s)’ in end of the Quantity), ProductName , SalesPrice (obtained by adding ‘Rp. ’ in front of the Product Price) and Total Price (obtained by adding ‘Rp. ’ in front of the sum of Product Price times Quantity) for every sales transaction which quantity is more than the lowest quantity and is less than the highest quantity. Then sort the data in ascending format based on the quantity.

(**alias** **subquery**)

1. Create a view named “**SalesTransactionView**” to display StaffName, StaffPhoneNumber, Total Transaction (obtained from the count of Sales Transaction ID), and Highest Quantity (obtained from the max of quantity) for every sales transaction which occured after August and the Total Transaction is more than 2.
2. Create a view named “**PurchaseTransactionView**” to display SupplierName, SupplierPhoneNumber, Total Transaction (obtained from the count of Purchase Transaction ID), IngredientExpiredDate, IngredientName, IngredientPrice, and Total Ingredient Price (obtained from the sum of Ingredient Price) for every Ingredient that expires in 2023 and the Total Ingredient Price is more than 60000.

**File that must be collected**:

1. Entity Relationship Diagram (.vsdx, .png)
2. Query to create the database system. (.sql)
3. Query to insert data into tables. (.sql)
4. Query to simulate the transactions processes. (.sql)
5. Query to answer the 10 cases. (.sql)

**Here are the rules that you must follow to create your project:**

1. Use appropriate software for this subject based on **Sistem Praktikum** that can be downloaded from Binusmaya
2. Use the techniques taught during practicum.
3. Collect appropriate files for this subject based on **Sistem Praktikum** that can be downloaded from Binusmaya
4. Include the other files that can support your project, such as:
   * All files in your project
   * Other files (image, audio, video, etc.) used in your project
   * \*.DOC file (documentation of your project) that contains the reference links of additional files (image, audio, video, etc.) used in your project