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| **Project Case** |  |
| ISYS6123 | M0564  Introduction to Database Systems |
| **Information Systems** | **E202-ISYS6123-LC00802-00** |
| ***Valid on*** *Even Semester Year 2019/2020* | **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 other 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. Jangan lupa untuk melihat kriteria penilaian proyek yang ditempel di papan pengumuman, atau tanya asisten anda.

*Don’t forget to look at the project assessment criteria that posted on the announcement board, or ask your teaching assistant.*

1. Persentase penilaiaan untuk matakuliah ini adalah sebagai berikut:

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

|  |  |  |
| --- | --- | --- |
| **Tugas Mandiri**  *Assignment* | **Proyek**  *Project* | **UAP**  *Final Exam* |
| 30% | 30% | 40% |

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

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

|  |
| --- |
| **Software**  *Software* |
| Microsoft SQL Server Enterprise 2016  Microsoft Word 2013  Microsoft Office Visio 2013 |

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

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

|  |  |
| --- | --- |
| **Tugas Mandiri**  *Assignment* | **Proyek**  *Project* |
| - | VSD, PNG, SQL, BAK |

## Soal

*Case*

**Liem’s Old Warehouse**

**Liem’s Old Warehouse** is your one stop warehouse which is run by the town tycoon, Liem. The warehouse can store literally anything. **The warehouse got its supplies from the factory and distribute the items to the distributors**.

Every staff that hired by **Liem’s Old Warehouse** have a task to **receive any supplies that come from a partner factory** and **deals with any distributor that want to distribute any item that is available in the warehouse**. Every staff must be following the procedures to become a staff, which are:

* Every staff hired must have a personal information like name, gender, date of birth, address, email, phone number, and salary. Every **staff** has an identification number with the following format:

“STXXX”

X => number between 0 – 9

* Staff can receive any supply transaction from any factory.
* Every **supply transaction** made with the supplier have all the information about staff, factory, transaction date, items purchased, and the quantity of each item. Every **supply transaction** has an identification number with the following format:

“SUXXX”

X => number between 0 – 9

* Staff can also serve distribution transaction to any distributor who is interested to distribute the items.
* Every **distribute transaction** made by the distributor have all the information about staff, distributor, distribution city, transaction date, items distributed, and the quantity of each item. Every **distribute transaction** has an identification number with the following format:

“DTXXX”

X => number between 0 – 9

* Every item supplied from factories or distributed to distributors have its own name, supply price, distribute price, stock, material and description. Every **item** has an identification number with the following format:

“ITXXX”

X => number between 0 – 9

* Everyitem stored in **Liem’s Old Warehouse** have their own category. Every **category** has their own category name and an identification number with the following format:

“CTXXX”

X => number between 0 – 9

Every distributor that wants to distribute items at **Liem’s Old Warehouse** must be following the **distribute transaction procedures**, those are:

* Every distributor that distribute items from the warehouse must already completed their company and personal information like name, address, company name, location, email, and phone number. Every distributor has an identification number with the following format:

“DIXXX”

X => number between 0 – 9

* Distributor can distribute **more than one item** in every transaction.

Every factory that wants to supply their items must be following the **supply transaction procedures**, those are:

* Every factory that wants to supply their items must be registered in the warehouse. The registration requires the factory’s name, address, supervisor, rating, and start date. Every factory has an identification number with the following format:

“FCXXX”

X => number between 0 – 9

* Factories can supply **more than one item** in every transaction.

**Notes:**

* Staff gender must be either ‘Male’ or ‘Female’.
* Staff email must contains ‘@’.
* Staff phone must be numeric.
* Check distribute and supply dates so that the dates do not exceed the current date.
* Check the item stock so that the stock cannot be empty.
* Make the item description to be ‘No Description’ by default.
* The name of the factory must be between 10 and 50 characters.
* Factory address must ends with ‘ Street’.
* Factory rating must be between 0-5 and the number can be decimal.
* Distributor’s email must contain ‘@’.
* Distributor’s company name must ends with ‘ Company’.
* Distributor’s phone number must be numeric.

**Liem’s Old Warehouse** is still using manual management system to maintain the **supply** and **distribute transactions**. However, as the business grows they need to store data digitally. You, as his right-hand man, are given a task by him to create a database system that can store data and maintain the **supply** and **distribute transactions**. The tasks that you must do are:

1. Create Entity Relationship Diagram to maintain **supply** and **distribute transactions**.
2. Create a database system using DDL syntax that relevant with **supply** and **distribute transactions**.
3. Create query using DML syntax to fill the tables in database systems with data based on the following conditions:

* **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.

1. Create query using DML syntax to simulate the transactions process for **supply** and **distribute 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 **Liem’s Old Warehouse**,Liem trusted you to provide some query that resulting important data. The requirements that asked from him are:
2. Display ItemId and Total Quantity (obtained from the sum of quantity) from supply transaction where the supply date is in 'Monday' and the factory name has at least 2 words.
3. Display Item Id (Obtained from 'Item ' and the digit of ItemId without the additional zero), CategoryName, and Total Income (obtained from the sum of item distribute price times quantity of the item) for each item who has stock more than 20 and has CategoryId of 'CT002'.
4. Display SupplyId, Supply Date(Obtained from SupplyDate in Mon dd, yyyy format), Total Item Purchased (obtained from counting the item on each supply transaction), and Total Expense (obtained from summing the total price for each transaction) where the year of the transaction is even numbered and the item name contains the letter 'a' or 'A'.
5. Display StaffId, Staff First Name (Obtained from the first word of StaffName), StaffSalary,Distribute Day (Obtained from the day name of the transaction date), and Item Distributed (Obtained from adding all quantity from the transaction done by the staff) for each distribute transaction which has staff who has the lowest salary and item that is purchased with more than 40 quantity in single purchase.
6. Display SupplyId, FactoryName, StaffName, SupplyDate for each Staff who is born in year 1990-2000 and each factory who has rating above or equal the average rating of all.

(**alias subquery**)

1. Display CategoryName and Total Quantity(Obtained from Sum of Quantity for each categoryName) for the item that is purchased in every even numbered DistributeId transaction. Display only the data who has the Total Quantity value of 50 or more.

(**alias subquery**)

1. Display StaffId, Staff Last Name(Obtained from the last word in Staff's name), and Total Transaction (obtained from total distribute and supply transaction done by the staff) who has salary higher than the average of all the staff's salary and got minimal 2 words in their name.

(**alias subquery**)

1. Display DistributeID, DistributeCity, Distribute Date (Obtained from DistributeDate in dd.mm.yyyy format), and Total Quantity(Obtained from summing all quantity from distribute transaction) for each distribute transactions which have StaffId ST001 to ST005 and only count items that have distribution price lower than the average of all items distribution price and those items stock must be between 100 and 1000. Sort the data based on the DistributeID descending.

(**alias subquery**)

1. Create a view named ViewGoodCompanySupplies to see FactoryId, FactoryName, and Total Quantity (Obtained from the sum of quantity of each factory) for each supply that happen in 2018 and the factory rating is higher than the average factory rating.
2. Create a view named 'WeekendDistributeView' to see DistributorId, StaffId, Recorded Transaction (Obtained from counting each distinct distributeId) and Total Item Distributed (Obtained from the total quantity in the transaction) for each transaction which occured in weekend(both saturday and sunday) and the item id is 'IT006' to 'IT008'.

**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)