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| **Project Case** |  |
| ISYS6123 | M0564  Introduction to Database Systems |
| **Information Systems** | **E202-ISYS6123-AE03-00** |
| ***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* |
| 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 2016  Microsoft Office 365 (Word, Excel)  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* |
| - | VSDX, Image Files (JPG / PNG), SQL |

## Soal

*Case*

**softwAEr House**

**softwAEr House** is a famous software store that belongs to Aedwin and its located in Jakarta. **softwAEr House sells many kinds of software to costumers and got its product from the software distributor around the world**.

Every staff who is hired by **softwAEr House** have a task to **serve a customer who wants to buy softwares in a sales transaction** and **serve a distributor when restocking in a purchase transaction**. Every staff must follow several procedures to become a staff and do their job desks, which are:

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

“SFXXX”

X => number between 0 – 9

* Every software sold by **softwAEr House** has several types with different names. Every software type has an identification number with the following format:

“TPXXX”

X => number between 0 – 9

* As for the software itself has information such as name, version, release date, price, stock. Every software has an identification number with the following format:

“SWXXX”

X => number between 0 – 9

* Every customer who is a member must have information such as name, gender, address, and phone. Every customer has an identification number with the following format:

“CSXXX”

X => number between 0 – 9

* Every distributor data must have information such as name and company. Every distributor has an identification number with the following format:

“DTXXX”

X => number between 0 – 9

* Staff can serve customers who wants to buy products.
* Every **sales transaction** made must have information about the staff, customer, transaction date, software and quantity. Every **sales transaction** has an identification number with the following format:

“SLXXX”

X => number between 0 – 9

* A customer could buy **more than one software** in every transaction.
* Staff can also serve distributors who sells the products
* Every **purchase transaction** made must have information about the staff, distributor, transaction date, software bought and quantity. Every **purchase transaction** has an identification number with the following format:

“PRXXX”

X => number between 0 – 9

* A distributor could sell **more than one software** in every transaction.

**Notes:**

* Customer’s name must be longer than 5 characters.
* Staff’s phone number length must be equal to 13.
* Staff’s gender must be either “Male” or “Female” (without quote).
* Staff’s address must start with 3 digits number with space at the end of the number and followed by a word (ex: 157 street).
* Staff must be older than 17 years old.
* Software price must be between 20000 and 3000000.
* Software version data type must be varchar and the data are in x.x format (x is a digit, ex:1.1, 1.0, etc)
* Distributor’s name must consist of at least 2 words.

Because **softwAEr House** was established recently, Aedwin asks you to help him design and **create a database system** that can store data and maintain **sales & purchase transactions** and **assets recordings according to requirements** he has requested of you. The tasks that you must do are:

1. Create Entity Relationship Diagram to maintain **sales & purchase transactions** and **assets recordings**.
2. Create a database system using DDL syntax that relevant with **sales & purchase transactions** and **assets recordings**. The database system must include **database** and **tables** with the required procedures.
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 15 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 **Software Type** table, the table must be filled with the following data:

|  |  |
| --- | --- |
| **Software Type Names** | |
| Multimedia Design | Mobile Application |
| Database Management | Game Development |
| Browser | Text Editor |
| Web Development | Business Analytics |
| Integrated Development Environment | Others |

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 **softwAEr House**,Aedwin asks you to provide some queries which give him important data he needs. The requirements requested are:
2. Display SoftwareName and Income (obtained by adding ‘Rp. ’ in front of the sum of software price multiplied by quantity) for every sales transaction which the software type is either ‘Web Development’ or ‘Browser’ and the software stock is more than 10.
3. Display distributor company and Total Software Bought (obtained from the sum of quantity bought) for every purchase transaction which handled by a distributor whose name starts with ‘A’ and occurred after the 10th date of every month.
4. Display Average Revenue per Day (obtained by adding ‘Rp. ’in front of the average of software price multiplied by quantity), TransactionDate and Male Staff Count (obtained from distinct count of staff and ended with ‘ person’) for every sales transaction which is handled by male staff and occurred in 2018.
5. Display Gender (obtained from the first letter of Gender), Total Transactions (obtained from number of sales transaction ended with ‘ transaction(s)’) and Total Sold (obtained from sum of quantity ended with ‘ item(s)’) for every sales transactions that is handled by a male staff and the price multiplied with quantity is higher than 100000. And then combine it with Gender (obtained from the first letter of Gender), Total Transactions (total sales transaction ended with ‘ transaction(s)’) and Total Sold (obtained from sum of quantity ended with ‘ item(s)’) for every sales transactions that is handled by a female staff and the price multiplied with quantity is higher than 200000.
6. Display SoftwareId, SoftwareName, SoftwarePrice (obtained by adding ‘Rp. ’in front of SoftwarePrice) for every purchase transaction which SoftwarePrice is higher than the average of SoftwarePrice from every purchase transaction and for every purchase transaction handled by a staff whose StaffId is either ‘SF003’, ‘SF004’, ‘SF009’. Show the data based on SoftwarePrice in descending order.

(**alias subquery)**

1. Display Staff First Name (obtained from the staff’s first name), StaffPhone, Transaction Date (obtained from the transaction date in dd mon yyyy format) for every sales transaction which quantity is lower than the average of quantity from all sales transaction and occurred before ‘1 January 2019’.

(**alias subquery**)

1. Display PurchaseTransactionId, Distributor Last Name (obtained by adding ‘Mx. ’ in front of distributor’s last name), DistributorCompany, TransactionDate (obtained from the transaction date in Mon dd, yyyy format), for every purchase transaction which Software Price is higher than the average price of every software but lower than the maximum price of every software and occurred between the year 2017 and 2018.

(**alias subquery**)

1. Display DistributorName, TransactionDate, Total Transactions (obtained from the number of Transactions and ended with ‘ transaction(s)’) for every purchase transaction where the software’s version bought is higher than the average software’s version available and the distributor id is either ‘DT001’, ‘DT005’, ‘DT006’.

(**alias subquery**)

1. Create a View named ‘StaffSalesReport’ to display StaffName, StaffGender, Transaction Count (obtained from the number of transactions), Total Sales Income (obtained by adding ‘Rp. ’ in front of the sum software price multiplied by quantity) for every sales transaction which the Total Sales Income is higher than 100000 and the staff name consists of at least 3 words.
2. Create view named ‘Recurring Members’ to display CustomerName, Total Transactions (obtained from total number of transactions), Total Spent (obtained by adding ‘Rp. ’ in front of total sum of software price multiplied by quantity), for every customer who has done more than 2 transactions and SoftwarePrice is higher than 50000.

**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