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| --- | --- |
| **Project Case** |  |
| ISYS6084 | ISYS6123 | ISYS6123003 | ISYS6169 | ISYS6169001  Database | Introduction to Database Systems | Database Systems |
| **Information Systems** | **E222-ISYS6123003-JE08-00** |
| ***Valid on*** *Even Semester Year 2021/2022* | **Revision 00** |

1. Seluruh kelompok tidak diperkenankan untuk:

*The whole group is not allowed to:*

* + 1. Melihat sebagian atau seluruh proyek kelompok lain,

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

* + 1. Menyadur sebagian maupun seluruh proyek dari buku,

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

* + 1. Mendownload sebagian maupun seluruh proyek dari internet,

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

* + 1. 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,*

* + 1. Melakukan tindakan kecurangan lainnya,

*Committing other dishonest actions,*

* + 1. 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* |
| Microsoft Office 365  SQL Server Developer 2019  SQL Server Management Studio 18.9.1  Visual Paradigm Community Edition 16.3 |

## 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*

**Jett Sports Center**

**Jett Sports Center** or **JSC** is a sport center managed by your friend, Jett. Jett manage all of activities that belongs to **JSC** like **selling sports product to customers** and **for customer to rent available sport fields.**

Every staff that hired by **JSC** have a task to **serve a customer who wants to buy a sports product** and **rent sport fields**. Every staff must be following the procedures to become a staff, which are:

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

“STXXX”

X => number between 0 – 9

* Staff can serve customers who wants to buy a product.
* Every **product transaction** made with the customer have all the information about staff, customer, transaction date, product purchased, and the quantity of each product. Every **product transaction** has an identification number with the following format:

“PTXXX”

X => number between 0 – 9

* Every product purchased by the customer have its own name and price. Every **product** has an identification number with the following format:

“PRXXX”

X => number between 0 – 9

* Staff can also serve a customer who wants to rent a sports field.
* Every **rental transaction** made by the customer have all the information about staff, customer, transaction date, sport field rented, and the rental length in hours of sports field. Every **rental transaction** has an identification number with the following format:

“RTXXX”

X => number between 0 – 9

* Everysport field have its own name, address, and renting fee per hour. Every **sport field** has an identification number with the following format:

“SFXXX”

X => number between 0 – 9

Every customer that wants to rent a sport field or buy a product must be following the **transaction procedures**, those are:

* Every customer that wants to do a transaction must already completed personal information like name, age, and phone number. Every customer has an identification number with the following format:

“CUXXX”

X => number between 0 – 9

* Customer can purchase **more than one product** in every transaction.
* Customer can rent **more than one field** in every transaction.

**Constraints:**

* Customer name must consist of at least 2 words.
* Customer age must be at least 6.
* Customer phone must be 10 characters
* Staff name must be more than 4 characters.
* Staff gender must be either “Male” or “Female” (without quote).
* Staff salary must be more or equal to 1000000.
* Sports field name must ends with ‘ Field’ (without quote).
* Sports field address must ends with ‘ Street’ (without quote).
* Sports field renting fee must be at least 10000 and at most 100000.
* Product name length must be at least 4.
* Product price must be at least 10000 and at most 1000000.
* Rental length must be 1 hour at the minimum.
* Quantity of the product being purchased cannot be below 1.
* All transaction date must be in the current year.

Now **JSC** still using manual management system to maintain the **transactions**. You as her precious friend wants to help her to create a database system that can store data and maintain the **transactions**. The tasks that you must do are:

1. Create Entity Relationship Diagram to maintain **all transactions**.
2. Create a database system using DDL syntax that relevant with **the 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 **rental** and **product transactions**. (rental transaction & product transaction)

**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 **JSC**,Jett asked you to provide some query that resulting important data. The requirements that asked from her are:
2. Display Product (obtained from replacing ‘PR’ with ‘Product Id ’ in ProductId), Total Item Sold (obtained from the sum of all quantity per product sold and ends with ‘ pcs’) for every product sold by a female staff that has a salary higher than 4000000.
3. Display ProductTransactionId, Total Product Type (obtain from the total of different product being bought) for each transaction that occurred after June where the Total Product Type is more than 1.
4. Display Sport Field Id (obtained by replacing ‘SF’ with ‘Sport Field ’ in SportFieldId), Sport Field Address (obtained by replacing Street with ‘St.’ in SportFieldAddress), Highest Transaction (obtained by adding ‘Rp. ’ in front of the highest total transaction cost (cost calculated by renting fee multiply by rent length)), Lowest Transaction (obtained by adding ‘Rp. ’ in front of the lowest total transaction cost (cost calculated by renting fee multiply by rent length)), for every renting transaction that has SportFieldRentingFee lower than 50000 and has odd SportFieldId.
5. Display SportFieldId, Staff Salary Deviation (obtained by subtracting the highest staff salary with the lowest staff and adding ‘Rp. ’ in front of it) for every odd SportFieldId and Staff Salary Deviation that at least 1000000.
6. Display Staff Id (obtained from StaffId in lower case), Staff Name (obtained from StaffName in upper case), Staff Gender (obtained from the first character in StaffGender), RentalTransactionnId, CustomerName, for every female staff with the highest salary.

(**alias subquery**)

1. Display CustomerId, CustomerName, Customer Age (obtained from CustomerAge ends with ‘ years old’), Customer Phone (obtained by replacing the first 2 characters of the CustomerPhone with +62), for every transaction with the youngest customer and purchased product quantity less than 50. The data displayed must not be duplicated.

(**alias subquery**)

1. Display Category (with ‘Most Expensive Product’ as it value), ProductName (obtained from ProductName in upper case), Product Price (obtained by adding ‘Rp. ’ in front of product price) for every product that has most expensive price and have an even ProductId, then combine with Category (with ‘Most Affordable Product’ as its value), ProductName (obtained from ProductName in upper case), Product Price (obtained by adding ‘Rp. ’ in front of product price) for every product that has most cheapest price and have an even ProductId.

(**alias subquery**)

1. Display ProductTransactionId (obtained by replacing ‘PT’ with ‘Product Transaction Id’ in ProductTransactionId), Date (obtained by formatting it to ‘Mon dd, yyyy’ without quotes), CustomerId, CustomerName (obtained from CustomerName in upper case), Staffid, StaffGender (obtained from the first character in StaffGender), for the oldest customer being served by a staff with salary above average salary of all staff.

(**alias subquery**)

1. Create a view named ‘annualMonthlyRentalReport’ to display Yearly Rental Revenue (obtained by summing RentalLength times SportFieldRentingFee), Average Rental Revenue (obtained by averaging RentalLength times SportFieldRentingFee), for transaction happened in December transactions and SportFieldRentingFee is higher than 60000.
2. Create a view named ‘annualMonthlyProductReport’ to display Yearly Product Revenue (obtained by totaling Quantity \* ProductPrice), Average Product Revenue (obtained by averaging Quantity \* ProductPrice). for transaction happened in January and ProductPrice is higher than 30000.

**File that must be collected**:

1. Entity Relationship Diagram (.vpp, .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