Project Case	
DBProject	
Periode Berlaku Semester Genap 2023/2024 ***Valid on*** *Even Year 2023/2024*	**Software Laboratory Center** **Assistant Recruitment 24-2**

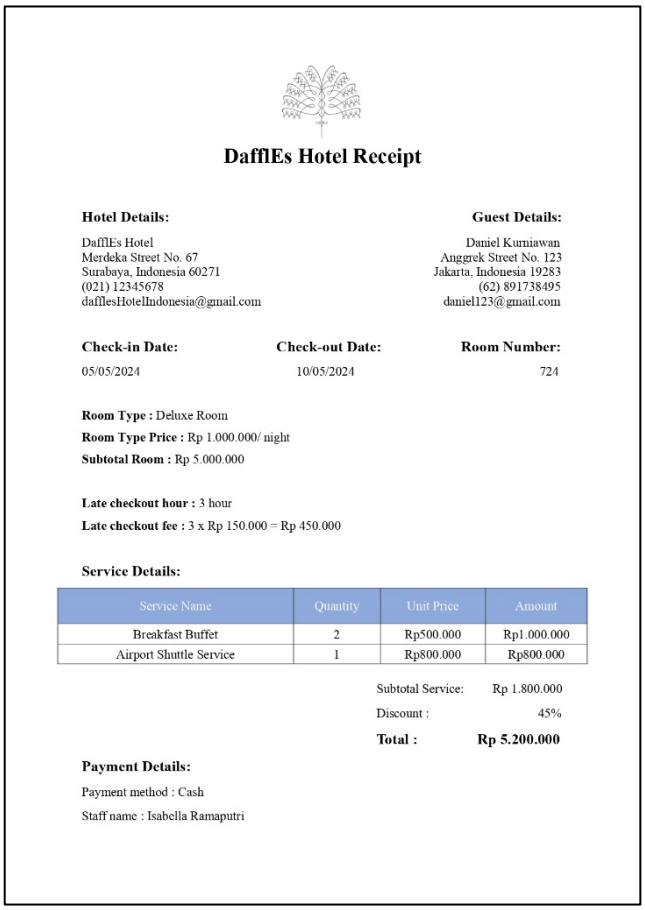
Note: Please focus on the main logic and main feature!
(Splash screen and design are not scored)

Soal

Case

DafflEs

DafflEs is a 5 star hotel that has just built a new branch in Indonesia. This hotel has the most complete facilities hotel in Indonesia. Unfortunately, Daniel who is the owner of the Indonesian branch of DafflEs was confused about creating a **database** for his hotel. Daniel has no previous experience creating databases. So, Daniel tells you to create a database for his hotel.



DafflEs Hotel Receipt

Hotel Details:
DafflEs Hotel
Merdeka Street No. 67
Surabaya, Indonesia 60271
(021) 12345678
dafflesHotelIndonesia@gmail.com

Guest Details:
Daniel Kurniawan
Anggrek Street No. 123
Jakarta, Indonesia 19283
(62) 891738495
daniel123@gmail.com

Check-in Date:	Check-out Date:	Room Number:
05/05/2024	10/05/2024	724

Room Type : Deluxe Room
Room Type Price : Rp 1.000.000/ night
Subtotal Room : Rp 5.000.000

Late checkout hour : 3 hour
Late checkout fee : 3 x Rp 150.000 = Rp 450.000

Service Details:

Service Name	Quantity	Unit Price	Amount
Breakfast Buffet	2	Rp500.000	Rp1.000.000
Airport Shuttle Service	1	Rp800.000	Rp800.000

Subtotal Service: Rp 1.800.000
Discount : 45%
Total : Rp 5.200.000

Payment Details:
Payment method : Cash
Staff name : Isabella Ramaputri

Figure 1. Transaction Receipt

At this hotel, each staff has the task of serving customers who want to stay overnight and every staff member must follow procedures to become a staff, which are:

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

STXXX **X** → Number between 0 – 9

- Every transaction is recorded and must contain all the information about the **room number, check in date, check out date, staff, customer, payment method, late check out hours, discount** and **the hotel where the transaction is made**, every transaction has an **identification number** with the following format :

TRXXX **X** → Number between 0 – 9

- Every transaction has detailed information about the hotel reservation that customer booked such as **service detail**, and **quantity**.
- Every service at this hotel have detailed information like **service name** and **price**. Every service has an **identification number** with the following format :

SEXXX **X** → Number between 0 – 9

- Every room at this hotel have detailed information like **room number** and **room type**. The **room number** will be used as **identification** in each room.
- Every room type at this hotel have detailed information like **room type name** and **room type price**. Every room type has an **identification number** with the following format :

RTXXX **X** → Number between 0 – 9

- In this hotel, every customer can choose from **3 payment types of payment method** to book the hotel: **cash, debit card** and **credit card**. Every payment method has an **identification number** with the following format :

PMXXX **X** → Number between 0 – 9

- Every customer that wants to reservation the hotel must already fill in their personal information like their **full name, address, phone number, email** and **gender**. Every customer has an **identification number** with the following format :

CUXXX **X** → Number between 0 – 9

- Also, Daniel wants each branch hotel to have its own record. Therefore, you need to save detailed information for each branch hotel like **hotel address, telephone number**, and **email**. Every branch hotel has an **identification number** with the following format :

HOXXX **X** → Number between 0 – 9

And to make it easier for Daniel to read the database, **please normalize the data** using **UNF, 1NF, 2NF, 3NF**, and create an **ERD** based on the following **transaction receipt that have been given**. And to test the database you're also asked to run a few **queries**, the tasks you are required to do are:

- Create an **Entity relationship diagram** to maintain sales and transactions.
- Create a database system using **DDL syntax** that is relevant to what Daniel wants and **please add some of the constraints** below to the table :
  - **Service price** have to be **greater than or equal to 35000** and **less than or equal to 1000000.**
  - **Room type price** have to be **greater than or equal to 1000000** and **less than or equal to 5000000.**
  - **Payment method name** must be **either** "**Cash**", "**Debit Card**", **or** "**Credit Card**" (without quote).
  - **Staff gender** must be **either** "**Male**" **or** "**Female**" (without quote).
  - **Customer name** must consists of **both a first name and last name**
  - **Customer gender** must be **either** "**Male**" **or** "**Female**" (without quote).
  - **Hotel telephone number** must **starts with "(021)"** (without quote).
- Create a query using **DML syntax** to fill the tables with data based on the following conditions:
  - **Master** table must be filled with **more than or equal to 20 data**.
  - **Transaction** table must be filled with **more than or equal to 25 data**.
  - **Transaction detail** table must be filled with **more than or equal to 25 data**.

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

  Note: DML syntax to **fill the database** and DML syntax to **simulate** the **transactions process** should be a **different query.**
- To support the database management process in **DaffIEs**, Daniel asked you to provide some **queries** that resulting important data. The requirements asked from the owner are :

1. Display CustomerID (by replace "CU" with first character of first name and combine it with the first character of last name) as "ID", CustomerName as "Name", and CustomerAddress as "Address" for each CustomerGender is Male.
   (REPLACE, CONCAT, SUBSTRING, CHARINDEX)

2. Display HotelID, HotelAddress, and HotelEmail for each HotelAddress contains "de".
   (LIKE)

3. Add 15% to the ServicePrice for each ServicePrice below 50000.
   (UPDATE)

4. Display CustomerID as "Customer ID", First Name, Last Name, Total Price Room in Rupiah format, and Total Price Room in Dollar format.
   (LEFT, CHARINDEX, REVERSE, SUBSTRING, FORMAT, SUM, DATEDIFF, DAY)

5. Create a view named "BestStaffin2023" that displays StaffID, StaffName, Total Served (obtained from total customers who have been served) for each transactions that occurred in 2023.
   (CREATE VIEW, COUNT, YEAR)

6. Display PaymentMethodID (by replace 'M' with last character of PaymentMethodName in uppercase) as "Payment Method ID" and PaymentMethodName as "Payment Method Name" also sorting by PaymentMethodName in ascending order.
   (REPLACE, UPPER, RIGHT, ORDER BY)

7. Display CustomerName (obtained from first name of CustomerName) as “Name”, CheckInDate (with format mm dd, yyyy) as “Check In Date”, CheckOutDate (with format mm dd, yyyy) as “Check Out Date”, LateCheckOutHours (obtain from adding ‘ hours’ in behind the LateCheckOutHours) as “Late Check Out Hours”, and Late Check Out Fee (obtain from LateCheckOutHours multiplied by 150000 in Rupiah format).
   (LEFT, CHARINDEX, CONVERT, CONCAT, FORMAT)

8. Display ServiceID (by replace “SE” with “Service”) as “Service ID”, ServiceName (in lower mode) as “Service Name”, minimum and maximum Quantity per service.
   (REPLACE, LOWER, MIN, MAX)

9. Display HotelID (obtained from first character and combine it with the last character from HotelID) as “Hotel ID” and HotelAddress as “Hotel Address” for which CheckInDate that occurred on quarter 1 and 2 and make sure there is no duplicated HotelID.
   (DISTINCT, CONCAT, LEFT, RIGHT, DATENAME, QUARTER, IN)

10. Display CustomerName (obtained from the CustomerName in uppercase format and starts with “Mr/Mrs. ”) as “Customer Name”, CustomerEmail and CustomerPhoneNumber for every last digit of CustomerPhoneNumber is an odd number.
    (CONCAT, CONVERT, RIGHT)

11. Display all transactions data in German language like TransactionID (by replace “TR” with “Transaktion”) as “Transaktion ID”, CustomerName as “Kundenname”, RoomNumber as “Zimmernummer”, CheckInDate (with format like “Monday, 1 January 2024” in German format) as “Check In Datum” and CheckOutDate (with format like “Monday, 1 January 2024” in German format) as “Check Out Datum”, StaffName as “Mitarbeitername” and each of PaymentMethodName as “Zahlungsmethode Name” in German.
    (REPLACE, FORMAT, CASE)

12. Change CustomerPhoneNumber data type to varchar(15) in MsCustomer table.

13. Display ID (obtained from 2 uppercase first character of RoomTypeName and combine it with the RoomNumber), RoomNumber, RoomTypeName, and Total Transactions (obtained from the total rooms booked) also sorting by Total Transactions in descending order.
    (CONCAT, UPPER, LEFT, COUNT, ORDER BY)

14. Delete all transactions whose transactions use the cash payment method.
    (DELETE, LIKE)

15. Create a view named "Top5BranchDafflEsHotel" that show top 5 the most visited branch hotels all of time by displaying the HotelID (obtained by "Branch" and combine it with the HotelID number where the number 0 cannot be included example: HO015 -> 15), HotelAddress, Total Transaction (by totalling total customer booked).
    (CREATE VIEW, TOP, CASE, SUBSTRING, COUNT, ORDER BY)

16. Display ServiceID (obtained from "SE" combine it with total ASCII first character and ASCII last character of ServiceName) as "ServiceID", ServiceName and ServicePrice in Dollar format also sorting by ServicePrice in ascending order.
    (**CONCAT, ASCII, LOWER, LEFT, RIGHT, FORMAT, ORDER BY)**

17. Display TransactionID (obtained by "BS" and combine it with the ASCII from first character RoomTypeName then multiplied by 2), RoomNumber, RoomTypeName, and Length of Stay (obtained from count many days are there between the CheckInDate and CheckOutDate) for every RoomTypeName is Business then combine it with Display TransactionID (obtained by "KG" and combine it with the ASCII from last character RoomTypeName then multiplied by 2), RoomNumber, RoomTypeName, and Length of Stay (obtain from count many days are there between the CheckInDate and CheckOutDate) for every RoomTypeName is King.
    (CONCAT, ASCII, LEFT, RIGHT, DATEDIFF, DAY, UNION, LIKE)

18. Display TransactionID, RoomNumber, CustomerName (obtained from first name and combine it with initial of last name) as “Name”, CheckInDate, and CheckOutDate for each CheckInDate over the last 9 months.
    (CONCAT, LEFT, CHARINDEX, SUBSTRING, DATEDIFF, MONTH, GETDATE)

19. Display StaffID (by replace ‘T’ with uppercase middle character from StaffName) as “StaffID”, StaffName, and StaffGender for every StaffGender is Female and whose name contains ‘a’.
    (REPLACE, UPPER, SUBSTRING, LEN, LIKE)

20. Display TransactionID, CustomerID, Length Of Stay (obtained from count many days are there between the CheckInDate and CheckOutDate also adding “ days” in behind), LateCheckOutHours (obtains from adding “ hours” in behind LateCheckOutHours), Service subtotal (in Rupiah format), Room subtotal (in Rupiah format), Discount (obtains from adding '%' in behind Discount), and Total Price (obtains from adding service subtotal and room subtotal)
    (CONCAT, DATEDIFF, DAY, FORMAT, SUM)

    Files to be collected:

    - Normalization (*.xlsx)
    - Entity Relationship Diagram (*.vpp, *.png)
    - Query (*.sql)