LOMBA KOMPETENSI SISWA SEKOLAH MENENGAH KEJURUAN TINGKAT PROVINSI JAWA BARAT TAHUN 2019



NASKAH SOAL (Terbuka)

Bidang Lomba IT SOFTWARE SOLUTION FOR BUSINESS





PEMERINTAH DAERAH PROVINSI JAWA BARAT DINAS PENDIDIKAN

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PROJECT OVERVIEW

In this Project, you are required to develop an information system following the requirement given on the Project. In general, there will be 4 project resources given to you, which is:

1. ERD and Data Dictionary for Test Project

This will be used to guide you to create the database files. Ensure that all entities created on the database are related with the given ERD, following the relationship and also the criteria in Data Dictionary for each entity!

2. Navigation Diagram for the Application

Use the Navigation Diagram to develop the form interaction inside the application. You are free to add new interaction between forms, without neglecting the defined interaction in this diagram.

3. Example Design (Wireframe) of desired Information System

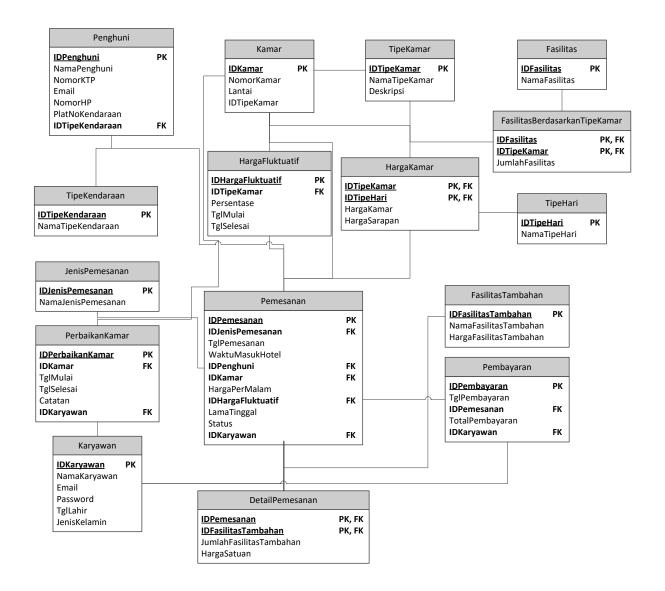
This file is used to give you design guidelines of all required forms. Please note that your form designs are not limited to these examples!

4. Data files (if any)

The data files will be used to support you test and develop the information system on each module. Please use this data files in the development, you are allowed to use another resources outside the given data files only if instructed in the module.

SEMERBAK BUNGA HOTEL INFORMATION SYSTEM

ENTITY RELATIONSHIP DIAGRAM



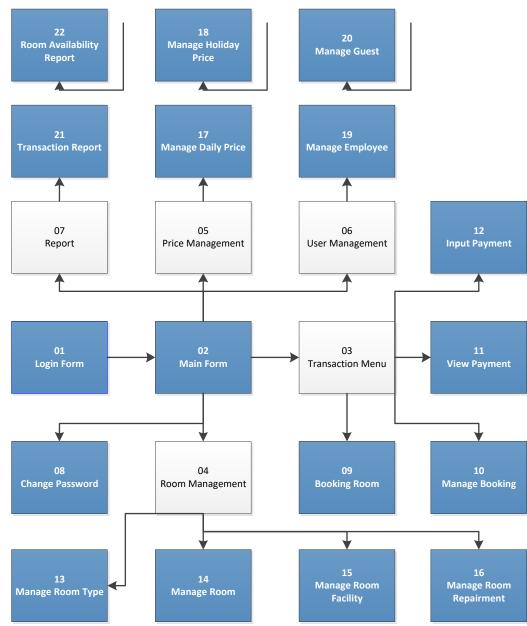
SEMERBAK BUNGA HOTEL INFORMATION SYSTEM DATA DICTIONARY

Tabel	Key	Kolom	Tipe Data	Required?	Notes
TipeKendaraan	PK	IDTipeKendaraan	int	Υ	Auto Increment
		NamaTipeKendaraan	varchar(100)	Υ	
	PK	IDPenghuni	int	Υ	Auto Increment
Penghuni		NamaPenghuni	varchar(100)	Υ	
		NomorKTP	varchar(30)	Υ	
		Email	varchar(100)	Υ	
		NomorHP	varchar(60)	Υ	
		PlatNoKendaraan	varchar(10)	Υ	
	FK	IDTipeKendaraan	int	Υ	Foreign Key From TipeKendaraan
Fasilitas	PK	IDFasilitas	int	Υ	Auto Increment
		NamaFasilitas	Varchar(100)	Υ	
TipeKamar	PK	IDTipeKamar	int	Υ	Auto Increment
		NamaTipeKamar	varchar(100)	Υ	
		Deskripsi	text	Υ	
	PK	IDKamar	int	Υ	Auto Increment
Kamar		NomorKamar	varchar(6)	Υ	
Kaiilai		Lantai	varchar(3)	Υ	
	FK	IDTipeKamar	int	Υ	Foreing Key From TipeKamar
TipeHari	PK	IDTipeHari	int	Υ	Auto Increment
препап		NamaTipeHari	varchar(100)	Υ	
	PK	IDHargaKamar	int	Υ	Auto Increment
	FK	IDTipeKamar	int	Υ	Foreign Key From TipeKamar
HargaKamar	FK	IDTipeHari	int	Υ	Foreign Key From TipeHari
		HargaKamar	int	Υ	
		HargaSarapan	int	Υ	
	PK	IDHargaFluktuatif	int	Υ	Auto Increment
	FK	IDTipeKamar	int	Υ	Foreign Key From TipeKamar
HargaFluktuatif		Persentase	int	Υ	
		TglMulai	Date	Υ	
		TglSelesai	Date	Υ	
Fasilitas Berdasarkan T ipe Kamar	PK, FK	IDFasilitas	int	Υ	Foreign Key From Fasilitas
	PK, FK	IDTipeKamar	int	Υ	Foreign Key From TipeKamar
		JumlahFasilitas	int	Υ	
Fasilitas Tambahan	PK	IDFasilitasTambahan	int	Υ	Auto Increment
		NamaFasilitasTambahan	varchar(100)	Υ	
		HargaFasilitasTambahan	int	Υ	
JenisPemesanan	PK	IDPemesanan	int	Υ	Auto Increment
		NamaJenisPemesanan	varchar(20)	Υ	

Tabel	Key	Kolom	Tipe Data	Required?	Notes
Karyawan	PK	IDKaryawan	int	Υ	Auto Increment
		NamaKaryawan	varchar(100)	Υ	
		Email	varchar(100)	Υ	
		Password	varchar(100)	Υ	
		TglLahir	date	Υ	
		JenisKelamin	char(1)	Υ	P : Female, L : Male
Pemesanan	PK	IDPemesanan	int	Υ	Auto Increment
	FK	IDJenisPemesanan	int	Υ	Foreign Key From JenisPemesanan
		TglPemesanan	Date	Υ	
		WaktuMasukHotel	datetime	Υ	
	FK	IDPenghuni	int	Υ	Foreign Key From Penghuni
	FK	IDKamar	int	Υ	Foreign Key From Kamar
		HargaPerMalam	int	Υ	
	FK	IDHargaFluktuatif	int	N	Foreign Key From HargaFluktuatif
	FK	IDFasilitas Tambahan	int	N	Foreign Key From FasilitasTambahan
		JumlahFasilitasTambahan	int	Υ	-
		LamaTinggal	int	Υ	
		Status	char(1)	Υ	B: Booking, C: Cancel, I: Check-In
	FK	IDKaryawan	int	Υ	Foreign Key From Karyawan
	PK, FK	IDPemesanan	int	Υ	Foreign Key From Pemesanan
Damasana Datail	PK, FK	IDFasilitas Tambahan	int	Υ	Foreign Key From FasilitasTambahan
PemesananDetail		JumlahFasilitasTambahan	int	Υ	
		HargaSatuan	int	Υ	
	PK	IDPembayaran	int	Υ	Auto Increment
		TglPembayaran	date	Υ	
Pembayaran	FK	IDPemesanan	int	Υ	Foreign Key From Pemesanan
	FK	IDKaryawan	int	Υ	Foreign Key From Karyawan
		TotalPembayaran	int	Υ	
	PK	IDPerbaikanKamar	int	Υ	Auto Increment
	FK	IDKamar	int	Υ	Foreign Key From Kamar
DarhaileanKarrer		TglMulai	date	Υ	
PerbaikanKamar		TglSelesai	date	Υ	
		Catatan	text	Υ	
	FK	IDKaryawan	int	Υ	Foreign Key From Karyawan

SEMERBAK BUNGA HOTEL INFORMATION SYSTEM

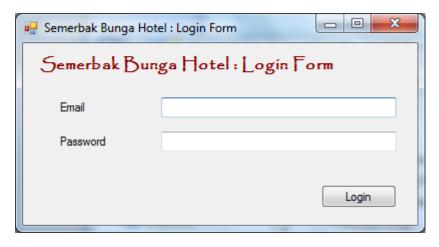
NAVIGATION DIAGRAM



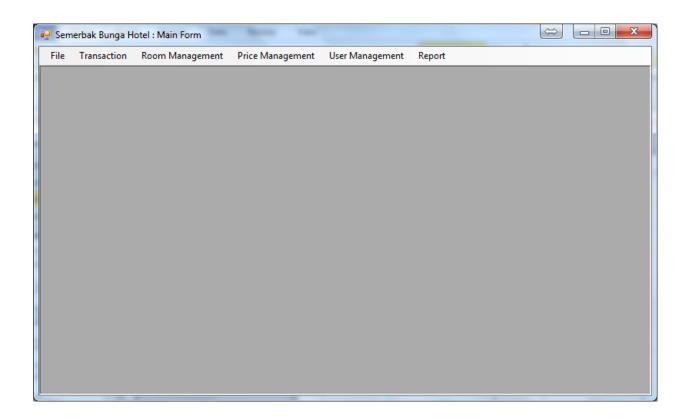
SEMERBAK BUNGA HOTEL INFORMATION SYSTEM

WIREFRAME

01 Login Form

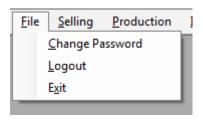


02 Main Form

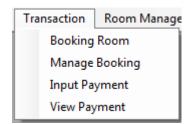


Note:

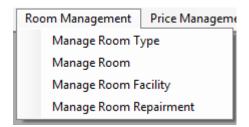
Inside "File" Menu:



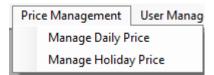
Inside "Transaction" Menu:



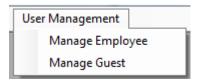
Inside "Room Management" Menu:



Inside "Price Management" Menu:



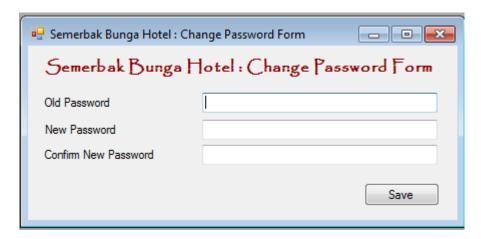
Inside "User Management" Menu:



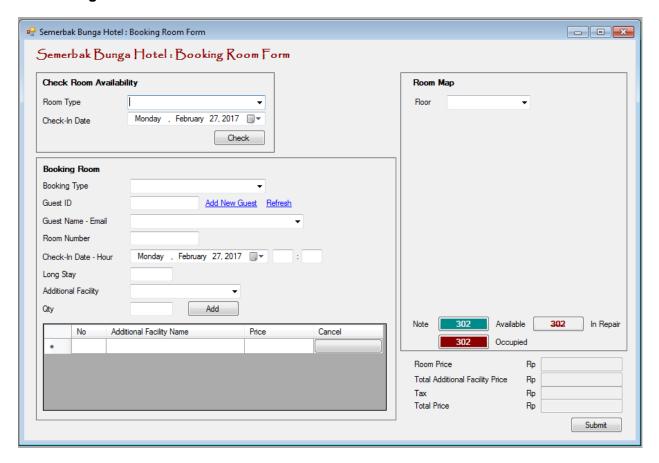
Inside "Report" Menu:



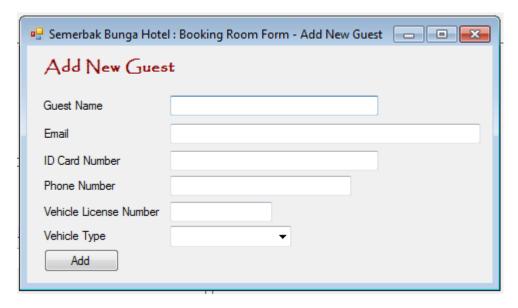
08 Change Password Form



09 Booking Room Form



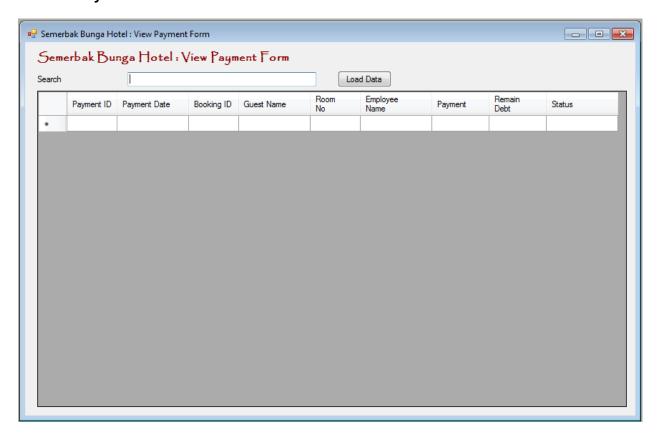
When "Add New Guest" link is clicked, then "Add New Guest" form will be pops up.



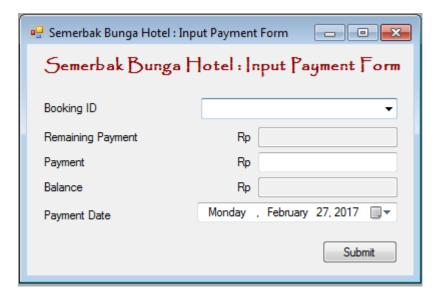
10 Manage Booking Form



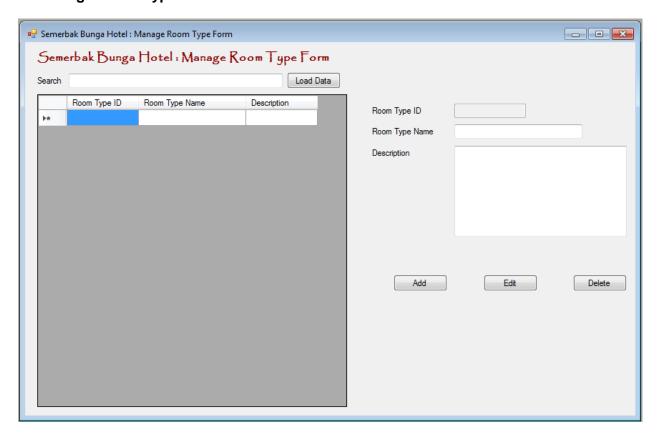
11 View Payment Form



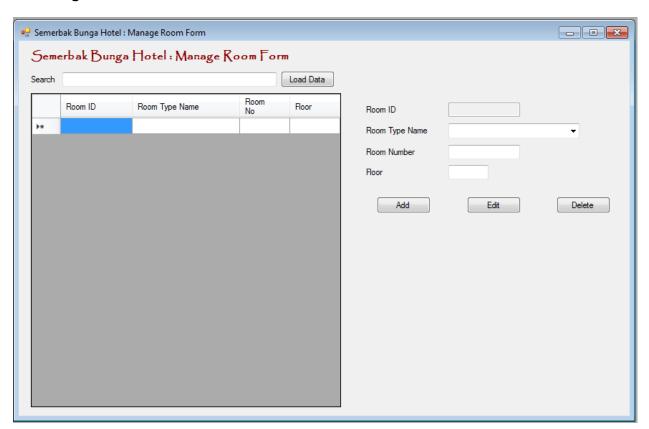
12 Input Payment Form



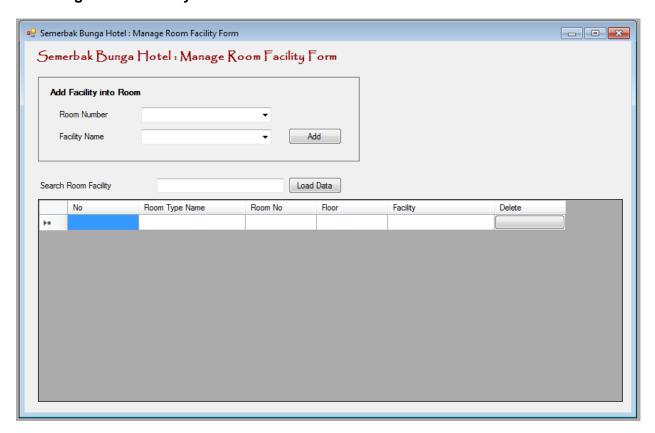
13 Manage Room Type Form



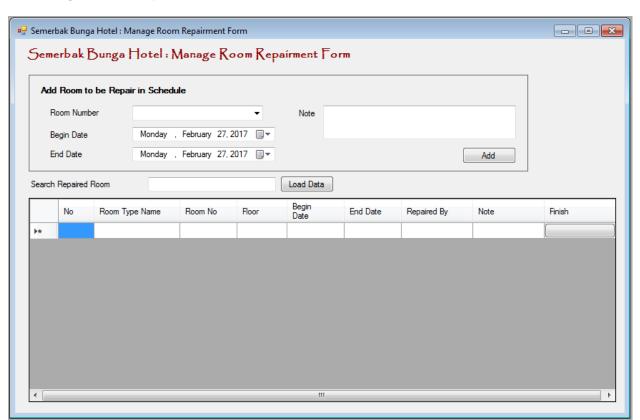
14 Manage Room Form



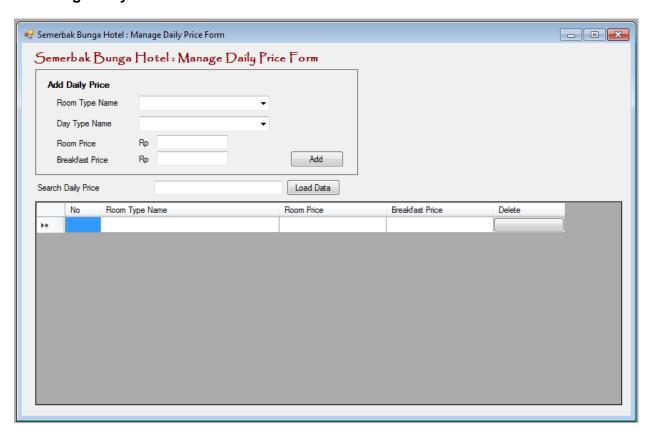
15 Manage Room Facility Form



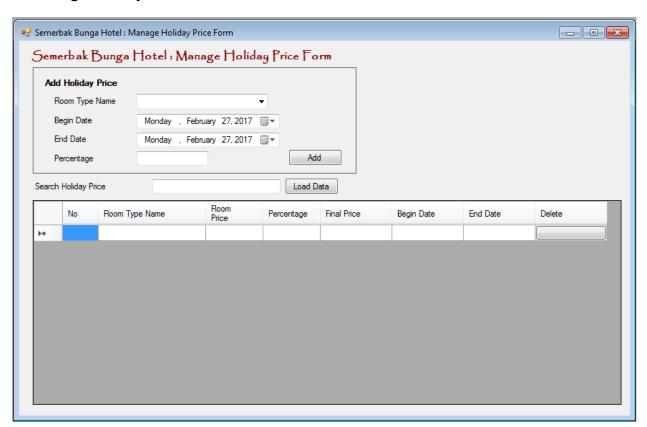
16 Manage Room Repairment Form



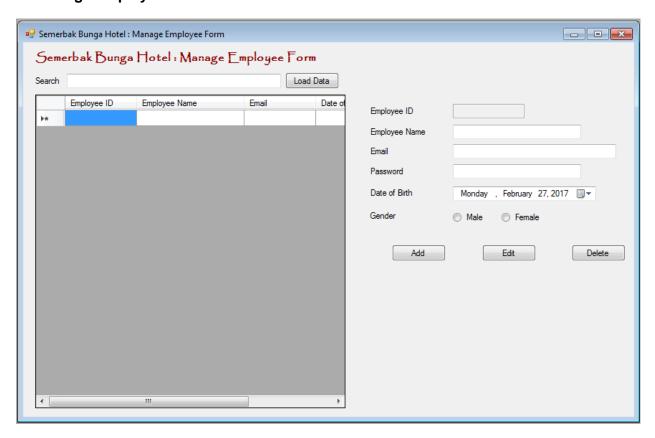
17 Manage Daily Price Form



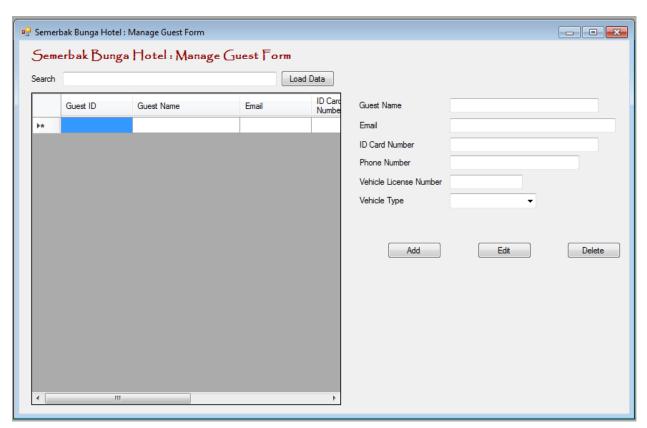
18 Manage Holiday Price Form



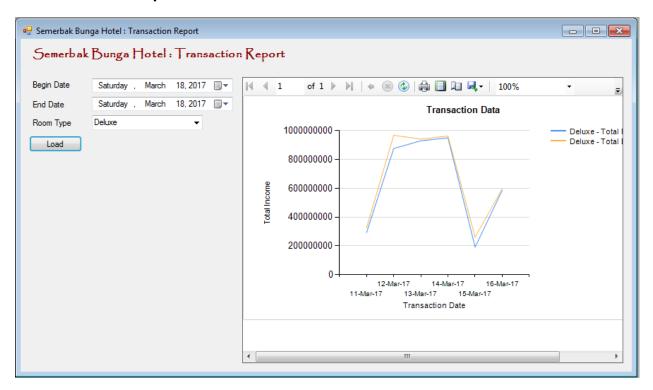
19 Manage Employee Form

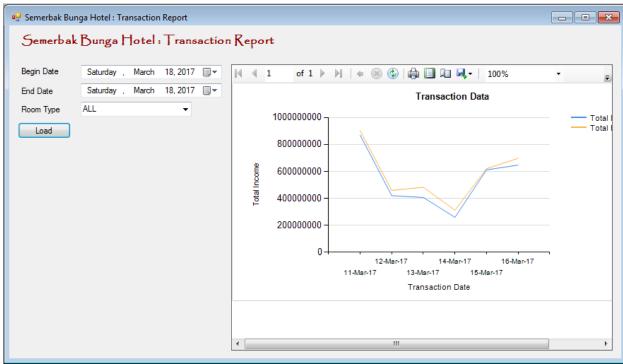


20 Manage Guest Form

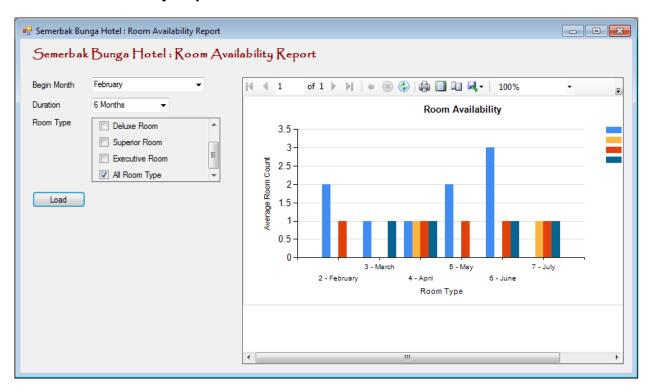


21 Transaction Report





22 Room Availability Report



THE DEVELOPMENT OF

SEMERBAK BUNGA HOTEL INFORMATION SYSTEM

Semerbak Bunga Hotel is a hotel which located in Puncak, Bogor. During the holiday season this hotel is having a hard time to manage the transaction. There are several points that makes tourist comes to this hotel which are the clean and neat room, complete facility, cheap price, and located in very strategic location. As the time passed, the more guest is coming to this hotel and the managerial directors thinks that now is the right time to find out the solution of the problem they got. The problems will be specified down below.

- Booking data only store in a books which only put the name of the guest without state the room type, check-in time, and additional facility needed.
- If another guest coming first then the room which already booked is chosen.
 Because, there is no relation between transaction book and booking book, so the room is still available in the transaction book.

The directors by then decided to hire famous consultant to analyze and design the system, it is the time to develop the system.

Based on the system design given to you, you're required to develop Information system to support the business process of Semerbak Bunga Hotel. Ensure your developed solutions can accommodate Semerbak Bunga Hotel business process properly, following the instruction on the project!

Module 1: Database Development, Data Insertion, and User Interface Design

1. Create the Database

Create a database using your MS SQL Server on the local database server following the ERD and Data Dictionary given to you. Please be aware of the data type and the constraint of each table given.

- a. Create Table TipeKendaraan
- b. Create Table Penghuni
- c. Create Table Fasilitas
- d. Create Table TipeKamar
- e. Create Table Kamar
- f. Create Table TipeHari
- g. Create Table HargaKamar
- h. Create Table HargaFluktuatif
- i. Create Table FasilitasBerdasarkanTipeKamar
- j. Create Table FasilitasTambahan
- k. Create Table JenisPemesanan
- I. Create Table Karyawan
- m. Create Table Pemesanan
- n. Create Table Pembayaran
- o. Create Table PerbaikanKamar

2. Insert the Data

Insert the master data given to you on file "master-data.xlsx" to the related table on your newly created database.

- a. Insert Table TipeKendaraan from Master Data
- b. Insert Table Penghuni from Master Data
- c. Insert Table Fasilitas from Master Data
- d. Insert Table **TipeKamar** from Master Data
- e. Insert Table Kamar from Master Data
- f. Insert Table TipeHari from Master Data
- g. Insert Table HargaKamar from Master Data
- h. Insert Table HargaFluktuatif from Master Data
- i. Insert Table FasilitasBerdasarkanTipeKamar from Master Data
- j. Insert Table FasilitasTambahan from Master Data
- k. Insert Table JenisPemesanan from Master Data
- I. Insert Table Karyawan from Master Data
- m. Insert Table Pemesanan from Master Data
- n. Insert Table **Pembayaran** from Master Data
- o. Insert Table PerbaikanKamar from Master Data

3. Design User Interface

Design user interface for Semerbak Bunga Hotel according to the **wireframe** given above using your preferred platform (C# or Visual Basic.NET). Please be aware of using the right GUI Component used on the wireframe above.

- a. Design Login Form Interface
- b. Design Main Form Interface
- c. Design Change Password Form Interface
- d. Design Booking Room Form Interface
- e. Design Manage Booking Form Interface
- f. Design View Payment Form Interface
- g. Design Input Payment Form Interface
- h. Design Manage Room Type Form Interface
- i. Design Manage Room Form Interface
- j. Design Manage Room Facility Form Interface
- k. Design Manage Room Repairment Form Interface
- I. Design Manage Daily Price Form Interface
- m. Design Manage Holiday Price Form Interface
- n. Design Manage Employee Form Interface
- o. Design Manage Guest Form Interface

Module 2: Master Form Development

1. Create "01 Login Form"

Create the main menu of the application as outlined in "01 Login Form" in the wireframe. Email and password of the employee will be used in order to do login process. During login process, there are several process that needs to be done:

- a. If the email or password does not match the data on database then the program will show a message "Please Try Again, Your Data is not Valid!"
- b. If the login process is success then user will be direct into Main Form and Login Form will be hidden.

2. Create "02 Main Form"

Create the main menu of the application as outlined in "02 Main Form" in the wireframe. This form will be containing all menus which already described on the wireframe above. This form will be acted as a MDI Form or Parent Form where every other form will be comes inside it. Below are the menus which need to be defined on this form:

- a. Change Password, Logout, Exit, Booking Room, Manage Booking, View Payment, Input Payment, Manage Room Type, Manage Room, Manage Room Facility, Manage Room Repairment, Manage Daily Price, Manage Holiday Price, Manage Employee, and Manage Guest.
- Each menu is direct to the right specific form (Such as Logout will close the Main Form and hide it then show the Login Form, for detail process please look at the wireframe given)

3. Create "08 Change Password Form"

Create the main menu of the application as outlined in "**08 Change Password Form**" in the wireframe. Below are the specification process needed of this form:

a. Able to check whether the **old password** is the **right password** on database.

b. When the process done, user password is **updated**.

4. Create "20 Manage Guest Form"

Create the main menu of the application as outlined in "20 Manage Guest Form" in the wireframe. Below are the specification process needed of this form:

- a. Form must be able to load Guest data from database
- b. Button Search is able to be done the searching process where based on guest name, email, or phone.
- c. When Add Button is clicked then the validation process will be running first and then the data will be added on database.
- d. Edit Button is only be able to be clicked after specific row in data grid is clicked then the data will be filled up on the form and after the Edit button is clicked, the data will be updated from database.
- e. Delete Button is only be able to be clicked after specific row in data grid is clicked the data will be filled up on the form and after the delete button is clicked, the data will be deleted from database.

5. Create "21 Manage Employee Form"

Create the main menu of the application as outlined in "21 Manage Employee Form" in the wireframe. Below are the specification process needed of this form:

- a. Form must be able to load employee data from database
- b. Button Search is able to be done the searching process where based on employee name, email, or phone.
- c. When Add Button is clicked then the validation process will be running first and then the data will be added on database.

- d. Edit Button is only be able to be clicked after specific row in data grid is clicked then the data will be filled up on the form and after the Edit button is clicked, the data will be updated from database.
- e. Delete Button is only be able to be clicked after specific row in data grid is clicked the data will be filled up on the form and after the delete button is clicked, the data will be deleted from database..

6. Create "13 Manage Room Type Form"

Create the main menu of the application as outlined in "13 Manage Room Type Form" in the wireframe. Below are the specification process needed of this form:

- a. Form must be able to load room type data from database
- b. Button Search is able to be done the searching process where based on room type name, description, or room type id.
- c. When Add Button is clicked then the validation process will be running first and then the data will be added on database.
- d. Edit Button is only be able to be clicked after specific row in data grid is clicked then the data will be filled up on the form and after the Edit button is clicked, the data will be updated from database.
- e. Delete Button is only be able to be clicked after specific row in data grid is clicked the data will be filled up on the form and after the delete button is clicked, the data will be deleted from database.

7. Create "14 Manage Room Form"

Create the main menu of the application as outlined in "14 Manage Room Form" in the wireframe. Below are the specification process needed of this form:

a. Form must be able to load room data from database

- b. Button Search is able to be done the searching process where based on room type name, description, or room type id.
- c. When Add Button is clicked then the validation process will be running first and then the data will be added on database.
- d. Edit Button is only be able to be clicked after specific row in data grid is clicked then the data will be filled up on the form and after the Edit button is clicked, the data will be updated from database.
- e. Delete Button is only be able to be clicked after specific row in data grid is clicked the data will be filled up on the form and after the delete button is clicked, the data will be deleted from database.

8. Create "15 Manage Room Facility Form"

Create the main menu of the application as outlined in "15 Manage Room Facility Form" in the wireframe. Below are the specification process needed of this form:

- a. Form must be able to load room data join with facility data from database
- Button Search is able to be done the searching process where based on room number, facility name, facility id, or room id.
- c. When Add Button is clicked then the validation process will be running first and then the data will be added on database.
- d. Edit Button is only be able to be clicked after specific row in data grid is clicked then the data will be filled up on the form and after the Edit button is clicked, the data will be updated from database.
- e. Delete Button is only be able to be clicked after specific row in data grid is clicked the data will be filled up on the form and after the delete button is clicked, the data will be deleted from database.

9. Create "16 Manage Room Repairment Form"

Create the main menu of the application as outlined in "16 Manage Room Repairment Form" in the wireframe. Below are the specification process needed of this form:

- a. Form must be able to **load room data and room repairment data** from database
- Button Search is able to be done the searching process where based on room type name, floor, room number, or room type id.
- c. When Add Button is clicked then the validation process will be running first and then the data will be added on database.
- d. Edit Button is only be able to be clicked after specific row in data grid is clicked then the data will be filled up on the form and after the Edit button is clicked, the data will be updated from database.
- e. Delete Button is only be able to be clicked after specific row in data grid is clicked the data will be filled up on the form and after the delete button is clicked, the data will be deleted from database.

Module 3: Transaction Form Development

1. Create "17 Manage Daily Price Form"

Create the main menu of the application as outlined in "17 Manage Daily Price Form" in the wireframe. Below are the specification process needed of this form:

- a. Validate all fields must be filled
- b. Form must be able to load room type data and day type data from database
- Button Search is able to be done the searching process where based on room id, floor, room number, or room type name.

- d. When Add Button is clicked then the validation process will be running first and then the data will be added on database.
- e. Edit Button is only be able to be clicked after specific row in data grid is clicked then the data will be filled up on the form and after the Edit button is clicked, the data will be updated from database.
- f. Delete Button is only be able to be clicked after specific row in data grid is clicked the data will be filled up on the form and after the delete button is clicked, the data will be deleted from database.

2. Create "18 Manage Holiday Price Form"

Create the main menu of the application as outlined in "18 Manage Holiday Price Form" in the wireframe. Below are the specification process needed of this form:

- a. Validate all fields must be filled
- b. Form must be able to load room type data from database
- Button Search is able to be done the searching process where based on room id, floor, room number, or room type name.
- d. When Add Button is clicked then the validation process will be running first and then the data will be added on database.
- e. Edit Button is only be able to be clicked after specific row in data grid is clicked then the data will be filled up on the form and after the Edit button is clicked, the data will be updated from database.
- f. Delete Button is only be able to be clicked after specific row in data grid is clicked the data will be filled up on the form and after the delete button is clicked, the data will be deleted from database.

3. Create "09 Booking Room Form"

Create the main menu of the application as outlined in "12 Input Selling Form" in the wireframe. Below are the specification process needed of this form:

- a. Validate all fields must be filled
- Form must be able to load Room Type Data, Booking Type Data, Availability Room Data (from table transaction such as booking, payment, and repairment)
- c. Form able to load Add New Guest page when the link is clicked and able to ore the guest data
- d. Form able to refresh the guest data when the refresh link is clicked
- e. Form able to add the additional facility data into data grid
- f. Form able to load data into combo box.
- g. Form able to perform the right calculation result.
- h. Form able to store data with the right process when submit button is clicked
- i. Form able to create the design to load the room availability data
- j. Data is inserted to database with the right process

4. Create "10 Manage Booking Form"

Create the main menu of the application as outlined in "10 Manage Booking Form" in the wireframe. Below are the specification process needed of this form:

- a. Booking Data and any related data is load Successfully from database in the right format
- b. Status of booking can be change into cancel whenever the button inside data grid view is clicked and update the status in database after that the button is no longer able to be use.

5. Create "12 Input Payment Form"

Create the main menu of the application as outlined in "12 Input Payment Form" in the wireframe. Below are the specification process needed of this form:

- a. Validate all fields must be filled
- b. Data is inserted to database with the right process

6. Create "11 View Payment Form"

Create the main menu of the application as outlined in "11 View Payment Form" in the wireframe. Below are the specification process needed of this form:

- a. Search function is able to load the data according to the keyword which relevant with payment date, payment id, booking id, guest name, room no, or employee name
- b. When the **first time load**, the data grid view will **load all related data** in the right format.

Module 4: Report

1. Create Transaction Report

Create the main menu of the application as outlined in "21 Transaction Report" in the wireframe. Below are the specification process needed of this form:

- a. Combo box's Room Type is able to load the room type data
- b. When the **specific room type** <u>chose and button load clicked</u>, the report will show the data. If the Room Type is "ALL" then the report will show the data of all transaction from base price and fluctuative price. If the Room Type is specific to one of the room type, then the report only show the specific data.

2. Create Room Availability Report

Create the main menu of the application as outlined in "22 Room Availability Report" in the wireframe. Below are the specification process needed of this form:

- a. Room Type Panel is able to load the room type data in a check box format.
 The Begin Month data is data of Months. The Duration only have value 3, 6,
 9, and 12 Months.
- b. When the specific room type <u>chose and button load clicked</u>, the report will show the data. If the Room Type is "ALL" then the report will show the data of room availability average in each month according to the room type. The average will be calculated by specific formula

total room available by specific room type =

$$\frac{\sum_{i=1}^{days \in month} \left(\frac{RoomAvailablebyRoomType}{TotalRoombyRoomType}\right)}{days \in month}$$

Module 5: Database Analysis, ERD Design and Data Dictionary

Semerbak Bunga Hotel is going to continue the development of their Information System to support another business process focusing on Valet Parking System.

Manually, Valet Parking Process applied in Semerbak Bunga Hotel will be described below.

- 1. Valet Parking Process will be held by Office Boy after the customer has paid.
- Every time the car is drive-in or drive-out, The office boy need to fill customer name,
 Room Number, Car License Number, Name of Office Boy who take care of that car,
 Clock-In/Clock-out, and Day into log book.
- If the customers already check-out, the car will be driven into lobby and by then the valet parking process is not valid for that car anymore, unless the customer check-in again in the hotel.

Giving the simple constraint above, please design the ERD and Data Dictionary to support Delivery Process in Semerbak Bunga Hotel. Please refer to existing ERD and Data Dictionary to develop your design solutions.

Module 6: Preparing and ability to presentation to client

As a company that built this system, it should be have an ability to make a presentation and explain to the target customer such as:

- a. What problem in business case?
- b. What the solution you offer (Semerbak Bunga Hotel System)
- c. Why client should buy/use your product?
- d. What the specifications of the system?