



**LOMBA KOMPETENSI SISWA (LKS) SMK
TINGKAT PROVINSI JAWA TIMUR
TAHUN 2020
BIDANG LOMBA : IT Software
Solution for Business**



DINAS PENDIDIKAN PROVINSI JAWA TIMUR

BIDANG PEMBINAAN PENDIDIKAN SMK

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MARKING SCHEME

The percentage of marking each module is shown in the table below:

MODULE	DESCRIPTION	SCORE (%)
1	Database Creation and Main Form Development	17
2	Master Form Development	20
3	Transaction and Report Forms Development	32
4	ERD Desing and Data Dictionary	15
5	Mobile Application Development	16
TOTAL		100

Spesifications required and details examined are described as follows:

MODULE 1	
1.	Creating physical model of the database
i.	All entities are translated into database objects as instructed in the test project
ii.	Define the relationship between the entities
iii.	All the constraint required are implemented to support the system
2.	Creating Application Main Form (Preferable using MDI Form)
i.	A Login Form works using existing user data and roles (preferable implementing encryption and decryption methods)
ii.	A Navigation Form is used to navigate between form
iii.	Information Form can show instructed information
MODULE 2	
1.	All master form developed can support the business process flow required in the test project
2.	Database query and connection are working correctly
i.	creating connection between application and the database
ii.	query to display data
iii.	query to insert data
iv.	query to update data
v.	query to delete data and check referencial integrities before deleting data

	vi.	query to search data
	vii.	query to sorting data
3.	Auto-searching on Data Tables from text boxes input	
4.	Date and Time Validation	
MODULE 3		
1.	All transaction form developed can support the business process flow required in the test project	
2.	Database query and connection are working correctly:	
	i.	creating connection between application and the database
	ii.	query to display data, Join Table, Aggregate
	iii.	query to insert data
	iv.	query to update data
	v.	query to delete data and check referencial integrities before deleting data
	vi.	query to search data
3.	Programming logic to solve given requirements	
4.	Date and Time Validation	
5.	Date Format	
6.	Number and String Format	
7.	Chart Component in .net	
8.	Report in .NET	
MODULE 4		
1.	Solve the given case by designing Database in Sql Server	
2.	Relationship defining every two participating entities	
3.	Attributes defining the properties of entities	
4.	Cardinality defining number of instance of an entity from a relation that can be associated with the relation	
5.	Providing the Data each table	
MODULE 5		
1.	All mobile application form developed can support the business process flow in the test project.	
2.	Programming logic to solve given requirements	

3.	Number and String Format
4.	Providing connection to SQL Server database so that can display and insert data in the mobile application

TIME SCHEDULE

1. Day One

NO	SCHEDULE	ACTIVITY
1.	08.00 – 08.30	Case Explanation
2.	08.30 – 11.30	Database Creation and Main Form Development
3.	11.30 – 12.30	Break and Submission
4.	12.30 – 13.00	Case Explanation
5.	13.00 – 16.00	Master Form Development

2. Day Two

NO	SCHEDULE	ACTIVITY
1.	08.00 – 08.30	Case Explanation
2.	08.30 – 11.30	Transaction and Report Forms Development
3.	11.30 – 12.30	Break and Submission
4.	12.30 – 13.00	Case Explanation
5.	13.00 – 16.00	ERD Development

3. Day Three

NO	SCHEDULE	ACTIVITY
1.	08.00 – 08.30	Case Explanation
2.	08.30 – 11.30	Mobile Application Development

PROJECT OVERVIEW

In this Test Project, you are required to develop an application following the requirements given on the Test Project. There will be 4 project resources given to you, they are:

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 your test and development of the information system of each module. Please use this data files in the development. You can use other resources outside the given data files, only if it is instructed in the module.

GENERAL GUIDELINES**1. Components**

You have to ensure that all input fields use appropriate components. It is assumed that the testing will be carried out by a new user who never uses this or any similar system before.

2. Database Connection

You use the SQL Server database and apply the following setting for the connection:

Database Name	PC_XX (XX is PC number)
Server	.\SQLEXPRESS
Username	Windows authentication
Password	

3. Answer Submission

At the end of each session, you have to put your submission in the folder, namely PC_XX_MODUL_YY (XX is PC number and YY is session). Your submission must contain, at least:

- ✓ SQL Scripts are to recreate your database in testing machine. The scripts must contain table creation, relationship definition, constraints definition, insert data, and along with other, such as stored procedures, cursors, or views if any. You should rename the file to "PC_XX.sql", where XX is PC number.
- ✓ All source codes.
- ✓ Compiled executable of your application (EXE or APK).
- ✓ Another supplementary file, if any.

4. Special Conditions for Project

- ✓ All DataGridView column can not be added, edited, or deleted manually.
- ✓ All DataGridView cell value can not be added, edited, or deleted manually.

LKS-SMK JATIM HOTEL- DATA DICTIONALRY

Table	PK	FK	Column	Required	Type	Length	Notes
Customer	PK		ID	Yes	Int		Auto Increment / Identity
			Name	Yes	Varchar	50	
			NIK	No	Varchar	50	
			Email	No	Varchar	50	
			Gender	No	Char	1	
			PhoneNumber	No	varchar	20	
			Age	No	Int		
Employee	PK		ID	Yes	Int		Auto Increment / Identity
			Username	Yes	varchar	50	
			Password	Yes	varchar	50	
			Name	Yes	varchar	100	
			Email	Yes	varchar	50	
			Address	Yes	varchar	200	
			DateOfBirth	Yes	date		
		FK	JobID	Yes	Int		
			Photo	Yes	varchar	100	
Item	PK		ID	Yes	Int		Auto Increment / Identity
			Name	Yes	varchar	50	
			RequestPrice	Yes	Int		
			CompensationFee	No	Int		
ItemStatus	PK		ID	Yes	Int		Auto Increment / Identity
			Name	Yes	varchar	50	

FoodsAndDrinks	PK		ID	Yes	Int		Auto Increment / Identity
			Name	Yes	varchar	50	
			Type	Yes	char	1	
			Price	Yes	Int		
			Photo	Yes	varchar	50	
FDCheckOut	PK		ID	Yes	Int		Auto Increment / Identity
		FK	ReservationRoomID	Yes	Int		
		FK	FDID	Yes	Int		
			Qty	No	Int		
			TotalPrice	No	Int		
		FK	EmployeeID	Yes	Int		
Job	PK		ID	Yes	Int		Auto Increment / Identity
			Name	Yes	varchar	50	
Reservation	PK		ID	Yes	Int		Auto Increment / Identity
			DateTime	Yes	datetime		
		FK	EmployeeID	Yes	Int		
		FK	CustomerID	Yes	Int		
			BookingCode	Yes	varchar	6	
ReservationCheckOut	PK		ID	Yes	Int		Auto Increment / Identity
			ReservationRoomID	Yes	Int		
			ItemID	Yes	Int		
			ItemStatusID	Yes	Int		

			Qty	Yes	Int		
			TotalCharge	Yes	Int		
ReservationRequestItem	PK		ID	Yes	Int		Auto Increment / Identity
		FK	ReservationRoomID	Yes	Int		
		Fk	ItemID	Yes	Int		
			Qty	Yes	Int		
			TotalPrice	Yes	Int		
ReservationRoom	PK		ID	Yes	Int		Auto Increment / Identity
		FK	ReservationID	Yes	Int		
		FK	RoomID	Yes	Int		
			StartDateTime	Yes	date		
			DurationNights	Yes	Int		
			RoomPrice	Yes	Int		
			CheckInDateTime	Yes	datetime		
			CheckOutDateTime	Yes	datetime		
Room	PK		ID	Yes	Int		Auto Increment / Identity
		FK	RoomTypeID	Yes	Int		
			RoomNumber	Yes	varchar	50	
			RoomFloor	Yes	varchar	50	
			Description	No	Text		
RoomType	PK		ID	Yes	Int		Auto Increment / Identity
			Name	Yes	varchar	50	
			Capacity	Yes	Int		
			RoomPrice	Yes	Int		



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			Photo	Yes	varchar	100	
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LKS-SMK JATIM – WIREFRAME

01 Login Form

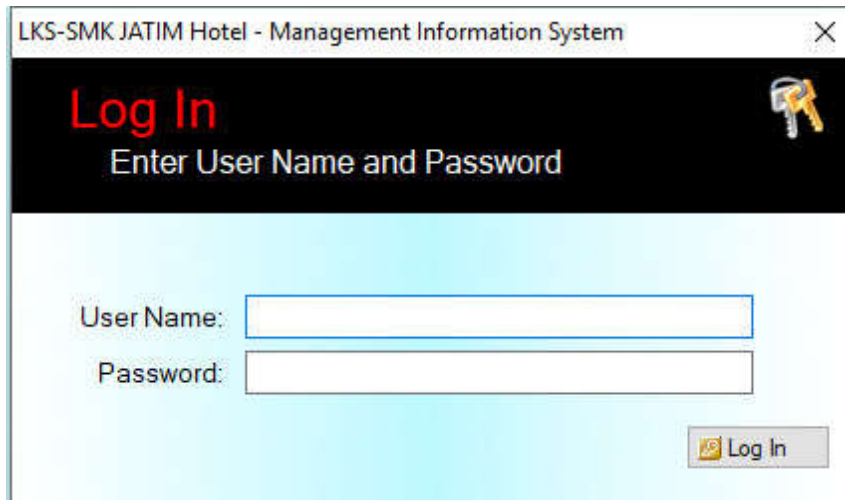


Figure 1. Login Form

02 Main Form

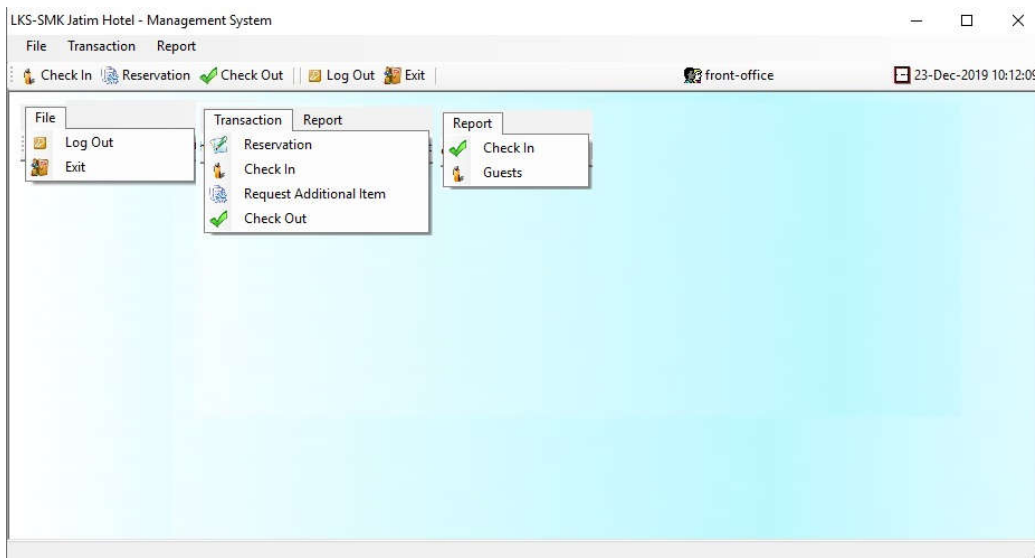


Figure 2. Main Form for Front Office

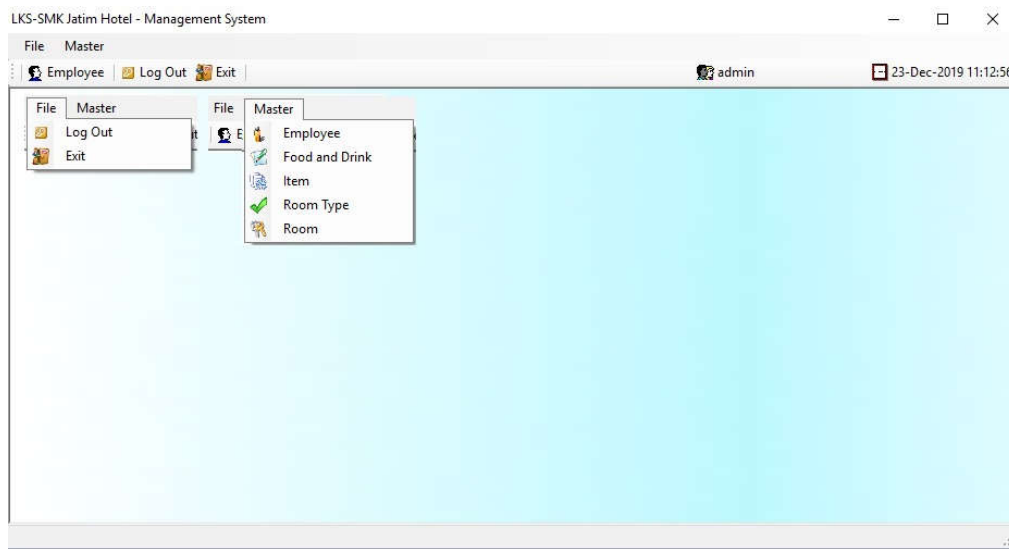


Figure 3. Main Form for Admin

03 Master Room Type

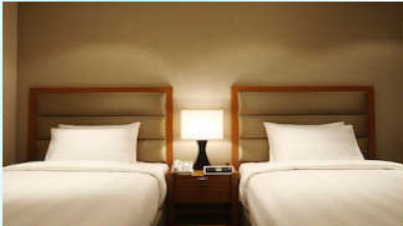
Room Type - Form

Name:

Capacity:

Room Price:

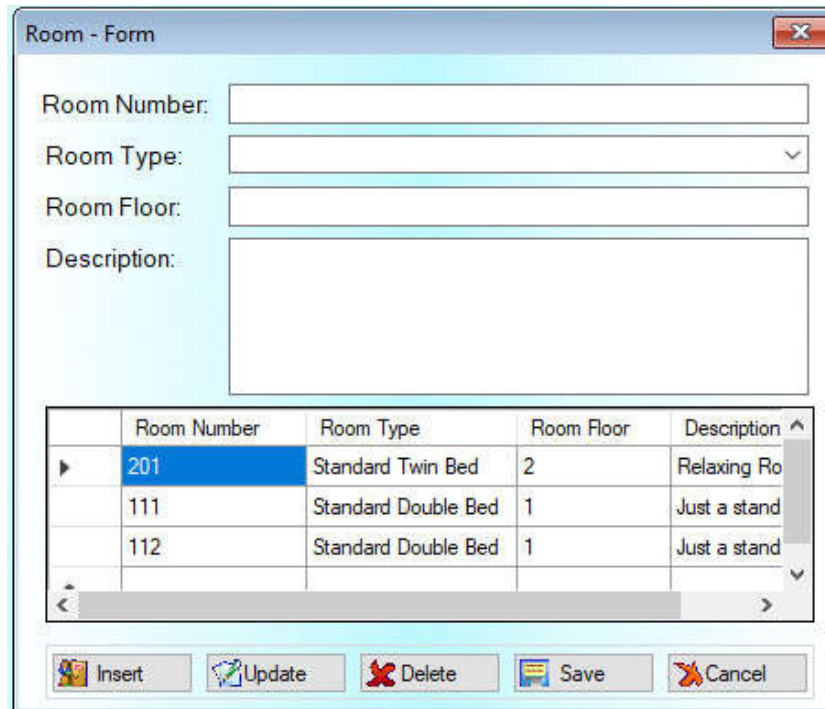
Photo:



	Name	Capacity	RoomPrice
▶	Standard Twin Bed	2	620000
	Standard Double ...	0	1200000
*			

Figure 4. Master Room Type Form

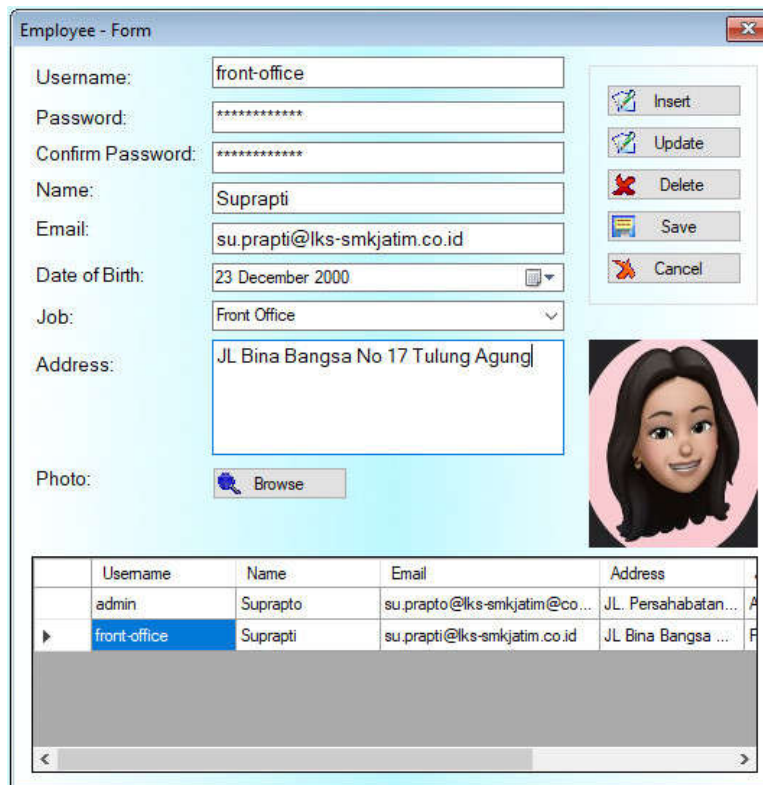
04 Master Room



Room Number	Room Type	Room Floor	Description
201	Standard Twin Bed	2	Relaxing Ro
111	Standard Double Bed	1	Just a stand
112	Standard Double Bed	1	Just a stand

Figure 5. Master Room

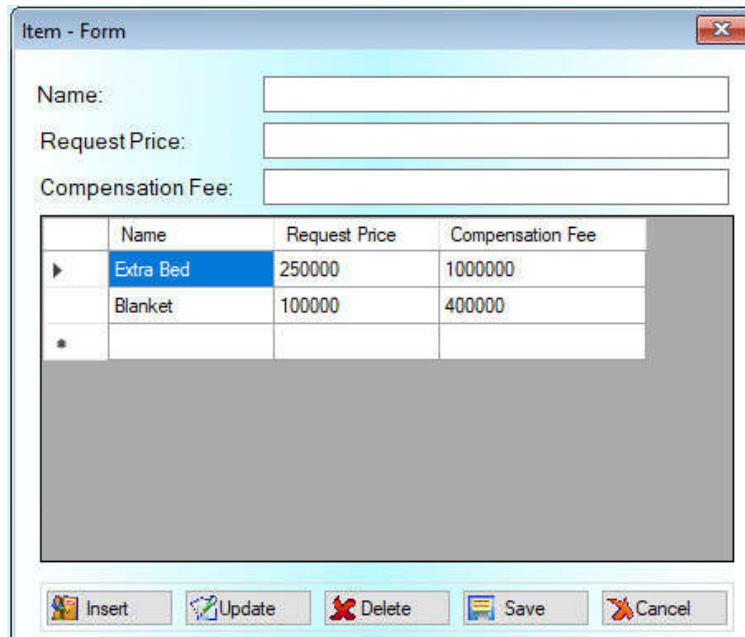
05 Master Employee



Username	Name	Email	Address
admin	Suprpto	su.prpto@lks-smkjatim.co...	JL. Persahabatan...
front-office	Suprpti	su.prpti@lks-smkjatim.co.id	JL Bina Bangsa ...

Figure 6. Master Employee

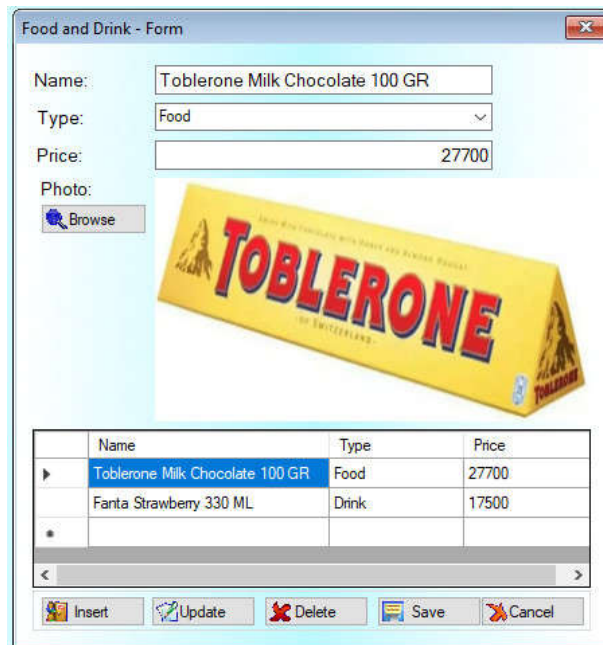
06 Master Item



	Name	Request Price	Compensation Fee
▶	Extra Bed	250000	1000000
	Blanket	100000	400000
*			

Figure 7. Master Item

07 Master Food and Drink



	Name	Type	Price
▶	Toblerone Milk Chocolate 100 GR	Food	27700
	Fanta Strawberry 330 ML	Drink	17500
*			

Figure 8. Master Food and Drink

08 Reservation

Reservation - Form

Customer's Information

☐ Add New ☒ Search Search:

Choose	Name	Email	Gender
<input checked="" type="checkbox"/>	Andi	andi@andi.com	Male
<input type="checkbox"/>	Briana	briana@briana.com	Female
<input type="checkbox"/>	Cipto	catur@catur.com	Male

Reservation's Information

CheckIn Date: 23 December 2019

Staying:

CheckOut Date: 23 December 2019

Room's Information

Room Type: Standard Double Bed

List available rooms:

RoomNumber	RoomFloor	RoomPrice	Description
111	1	1200000	Just a standard ro...

List selected rooms:

RoomNumber	RoomFloor	RoomPrice	Description
112	1	1200000	Just a standard r...

Request Additional Items

Item: Extra Bed Price:

Quantity: 0 Sub Total:

Item	Quantity	Price	Sub Total	Option
Blanket	2	100000	200000	Remove

Total Price: Rp. 1400000

Figure 9. Reservation Form (Search Existing User)

Reservation - Form

Customer's Information

☒ Add New ☐ Search

Customer Name:

NIK:

Email:

Gender: Male

Phone Number:

Date of Birth: 23 December 2019

Reservation's Information

CheckIn Date: 23 December 2019

Staying:

CheckOut Date: 23 December 2019

Room's Information

Room Type: Standard Double Bed

List available rooms:

RoomNumber	RoomFloor	RoomPrice	Description
111	1	1200000	Just a standard ro...

List selected rooms:

RoomNumber	RoomFloor	RoomPrice	Description
112	1	1200000	Just a standard r...

Request Additional Items

Item: Extra Bed Price:

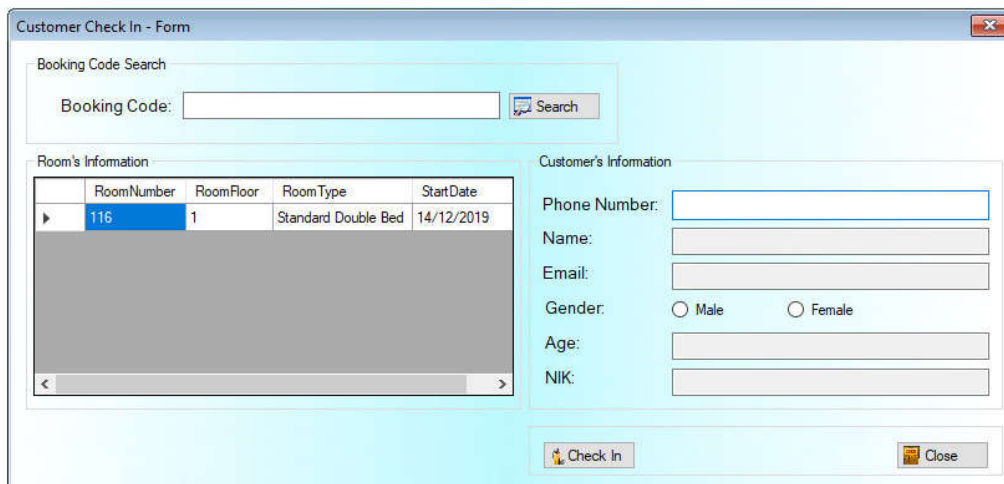
Quantity: 0 Sub Total:

Item	Quantity	Price	Sub Total	Option
Blanket	2	100000	200000	Remove

Total Price: Rp. 1400000

Figure 10. Reservation Form (Add New User)

09 Check In



Customer Check In - Form

Booking Code Search

Booking Code:

Room's Information

RoomNumber	RoomFloor	RoomType	StartDate
116	1	Standard Double Bed	14/12/2019

Customer's Information

Phone Number:

Name:

Email:

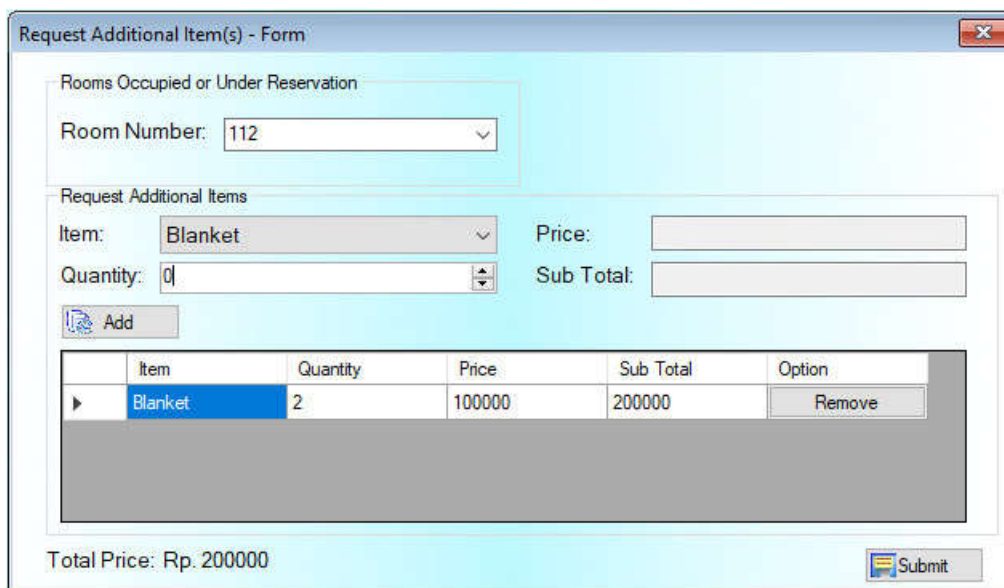
Gender: ☐ Male ☐ Female

Age:

NIK:

Figure 11. Check In Form

10 Request Additional Item(s)



Request Additional Item(s) - Form

Rooms Occupied or Under Reservation

Room Number:

Request Additional Items

Item: Price:

Quantity: Sub Total:

Item	Quantity	Price	Sub Total	Option
Blanket	2	100000	200000	<input type="button" value="Remove"/>

Total Price: Rp. 200000

Figure 12. Request Additional Item(s) Form

11 Check Out

Check Out - Form

Rooms Occupied

Room Number:

Items Detail

Item: Sub Total:

Quantity: Item Status:

Compensation Fee: Add

Item	Quantity	Compensation Fee	Sub Total	Option
Blanket	1	400000	400000	Remove

Total Price: Rp. 400000

Foods and Drinks Detail

Name	Type	Price	Qty	Sub Total	Option
Toblerone Milk Chocolate 100 GR	Food	27700	1	27700	Remove
Fanta Strawberry 330 ML	Drink	17500	2	35000	Remove

Total Price: Rp. 62700

Submit Total Charge: Rp. 462700

Figure 13. Check Out Form

12 Report Form

Check In Preview

Choose One Option to Print Preview

☐ Check In Today

☒ Check In From To

Preview

Figure 14. Report Form

13 Report in Chart Form

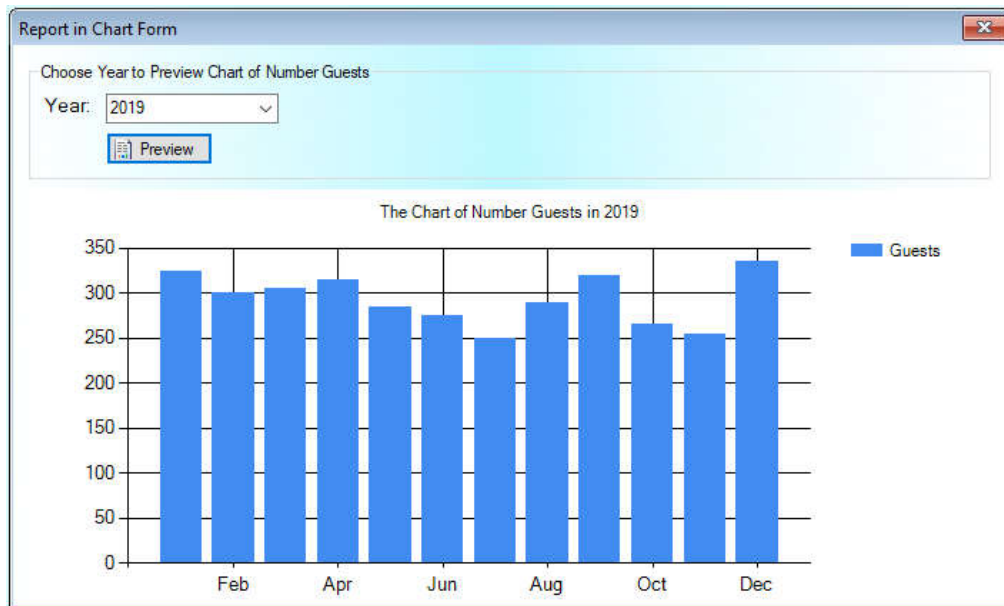


Figure 15. Report in Chart Form

14 Mini Bar

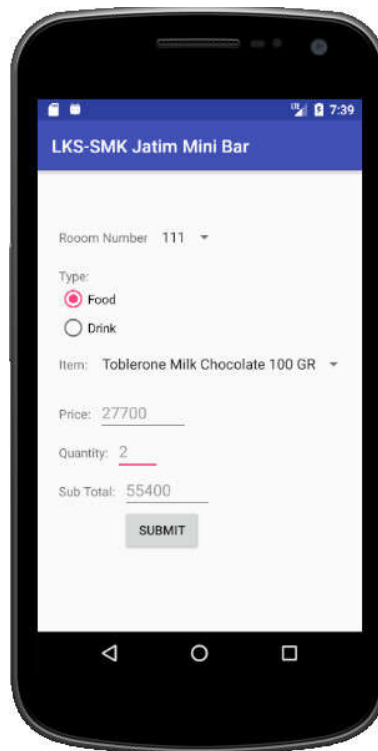


Figure 16. Mini Bar Mobile Application Interface



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THE DEVELOPMENT OF LKS-SMK JATIM HOTEL INFORMATION SYSTEM

LKS-SMK JATIM Hotel is one of the most popular holiday hotels in Indonesia. As the growth of the hotel, the management board believes it is time to use the information system to support their day-to-day operations. You were hired to analyze and design the system as a well-known consultant and programmer.

You will need to build the system based on the development system in question. You need to take a look on the instructions carefully, so that, you are able to meet the needs required.

Module 1: Database Creation and Main Form Development

1. Database and Table Creation

Create a database using Microsoft SQL Server on your local database server named "PC_XX" (XX is PC number). After that, create the table required according to the given ERD and Data Dictionary. Please be aware of the data type and the constraint of each table given.

2. Data Insertion

Insert the master data given to you from "data.xlsx" file into each of the corresponding table on your newly created database.

3. User Interface Design

Design user interface of Grand Hotel system information according to the given wireframe using your preferred platform, either C# or Visual Basic.NET. Your project name should be "PC_XX" (XX is PC number). Please be aware for using the right GUI Component as shown on the wireframe.

4. Develop "01 Login Form"

- Design the form by following "01 Login Form" wireframe.
- All password stored in the database has been hashed using SHA256 algorithm.
- Validate that all input must be filled in.
- Validate that username and password combination exists in the database.

5. Develop "02 Main Form"

- Design the main form by following "02 Main Form" wireframe.
- Menu available will vary according to the user role. Below table shows the role and their available menu.
- You are required to develop the Main Form and buttons to access another menu for each user role. Note that other forms will be created in Module 2.

Module 2: Master Form Development

1. Master Room Type

- a. Design the form by following “03 Master Room Type” wireframe.
- b. Initially the form will have it's:
 - DataGridView filled with all room type data. When a row is clicked, the details of selected row will be displayed in each appropriate component.
 - Button Insert, Update and Delete enabled.
 - Button Save and Cancel disabled.
 - All input component disabled.
- c. When the user clicks Button Insert, the form will enter Insert mode, then:
 - Button Insert, Update and Delete will be disabled.
 - Button Save and Cancel will be enabled.
 - Enable and clear all input components.
- d. When the user clicks Button Update, the form will enter Update mode, then:
 - Button Insert, Update and Delete will be disabled.
 - Button Save and Cancel will be enabled.
 - Enable all input components.
- e. When the user clicks Button Delete, then:
 - Show delete confirmation.
 - On 'Yes', delete the data and the form return into initial condition.
 - On 'cancel', the process will be cancelled, and the form return into initial condition.
- f. When the user clicks Button Save, then:
 - Validate all input value, such as: empty input, proper data type, proper data formatting, and other crucial validations.
 - Perform the action according to the form state, either Insert or Update to the database.
 - Return the form into initial condition.
- g. When the user clicks Button Cancel, then:
 - Cancel previously chosen action.
 - Return the form into initial condition.

- h. When the user clicks Button Browse, then look for an appropriate photo for the Room Type.

2. Master Room

- a. Design the form by following **“04 Master Room”** wireframe.
- b. Initially the form will have it's:
- DataGridView filled with all room data. When a row is clicked, the details of selected row will be displayed in each appropriate component.
 - DropDown Room Type filled in with room type data.
 - Button Insert, Update and Delete enabled.
 - Button Save and Cancel disabled.
 - All input component disabled.
- c. When the user clicks Button Insert, the form will enter Insert mode, then:
- Button Insert, Update and Delete will be disabled.
 - Button Save and Cancel will be enabled.
 - Enable and clear all input components.
- d. When the user clicks Button Update, the form will enter Update mode, then:
- Button Insert, Update and Delete will be disabled.
 - Button Save and Cancel will be enabled.
 - Enable all input components.
- e. When the user clicks Button Delete, then:
- Show delete confirmation.
 - On 'Yes', delete the data and the form return into initial condition.
 - On 'cancel', the process will be cancelled, and the form return into initial condition.
- f. When the user clicks Button Save, then:
- Validate all input value, such as: empty input, proper data type, proper data formatting, and other crucial validations.
 - Perform the action according to the form state, either Insert or Update to the database.
 - Return the form into initial condition.
- g. When the user clicks Button Cancel, then:

- Cancel previously chosen action.
- Return the form into initial condition.

3. Master Employee

- a. Design the form by following “05 Master Employee” wireframe.
- b. Initially the form will have it's:
 - DataGridView filled with employee data. When a row is clicked, the details of selected row will be displayed in each appropriate component.
 - **DropDown Job** is filled with the Job Data (Admin and Front Office).
 - Button Insert, Update and Delete enabled.
 - Button Save and Cancel disabled.
 - All input component disabled.
- c. When the user clicks Button Insert, the form will enter Insert mode, then:
 - Button Insert, Update and Delete will be disabled.
 - Button Save and Cancel will be enabled.
 - Enable and clear all input components.
- d. When the user clicks Button Update, the form will enter Update mode, then:
 - Button Insert, Update and Delete will be disabled.
 - Button Save and Cancel will be enabled.
 - Enable all input components.
- e. When the user clicks Button Delete, then:
 - Show delete confirmation.
 - On 'Yes', delete the data and the form return into initial condition.
 - On 'cancel', the process will be cancelled, and the form return into initial condition.
- f. When the user clicks Button Save, then:
 - Validate all input value, such as: empty input, proper data type, proper data formatting, and other crucial validations.
 - Perform the action according to the form state, either Insert or Update to the database.
 - Return the form into initial condition.
- g. When the user clicks Button Cancel, then:

- Cancel previously chosen action.
 - Return the form into initial condition.
- h. When the user clicks Button Browse, then look for an appropriate photo for the user.

4. Master Item

- a. Design the form by following “**06 Master Item**” wireframe.
- b. Initially the form will have it's:
- DataGridView filled with item data. When a row is clicked, the details of selected row will be displayed in each appropriate component.
 - DropDown Job filled in with job data.
 - Button Insert, Update and Delete enabled.
 - Button Save and Cancel disabled.
 - All input component disabled.
- c. When the user clicks Button Insert, the form will enter Insert mode, then:
- Button Insert, Update and Delete will be disabled.
 - Button Save and Cancel will be enabled.
 - Enable and clear all input components.
- d. When the user clicks Button Update, the form will enter Update mode, then:
- Button Insert, Update and Delete will be disabled.
 - Button Save and Cancel will be enabled.
 - Enable all input components.
- e. When the user clicks Button Delete, then:
- Show delete confirmation.
 - On 'Yes', delete the data and the form return into initial condition.
 - On 'cancel', the process will be cancelled, and the form return into initial condition.
- f. When the user clicks Button Save, then:
- Validate all input value, such as: empty input, proper data type, proper data formatting, and other crucial validations.
 - Perform the action according to the form state, either Insert or Update to the database.
 - Return the form into initial condition.

g. When the user clicks Button Cancel, then:

- Cancel previously chosen action.
- Return the form into initial condition.

5. Master Food and Drink

a. Design the form by following “07 Master Food and Drink” wireframe.

b. Initially the form will have it's:

- DataGridView filled with all room type data. When a row is clicked, the details of selected row will be displayed in each appropriate component.
- **Drop Down Type** is filled with **Food** and **Drink**.
- Button Insert, Update and Delete enabled.
- Button Save and Cancel disabled.
- All input component disabled.

c. When the user clicks Button Insert, the form will enter Insert mode, then:

- Button Insert, Update and Delete will be disabled.
- Button Save and Cancel will be enabled.
- Enable and clear all input components.

d. When the user clicks Button Update, the form will enter Update mode, then:

- Button Insert, Update and Delete will be disabled.
- Button Save and Cancel will be enabled.
- Enable all input components.

e. When the user clicks Button Delete, then:

- Show delete confirmation.
- On 'Yes', delete the data and the form return into initial condition.
- On 'cancel', the process will be cancelled, and the form return into initial condition.

f. When the user clicks Button Save, then:

- Validate all input value, such as: empty input, proper data type, proper data formatting, and other crucial validations.
- Perform the action according to the form state, either Insert or Update to the database.
- Return the form into initial condition.



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- g. When the user clicks Button Cancel, then:
 - Cancel previously chosen action.
 - Return the form into initial condition.
- h. When the user clicks Button Browse, then look for an appropriate photo for the Room Type.

Module 3: Transaction Form and Reports Form Development

1. Reservation

- a. Design the form by following “**08 Reservation**” wireframe.
- b. **Initially**, the condition of the form is:
 - DropDown Room Type is filled in with room type data.
 - RadioButton Search is selected.
 - DropDown Item is filled in with all items.
- c. **DataGridView Available Rooms** shows available room whose type matched with DropDown Room Type. The DataGridView will be reloaded everytime DropDown Room Type is changed. Make sure that available room is validated with all other reservation data on the selected period.
- d. When the user clicks **Button >>**, the selected available room will be added to the booking list.
- e. When the user clicks **Button <<**, the selected room will be removed from booking list then added into the available room list.
- f. When RadioButton Search is active, TextBox Search can be used to search existing user by name and display the result into DataGridView Customer Data. The whole rooms booked, then will be booked under the checked user. Only one user can be checked from the DataGridView Customer Data.
- g. When the user clicks **Button Add** then:
 - The data will be shown in the DataGridView Additional Item.
 - Same item cannot be added twice, instead it will update the quantity.
- h. User can remove additional item from DataGridView Additional Item by clicking remove button in each row.
- i. Update Total Price label each time there is any change in the Total Price. The Total price is calculated as follow:

$$TotalPrice = \left(\sum_1^n roomPrice_n \times numberOfNight_n \right) + \left(\sum_0^m itemPrice_m \times quantity_m \right)$$

Where n is number of booked room and m is number of added additional items.

- j. When the user clicks **Button Submit** then:

- Validate that all input required has been filled
- Insert the reservation data into the database
- Display success message and booking code. The booking code should be an unique uppercase alphanumeric of six characters.

2. Check In

- a. Design the form by following “09 Check In” wireframe.
- b. When the user clicks **Button Search**, then display all rooms that booked under the input search into DataGridView Room Details. Display only rooms that has not been checked in yet. If all rooms have been checked in, show an error message. If the input booking code is not found, then show an error message.
- c. When the user type in TextBox Phone Number, check with the existing user data. If a match is found, then:
 - Auto fill the remaining input field.
 - Any changes made into the field, will be updated into the customer data during the check in process.

If no phone number match is found, then the user must fill in the remaining field and this data will be counted as a new customer.
- d. When the user clicks Button Check In:
 - Save the check in data and update or insert the customer data into the database.
 - Reload DataGridView Room Details.

3. Request Additional Item(s)

- a. Design the form by following “10 Request Additional Item(s)” wireframe.
- b. **DropDown Room Number** is filled in with all room number currently under reservation or has guest staying in.
- c. DropDown Item is filled in with all items data.
- d. When the user clicks Button Add then:
 - The data will be shown in the DataGridView Additional Item.
 - Same item cannot be added twice, instead it will update the quantity.
- e. User can remove additional item from DataGridView Additional Item by clicking remove button in each row.
- f. Update Total Price label each time there is any change in the Total Price.

The Total price is calculated as follow:

$$TotalPrice = \left(\sum_0^m itemPrice_m \times quantity_m \right)$$

Where m is number of added additional items.

- g. When the user clicks Button Submit then:
- Validate that all input required has been filled
 - Insert the additional item(s) data into the database

4. Check Out

- a. Design the form by following “11 Check Out” wireframe.
- b. **DropDown Room Number** is filled in with all room number has guest staying in.
- c. DropDown Item shows all items data.
- d. DropDown Item Status is filled in with all available item status (BROKEN, LOST, CHANGED, etc).
- e. When the user clicks Button Add then:
 - The data will be shown in the DataGridView Item.
 - Same item cannot be added twice, instead it will update the quantity.
- f. User can remove item from DataGridView Item by clicking remove button in each row.
- g. Update Total Price label each time there is any change in the Total Price.

The Total price is calculated as follow:

$$TotalPrice = \left(\sum_0^m itemPrice_m \times quantity_m \right)$$

Where m is number of added items.

- h. The DataGridView of Foods and Drinks Detail is filled with data from the **FDCheckOut** table by applying the filtering of room number according to selected value of the **Room Number DropDown**. Data stored in the FDCheckOut table are results of the Mini Bar transactions which have been conducted using a Mobile Application.
- i. When the user clicks Button Submit, save the check out data into the database.

5. Report Form

- a. Design the form by following “12 Report Form” wireframe.

- b. The default value of **Check In Today Text Box** is current date.
 - c. The default value of both **Check In From DateTimePicker** are current date.
 - d. The default value of **Check In Today Text Box** is current date.
 - e. When the user clicks **Preview Button**, the system should display all guests who have checked in according to a date or ranges date selected. The information required to preview are as follows: Order Number, Reservation Date, Booking Code, Guest Name, Room Type Name, Room Number, Room Price, Check-In Date, Check-Out Date, and Days Long. **The Report Viewer control of Visual Studio** is used to preview the data.
6. **Report in Chart Form**
- a. Design the form by following “**13 Report in Chart Form**” wireframe.
 - b. The default value of **Year Combo Box** is current year.
 - c. When the user clicks **Preview Button**, the system should count a total-number of guests who have checked in according to a year selected and grouped by months..

Module 4: Database Development

The Hotel managements are eager to attract more guests and to increase the level of room occupancy. Therefore, they intend to add a new feature of group reservation to their existing hotel information system. Group booking is used to connect several bookings under a common group leader who may or may not be staying at the hotel. The leader might be a visitor or a corporation that is billed and invoiced directly.

Group reservation can be divided into two categories: SIMPLE and COMPLEX. SIMPLE group will have the same length of stay, type of room and type of rate. COMPLEX will have different room and rate types for guest members. For the SIMPLE type, the invoice will be discounted to 5%, while the discount will be 10% to the invoice of complex type.

As the system analyst, you are required to produce:

- a. Database design in the form of Entity Relationship Diagram (ERD). Make sure that your ERD provide relationship and multiplications between tables. Your submission should be named **"PC_XX.vsdX"** (XX is PC number).
- b. Data dictionary in excel. Your submission should be named **"PC_XX.xlsx"** (XX is PC number).
- c. SQL script to create the tables and sample data (minimum 5 for each table). Your submission should be named **"PC_XX.sql"** (XX is PC number). Also, you are required to create a database namely **DB_XX** (XX is PC number), tables and give example data minimum 5 data per table in SQL Server.
- d. Wireframe of the proposed new system. Your submission project name should be named **"PC_XX_Modul4.docx"** (XX is PC number).

Module 5: Mobile Application Development

1. Mini Bar

- a. Design the form by following “**14 Mini Bar**” wireframe.
- b. **DropDown Room Number** is filled in with all room number has guest staying in.
- c. **DropDown Item** will be filled in with items data from the FoodsAndDrinks table according to a filter-value Food or Drink based on the selected Item radio-button above.
- d. The item selected from the **DropDown Item** also sets a value of the **Price** input field. This field is read-only.
- e. When a user types on the **Quantity** input field, then, the **Sub Total field** is automatically calculated with the multiplication between the **Price** and **Quantity** Fields.
- f. When a user clicks the **Submit** button:
 - Show confirmation dialog.
 - On submit, insert the data into the **FDCheckOut** table via API, show a success message and clear the form.