

LKS SMK
Tingkat Nasional Ke-XXV
Tahun 2017



LKS SMK

Tingkat Nasional XXV
2017

Soal

BIDANG LOMBA

IT-Software Application



KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN

DIREKTORAT JENDERAL PENDIDIKAN MENENGAH

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PROJECT OVERVIEW

In this Test Project, you are required to develop an information system following the requirement given on the Test 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.

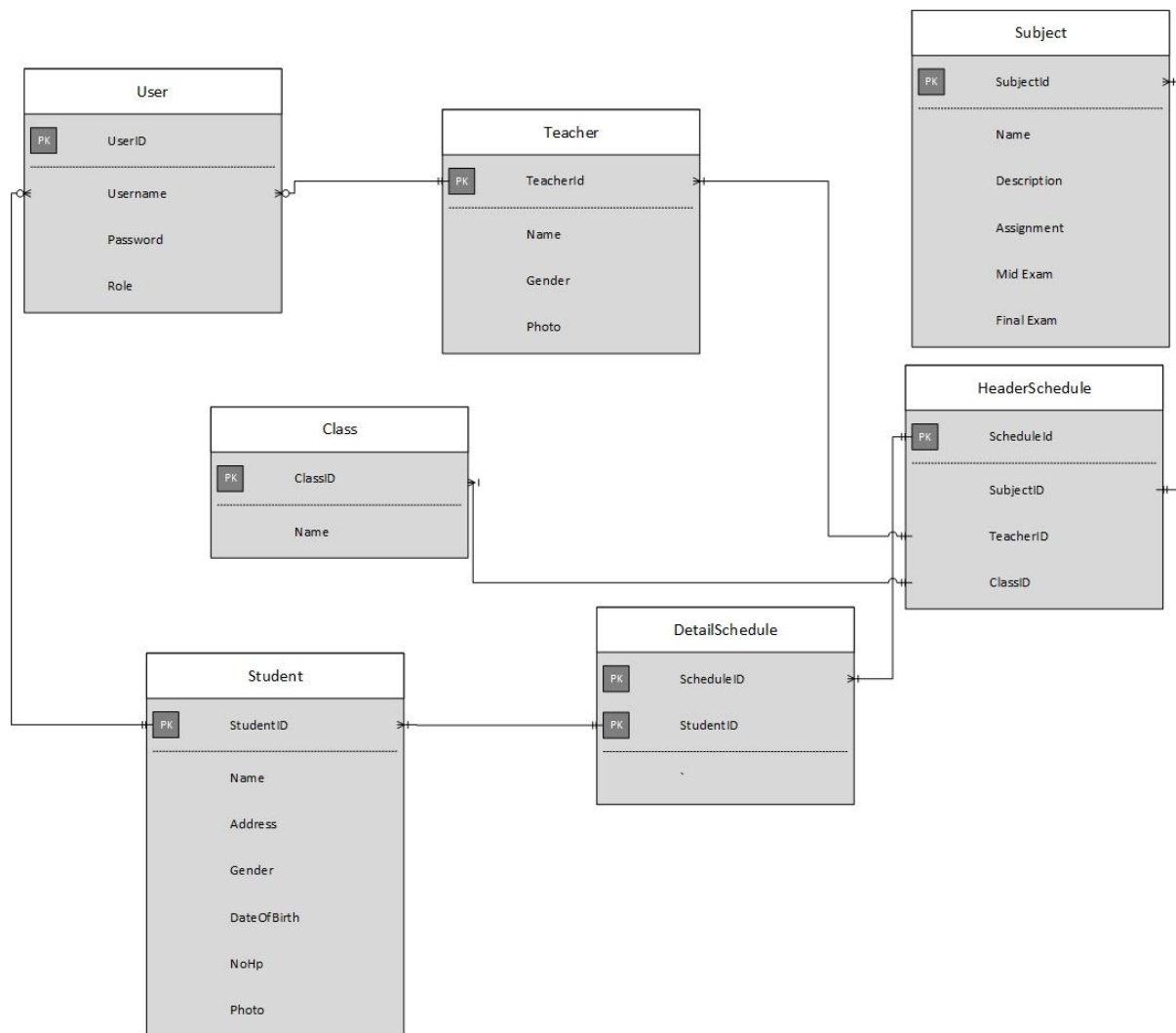
3. Example Design (Wireframe) of desired Information System

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.

ENTITY RELATIONSHIP DIAGRAM



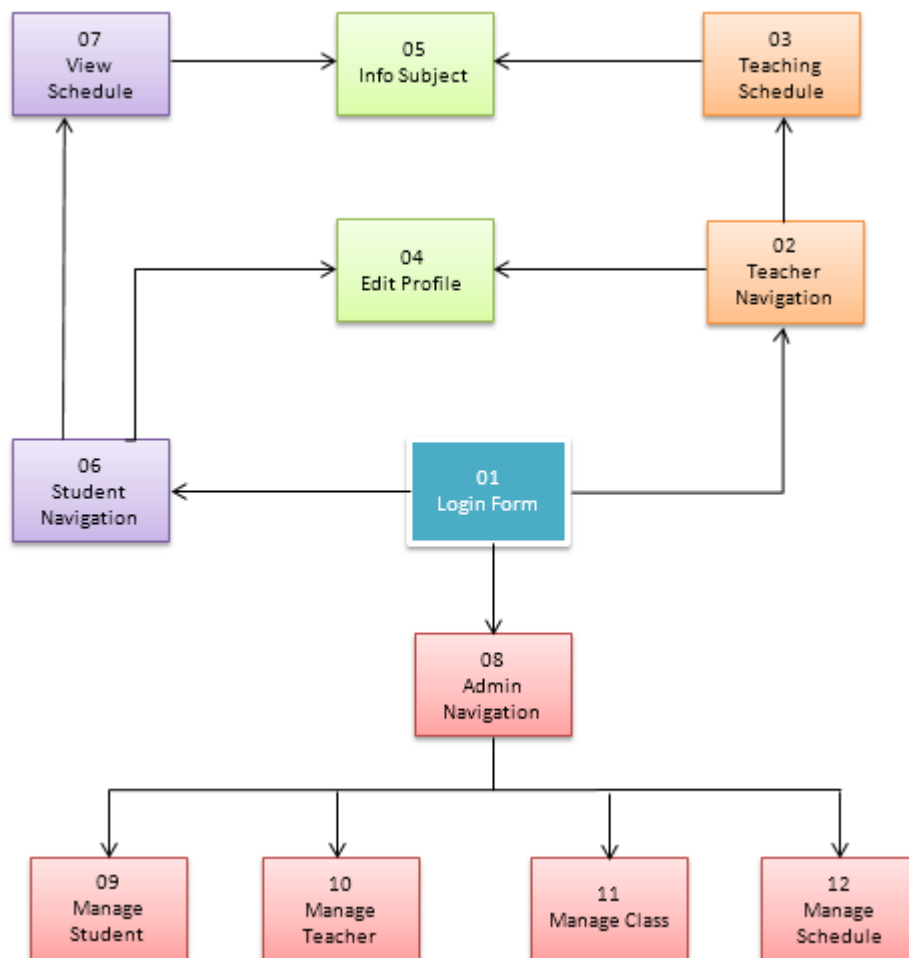
SMK NUSANTARA INFORMATION SYSTEM

DATA DICTIONARY

Tabel	KEY	Kolom	Tipe Data	Required?	Notes
Teacher	PK	TeacherID	INTEGER	Y	Auto Increment
		Name	VARCHAR(50)	Y	
		Gender	VARCHAR(7)	Y	
Subject	PK	SubjectID	INTEGER	Y	Auto Increment
		Name	VARCHAR(50)	Y	
		Description	Text	Y	
		Assignment	INTEGER	Y	
		Mid Exam	INTEGER	Y	
		Final Exam	INTEGER	Y	
Class	PK	ClassID	INTEGER	Y	Auto Increment
		Name	VARCHAR(50)	Y	
Student	PK	StudentID	INTEGER	Y	Auto Increment
		Name	VARCHAR(50)	Y	
		Address	Text	Y	
		Gender	VARCHAR(7)	Y	
		DateofBirth	DATE	y	
		NoHp	VARCHAR(12)	y	
User	PK	userid	INTEGER	Y	Auto Increment
	FK	username	VARCHAR(20)	y	
		password	VARCHAR(20)	y	
		Role	VARCHAR(10)	Y	
HeaderSchedule	PK	ScheduleID	INTEGER	Y	Auto Increment
	FK	SubjectID	INTEGER	Y	
	FK	TeacherID	INTEGER	Y	
	FK	ClassID	INTEGER	Y	
DetailSchedule	PK, FK	ScheduleID	INTEGER	Y	
	PK, FK	StudentID	INTEGER	Y	

SMK NUSANTARA INFORMATION SYSTEM

NAVIGATION DIAGRAM



SMK NUSANTARA INFORMATION SYSTEM

WIREFRAME

01 Login Form

The wireframe shows a window titled 'FrmLogin' with a standard Windows-style title bar (minimize, maximize, close buttons). The main content area has a light gray background. At the top center, the text 'SMK Nusantara' is displayed. Below this, there are two labels: 'username' and 'password', each followed by a white rectangular input field. At the bottom center, there is a button labeled 'Login'.

02 Teacher Navigation Form

The wireframe shows a window titled 'TeacherNavigation' with a standard Windows-style title bar (minimize, maximize, close buttons). The main content area has a light gray background. At the top, the text 'Welcome, [Teacher Name]' is displayed. Below this, there are three buttons stacked vertically: 'Edit Profile', 'Teaching Schedule', and 'Logout'.

03 Teaching Schedule Form

The screenshot shows a Windows application window titled "FrmViewScheduleTeacher". Inside the window, there are two tables and a button.

Teaching Schedule

	Subject ID	Subject	Class Name	Day	Time
	MP001	Matematika I	SMK 1A	Monday	08:00 - 12:00
▶	MP001	Matematika I	SMK 1B	Monday	12:00 - 16:00
	MP002	Matematika II	SMK 2A	Monday	08:00 - 12:00
	MP003	Matematika III	SMK 3A	Monday	08:00 - 12:00
*					

Student List

	Student ID	Student Name	Gender
▶	201600001	Mami	Female
	201600002	Sonja Tabun	Female
	201600003	Bryan Sentosa	Male
	201600004	Honda Katsuki	Male
	201600005	Merry	Female
	201600006	Brandon Wijaya	Male
	201600007	Marco	Male
	201600008	Elsa	Female
	201600009	Windy	Female

View Subject Info

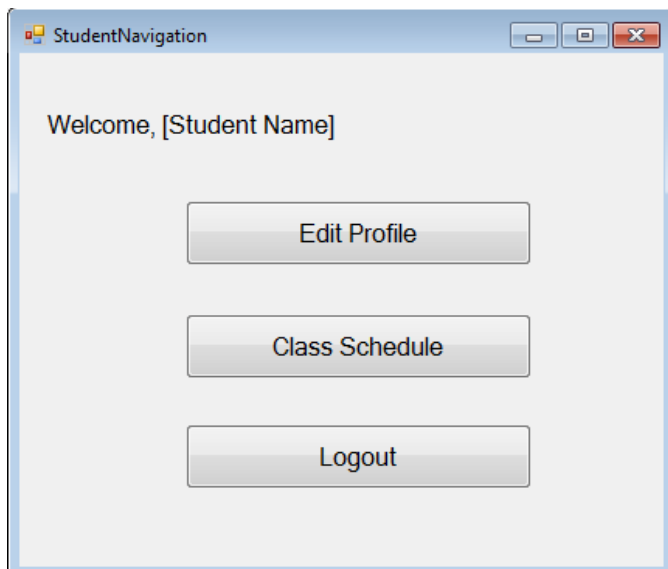
04 Edit Profile Form

The screenshot shows a Windows application window titled "FrmEditProfile". Inside the window, the title "Form Profile" is centered at the top. Below the title is a placeholder for a profile picture, represented by a white silhouette on a gray square background. Underneath the picture placeholder are several input fields: "Student ID" (a single-line text box), "Student Name" (a single-line text box), "Address" (a multi-line text box), "Date Of Birth" (a date picker showing "Wednesday, October 19, 2016"), and "Phone Number" (a single-line text box). At the bottom of the form are two buttons: "Save" and "Cancel".

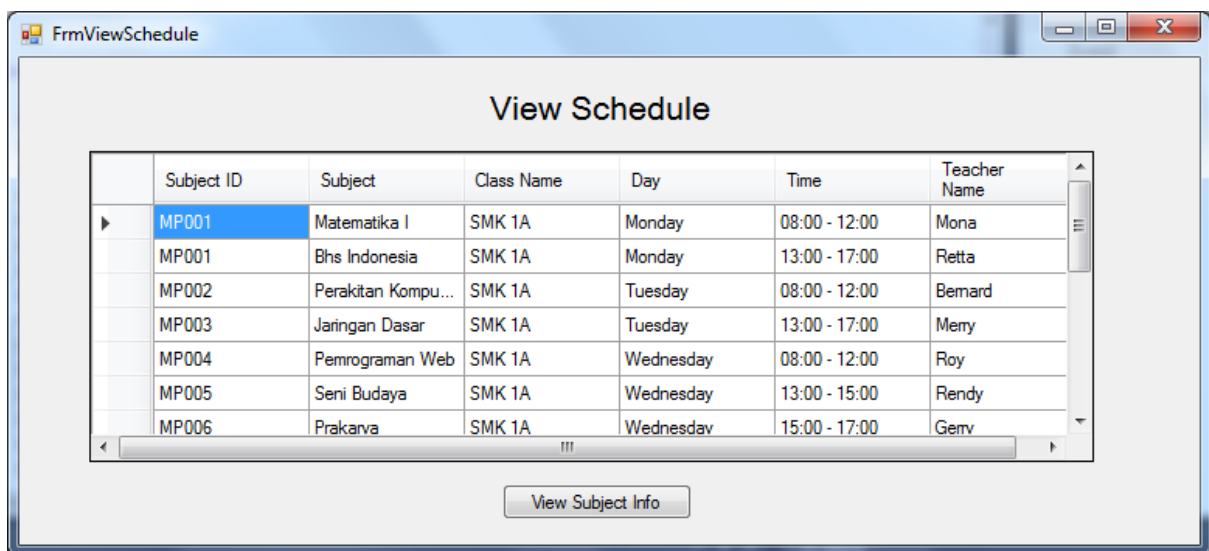
05 Info Subject Form

The screenshot shows a Windows application window titled "FrmSubjectInfo". The main heading "Web Programming" is centered. Below the heading is a paragraph of text: "In This Subject, We will learn about how to make web site with html and css as client side. After that we will learn about php as server side programming". Further down, the section "Composition Assessment" is displayed in bold. Below this section, the assessment breakdown is listed: "Assignment : 20%", "Mid Exam : 30%", and "Final Exam : 20%".

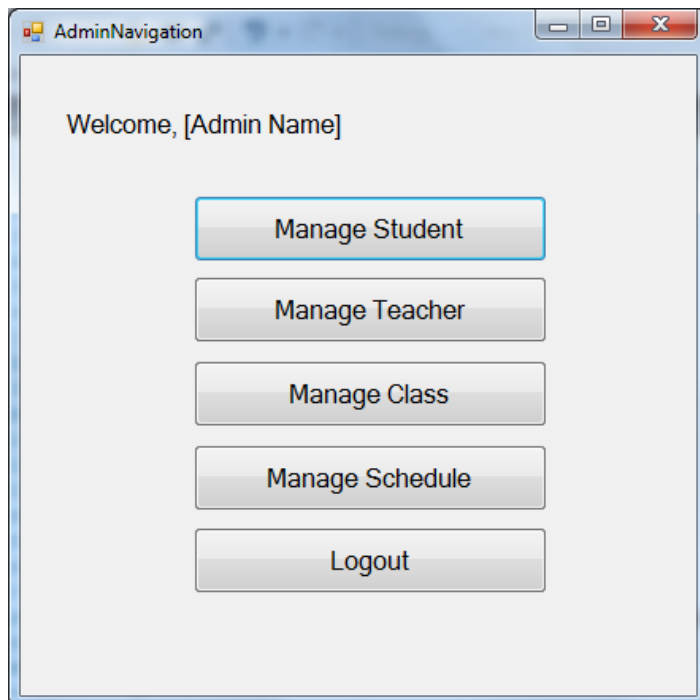
06 Student Navigation Form



07 View Schedule Form

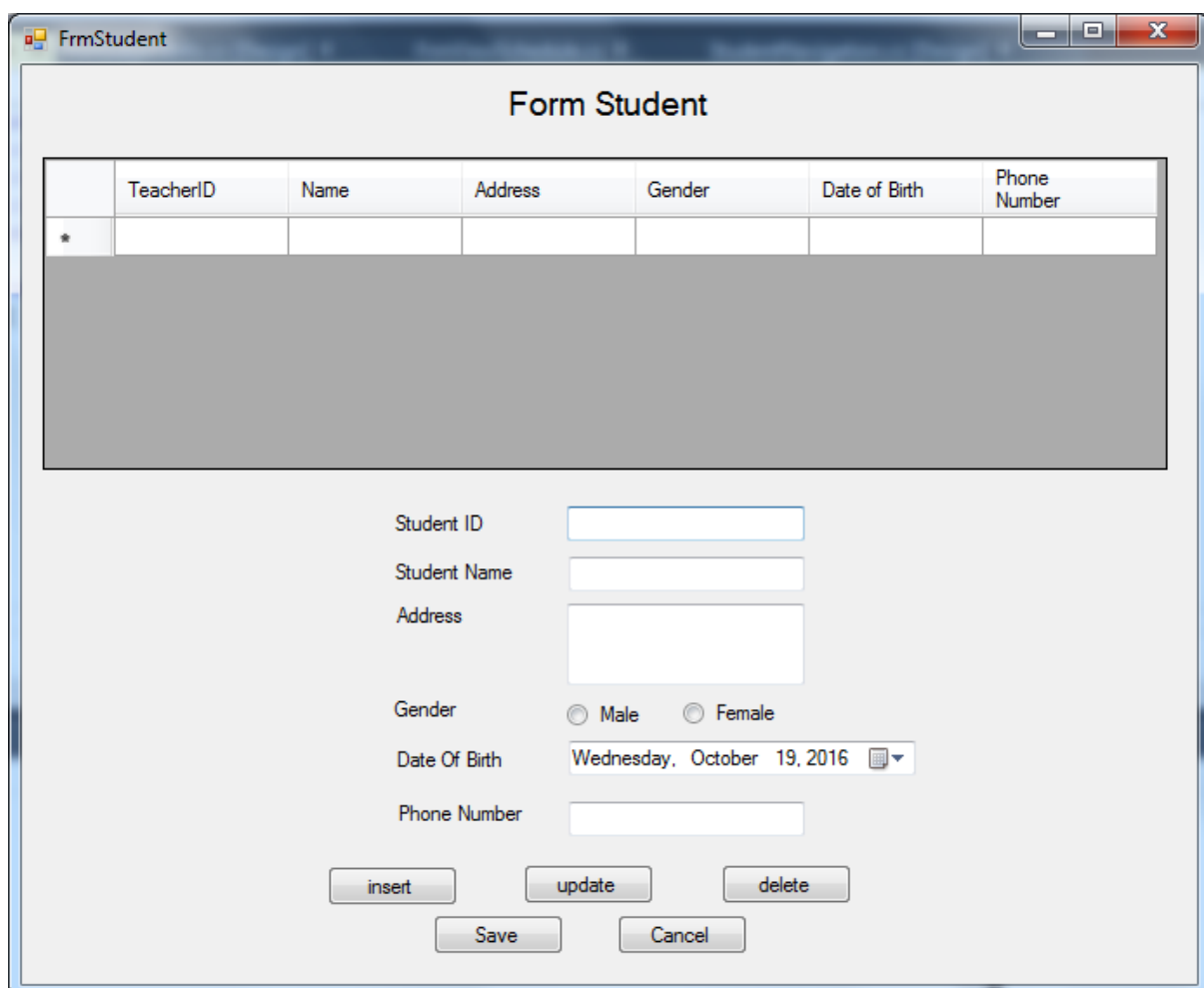


08 Admin Navigation Form



A screenshot of a Windows application window titled "AdminNavigation". The window has a standard Windows title bar with minimize, maximize, and close buttons. The main content area displays a welcome message "Welcome, [Admin Name]" at the top. Below the message, there are five buttons arranged vertically: "Manage Student", "Manage Teacher", "Manage Class", "Manage Schedule", and "Logout". The "Manage Student" button is highlighted with a blue border.

09 Manage Student Form



A screenshot of a Windows application window titled "FrmStudent". The window has a standard Windows title bar. The main content area is titled "Form Student" and contains a table with the following columns: TeacherID, Name, Address, Gender, Date of Birth, and Phone Number. The first row of the table is highlighted with a grey background and contains a star icon in the first column. Below the table, there are input fields for Student ID, Student Name, Address, Gender (with radio buttons for Male and Female), Date Of Birth (with a calendar icon), and Phone Number. At the bottom of the form, there are five buttons: "insert", "update", "delete", "Save", and "Cancel".

	TeacherID	Name	Address	Gender	Date of Birth	Phone Number
*						

10 Manage Teacher Form

The screenshot shows a window titled "FrmTeacher" with a subtitle "Form Teacher". It contains a table with columns: TeacherID, Name, Address, Gender, Date of Birth, and Phone Number. The first row is highlighted in blue. Below the table are input fields for Teacher ID, Teacher Name, Address, Gender (with radio buttons for Male and Female), Date Of Birth (with a calendar icon), and Phone Number. At the bottom are buttons for insert, update, delete, Save, and Cancel.

	TeacherID	Name	Address	Gender	Date of Birth	Phone Number
▶*						

Teacher ID:

Teacher Name:

Address:

Gender: ☐ Male ☐ Female

Date Of Birth: Wednesday, October 19, 2016

Phone Number:

insert update delete

Save Cancel

11 Manage Class Form

The screenshot shows a window titled "Manage Class Form" with a subtitle "Class Name". It contains a dropdown menu for Class Name. Below it are two tables: "Student List" and "Participate Student". The "Student List" table has columns: Student ID, Name. The "Participate Student" table has columns: Student ID, Student Name. Between the tables are buttons for ">>" and "<<".

Class Name:

Student List

	Student ID	Name
▶*		

Participate Student

	Student ID	Student Name
*		

>> <<

12 Manage Schedule Form

Form Schedule

	Subject ID	Subject	TeacherID	Teacher Name	Class Name	Day	Time
*							

Subject ID

Teacher ID

Class ID

Day

Time

THE DEVELOPMENT OF SMK NUSANTARA INFORMATION SYSTEM

SMK NUSANTARA is one of Indonesia famous vocational school located in Malang, East Java. As the school growth, the Headmaster thinks it is the time to use Information System to support their business process for scheduling process. After hiring 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 scheduling for SMK Nusantara. Ensure your developed solutions can accommodate SMK Nusantara business process properly, following the instruction on the project!

Module 1: Database Creation and Main Form Development

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.

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.

3. Create Application

Create an application using your preferred platform (C# or Visual Basic.NET).

4. Create "01 Login Form"

Create the main menu of the application as outlined in "**01 Login Form**" in the wireframe.

- Ensure all field must be filled.

5. Create "02 Teacher Navigation Form"

Create the main menu of the application as outlined in "**02 Teacher Navigation Form**" in the wireframe.

- Ensure this form just can be accessed by Teacher

6. Create “06 Student Navigation Form”

Create the main menu of the application as outlined in “**06 Student Navigation Form**” in the wireframe.

- Ensure this form just can be accessed by Student

7. Create “08 Admin Navigation Form”

Create the main menu of the application as outlined in “**08 Admin Navigation Form**” in the wireframe.

- Ensure this form just can be accessed by Admin

Module 2: Master Form Development

1. Create “09 Manage Student Form”

Create the main menu of the application as outlined in “**09 Manage Student Form**” in the wireframe.

- Ensure the form all Student data stored inside the database
- Ensure all data are filled before adding or updating the data..
- The Add New, Edit Data, and Delete Data button are functioned correctly.
- As for Save and Cancel button, it only enabled when the user choose to Edit the Data, and should be on the proper state, if the user are editing the data cancel button should cancel the edited data.

2. Create “10 Manage Teacher Form”

Create the main menu of the application as outlined in “**10 Manage Teacher Form**” in the wireframe.

- Ensure the form can list all Teacher data stored inside the database
- Ensure all data are filled before adding or updating the data.
- The Add Data, Edit Data, and Delete Data button are functioned correctly.
- As for Save and Cancel button, it only enabled when the user choose to Edit the Data, and should be on the proper state, if the user are editing the data cancel button should cancel the edited data.

3. Create “11 Manage Class Form”

Create the main menu of the application as outlined in “11 Manage Class Form” in the wireframe.

- Ensure the form can list all Student data stored inside the database
- Ensure The Program can add Student to the class.

Module 3: Master and Transaction Form Development

1. Create “12 Manage Schedule Form”

Create the main menu of the application as outlined in “**12 Manage Schedule Form**” in the wireframe.

2. Create “07 View Schedule”

Create the main menu of the application as outlined in “**07 View Schedule Form**” in the wireframe.

- Ensure the form can list all Student Schedule data stored inside the database

3. Create “03 Teaching Schedule Form”

Create the main menu of the application as outlined in “**03 Teaching Schedule Form**” in the wireframe.

4. Create “05 Info Subject Form”

Create the main menu of the application as outlined in “**05 Info Subject Form**” in the wireframe.

5. Create “04 Edit Profile Form”

Create the main menu of the application as outlined in “**04 Edit Profile Form**” in the wireframe.

Module 4: ERD Design and Data Dictionary

SMK Nusantara is going to continue the development of their Information System to support another business process of the school. The next phases are going to develop the system for a simple SMK Nusantara Store.

SMK Nusantara Store is a store that sells for school needs for school community in SMK Nusantara. Example of goods sold are book, pencil, pen, etc. Usually, an Employee will take a note for every transaction. In that note, the cashier will write about, who is the customer, what is the item, quantity and price for each item, date of transaction, etc.

Another thing to analyze, SMK Nusantara want to know about how many remaining stock that left in the store. After that, SMK Nusantara want to record how many benefit that they get from certain period

As an analyst, you are asked for create ERD, Data Dictionary and table in SQL Server 2014 to support all system that needed in SMK Nusantara Store.

Module 5: Result Form, ERD and Data Dictionary

1. Create “Data Table”

Create data for each table that you made in **module 4**. Minimal 5 data for each table

2. Create “Application”

Create Application based on your ERD.

1. Ensure your application can handle all business process in SMK Nusantara Store
2. The application must connect with your database that you have made in **module 4**.
3. Make Form Validation that needed in your application, for an example “all data must be filled”