

## Criterion D: Product design—Overall structure

The screenshots below highlight some of the structures or designs approved by Mr. Atul Alex (Client).

### ① OVERALL STRUCTURE FOR ATTENDANCE

#### SYSTEM IN MYSQL DATABASE

##### ① DATA TABLE 1: LOGIN INFORMATION

②	③	④	⑤
idLoginInfo	USERNAME	PASSWORD	
1	ABISTEACHER1	TEAM1	
2	ABISTEACHER2	TEAM2	
3	ABISTEACHER3	TEAM3	
4	ABISTEACHER4	TEAM4	
5	ABISTEACHERS	TEAM5	

② A YELLOW KEY INDICATES THIS AS A PRIMARY KEY. THIS IS AN INTEGER VALUE DATA TYPE USED TO MAKE EACH ENTRY UNIQUE AND AVOID DUPLICATIONS.

③, ④, ⑤ DIFFERENT COLUMNS OF THE TABLE. COLUMN ③ AND ④ ARE OF STRING DATA TYPE. THIS IS CALLED "VARCHAR(45)" DATATYPE IN MYSQL.

QUERY INPUT TO VIEW THE ABOVE TABLE IN THE DATABASE:

“select \* from abisattendancesystem.logininformation;”

⑤ A QUERY IS A STATEMENT OR COMMAND MADE IN MYSQL DATABASE. THE COMMAND ABOVE TAKES THE DATA FROM TABLE CALLED "logininformation" IN THE DATABASE "abisattendancesystem" AND DISPLAYS IT.

# ① OVERALL STRUCTURE FOR ATTENDANCE PROGRAM IN VISUAL BASIC

ENTRIES IN BOXES ⑦, ⑧ MATCHED + ENTRIES MYSQL DATABASE.

## FORM 1: LOGIN PAGE

⑤ PICTURE BOX:

THIS IS USED TO SHOW PICTURES AND IMAGES. THIS IS WHERE THERE WILL BE THE SCHOOL'S LOGO.

②, ⑧ TEXT BOXES:

TEXT BOXES ARE USED TO GET INPUT FROM THE USER. IN THIS CASE, THE USER IS ASKED FOR USERNAME AND PASSWORD.

① LABEL: USED TO DISPLAY TEXT. THIS IS A WELCOME MESSAGE.

② LABEL: HERE A LABEL IS USED TO PROVIDE INSTRUCTIONS. SAME IS APPLIED FOR LABELS ③ AND ④.

⑥ BUTTON: INITIALLY SET TO DISABLED IF NO TEXT IN USERNAME OR PASSWORD TEXT BOXES. ①

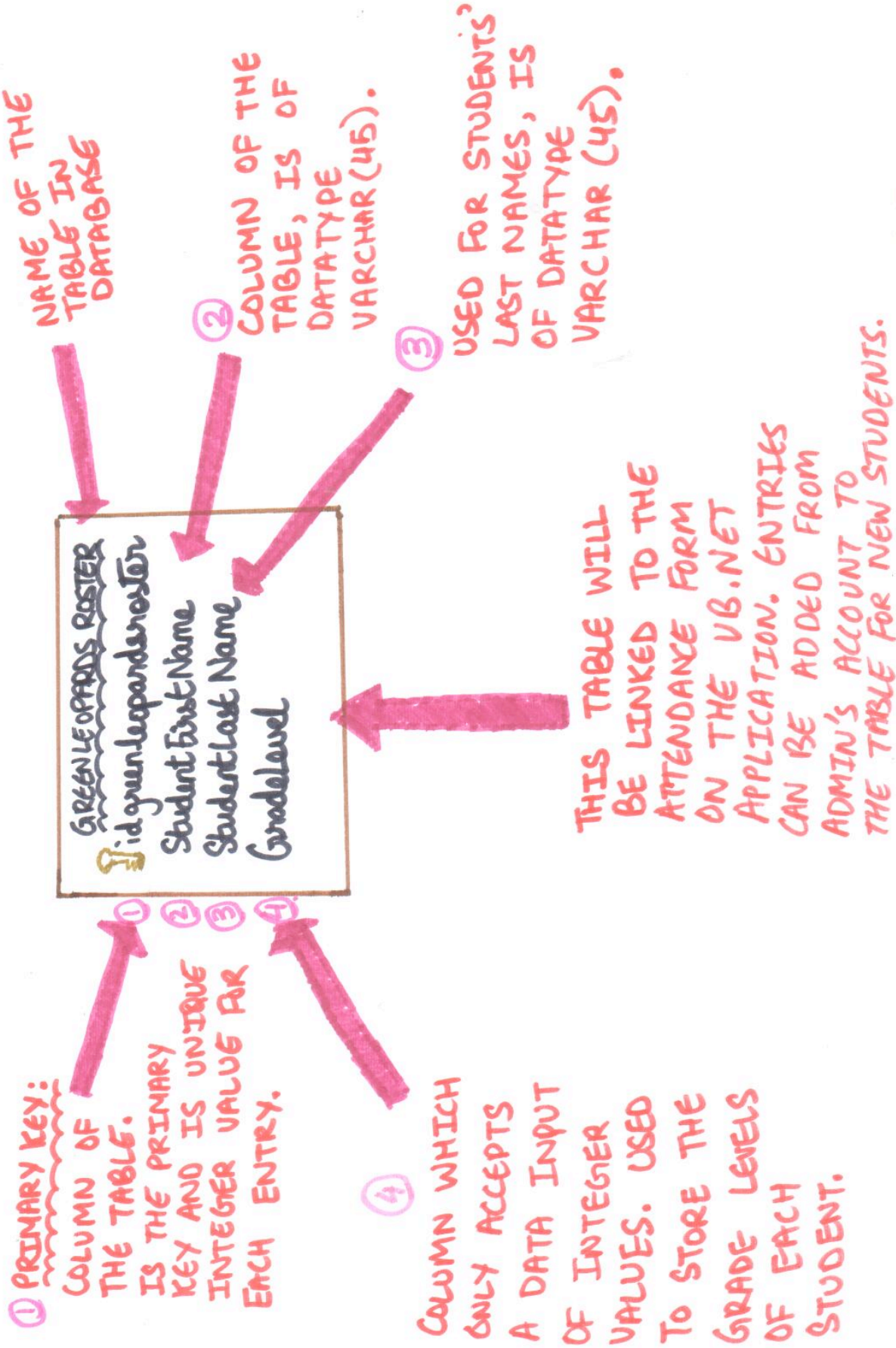
⑥ BUTTON: IF USERNAME & PASSWORD ARE CORRECT THEN ATTENDANCE FORM OPENS UP.



③

## ② OVERALL STRUCTURE FOR ATTENDANCE

### SYSTEM IN MYSQL DATABASE



# OVERALL STRUCTURE FOR ATTENDANCE

## PROGRAM IN VISUAL BASIC

④

② DROPDOWN LIST: USED TO GIVE USER OPTIONS TO CHOOSE FROM ITEMS.

DATE PICKER:

DATE:

PICK A DATE IN A CALENDAR.

②

MON, NOV 16, 2016

JAN 2016

00	00	00	00	00	00
00	00	00	00	00	00
00	00	00	00	00	00
00	00	00	00	00	00

PRESENT
ABSENT
LATE

ASSIGN TO ALL.

SUBMIT

⑥

④

PICTURE

NAME  
GRADE

DISPLAY ROSTER

③ PICBOX: WHEN A PARTICULAR STUDENT IS SELECTED FROM ⑤, THEIR PICTURE SHOWS UP IN THE PICBOX.

⑤

PICBOX:

THE APPROPRIATE NAME IS LOADED, DATA IS TAKEN FROM DATABASE FILE "ROSTER" AND DISPLAYED IN A LIST IN PICBOX.

PRESENT	ABSENT	LATE
③		
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

④ RADIO BUTTONS: USED TO SELECT THE APPROPRIATE ATTENDANCE.

lstStudent Names

JACOBS, AGEEL  
MARFIELD, TEJA  
AL-MUGBALI, AISHA  
WATTS, ALEX  
AL GHAIITHI, HOOR  
GEMARINO, JED

⑥ BUTTON: THIS SUBMITS DATA IN APPROPRIATE COLUMNS FOR THE DATABASE TABLE.



Internal structure:

# OVERALL STRUCTURE FOR ATTENDANCE

## PROGRAM IN VISUAL BASIC

### WELCOME FORM ADMIN

WELCOME ADMIN.  
CHOOSE ONE OF THE FOLLOWING OPTIONS:

ADD STUDENT	VIEW RECORDS	PRINT	SHOW OUT
-------------	--------------	-------	----------

### ADD STUDENT FORM

PLEASE ENTER THE FOLLOWING DETAILS:

FIRST NAME:

LAST NAME:

GRADE:

TEAM:

### VIEW RECORDS FORM

TEAM:

List Records	
F	L
NAME	ATTENDANCE
	- ABSENT
	- LATE

### PRINT RECORDS FORM

CHOOSE ONE OF THE TEAMS TO PRINT OUT THE RECORDS

TEAM:

### VIEW STUDENTS FORM

TEAM:

List Students	
Name	Last Name

## List of resources and techniques

Resources	Details
MySQL and VB.NET Tutorials	For review/learning purposes, I used a Youtube channel called “Programming Knowledge” to look at the basic operations and coding behind MySQL and VB.NET. These tutorials talked about connecting the database with the application and then updating or adding data in the database using the user’s input from the VB.NET application. For more details, check the following Youtube playlist for the tutorials: <a href="https://www.youtube.com/watch?v=XMLAXQR_YFI&amp;list=PLS1QuIW_o1RIZxHuINmI3EIajCq3zzsiFy">https://www.youtube.com/watch?v=XMLAXQR_YFI&amp;list=PLS1QuIW_o1RIZxHuINmI3EIajCq3zzsiFy</a>
MySQL Workbench Software	Download the MySQL Workbench Community Software in order to make the databases and use queries to modify or add the data in the database. The software can be downloaded from the following webpage: <a href="http://www.mysql.com/products/workbench/">www.mysql.com/products/workbench/</a>
Visual Studio Community Software	Download the free version of the Visual Studio; this is where the interface and design of the application will be made and will gather the user’s input. The program can be downloaded from the following webpage: <a href="https://www.visualstudio.com/downloads/">https://www.visualstudio.com/downloads/</a>
Student Data and Information	This data provided by Mr. Atul consists of the information or data of the students which includes the first and last names of each student in each of the houses. All of this data is imported into the MySQL database.

Techniques	Details
Connection between MySQL and VB.NET	Connecting the MySQL database and the VB.NET application by importing the database as a resource and then declaring the connection from the imported public class of MySqlConnection in Visual Studio. Using Try and EndTry function to test the connection between the application and database.

2 Dimensional Arrays	2 Dimensional arrays used to display the roster on the teacher's attendance page. It has the two arrays (first name, last name) and is taken from the MySQL database tables of first name, last name. 2 Dimensional arrays are used to display the two different pieces of data in different columns of the listbox.
Queries	Perhaps the most important part of this project. Queries are like the commands used in databases to make specific entries. When using a VB.NET application and taking input data from the user and then storing it in the database, queries are required. In a VB.NET application, queries are passed through the command property of the MySqlConnection public class and are passed through the string data type. When the user submits the attendance, the data is saved in the database through certain queries.
Functions or Procedures	This relates to the efficiency of the code. Wherever clearing or resetting is required, we use the same code to change the text property of textboxes and the checked property of radio buttons to "nothing". Therefore, a function is made where the code is only written once. Instead of repeating a whole block of code, the procedure is called wherever required. The calling of the procedure is usually 1 line of code which is more efficient than the several blocks.
For Next and While Loops	These loops were used in the coding to search for the different entries in the database. In particular, the For Next loop was used to go through each entry and find the corresponding one. In the administrator panel, when the admin wants to view a particular student's record, their input will be used and the loop will go through each entry to find the corresponding one and then display this data.
If Then Statements and Select Case	If then statements are used to specify a condition and then perform the respective action or command. This is used throughout the project because forms are linked together. In other words, when the user logs in, if the username and password are correct, then a new form opens.

## Test plan

Test item	Test data	Part of system tested	Expected outcome	Actual outcome	Comments	Ref in product
<b>Cover page testing – REQUIRED ELEMENT FOR CRITERION G</b>						
<b>Web pages load from the cover page in three different locations</b>	<b>File naming to ensure home page is called Index.htm</b>	<b>Links on cover page are relative</b>	<b>Loads as required from 3 different locations</b>	<b>Yes</b>		
<b>Product testing</b>						
Login Form (VB Application)	Correctly links with database and gathers data from the login information table in the database.	Login Form in VB.NET Application	If login details from the input match the entries in the database, then attendance form is opened. If they don't match, then a message box shows up informing the user to make corrections.	<b>Yes</b>		



Submission of attendance and recorded in the database (MySQL Database)	Code functions to submit the input provided by the user and is saved in the team's records table of the database. If user input is incomplete, then user is prompted with a messagebox to give an input for the required fields.	Attendance Form in VB.NET Application	The attendance assigned for each student is submitted in the records database for the respective team. If there is a missing data for a student, then the user is prompted with a messagebox to provide the entry for mandatory fields.	Yes		
Correct Roster Display (VB Application)	Appropriate names of students are displayed for the respective team.	Attendance Form in VB.NET Application	Depending on the account in which you are signed in, it will display different rosters and list of students. The appropriate database table is accessed and if students are added to the group, then those additions will also be made in the database and roster.	Yes		

Invalid Input Message Boxes (VB Application)	If the data type input of the user doesn't match the one required, then a message box should pop up informing the user that their input is invalid. If there is no data in any of the required fields, then the user is prompted to fill those out as well.	Applicable to all of the forms in the VB.NET Application.	User is informed through a message box about the no input error if they have not given an entry or assigned values for required fields.	Yes		
--	---	---	---	-----	--	--

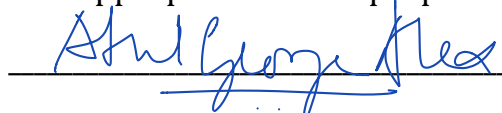
Events performed for each button click.	The respective events are performed when the buttons are clicked.	Applicable to all of the forms in the VB.NET Application.	In the login form, the button is disabled unless the user provides an input in the username and password text boxes. When the Submit button is clicked in the attendance form, the attendance is recorded in the database for the group. The correct forms are opened when the appropriate button is clicked. If the entry is invalid, user is prompted with a message box when the button is clicked.	Yes	
---	---	---	--	-----	--



Print Reports Function	Print Records Function to print different screens or parts of the applications.	Applicable to all of the forms in the VB.NET Application	The user should be able to print out any sorts of reports or windows forms that they wish to print. Specifically, they should be able to print out reports or even export them as a PDF document. Along with reports, there should be a printing option for the teacher's roster as well.	No	
------------------------	---	--	---	----	--

### Agreement of client

I hereby confirm by signing the document that the specific requirements set meet my needs and the designs are appropriate for the proposed product.



Client (Mr. Atul Alex)