
ASSIGNMENT

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Department of Management and Information Technology
Faculty of Management and Commerce
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Student Registration System

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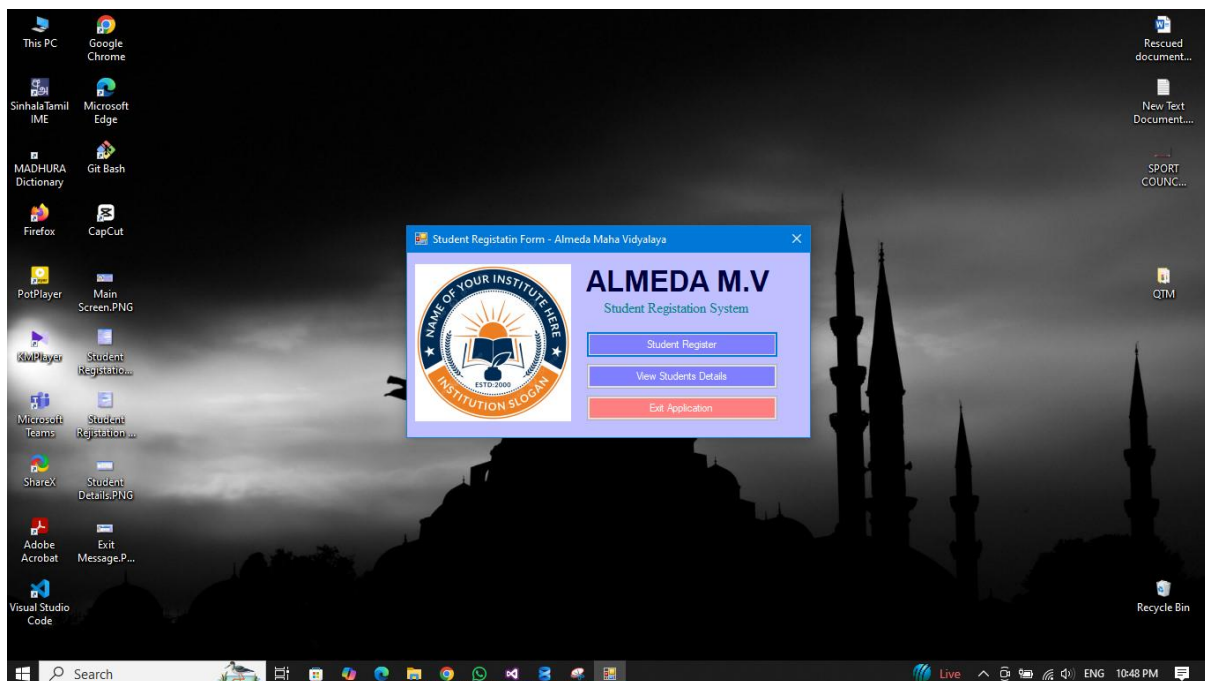
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1. Introduction

In today's educational environment, managing student information effectively is crucial for running any academic institution smoothly. Manual record-keeping systems, which often depend on paper files and ledgers, tend to have many errors, take a lot of time to maintain, and make it hard to find specific student data. This project tackles these important challenges by creating a digital solution for educational institutions.

The "Student Registration System for Almeda Maha Vidyalaya" is a Windows Forms application that automates and simplifies student data management. This system offers a centralized, reliable, and user-friendly platform for key functions, such as registering new students, securely storing their details in a database, and displaying a complete list of all enrolled students. By moving from a manual to a digital system, the project aims to improve data accuracy, boost administrative efficiency, and lessen the workload on staff.

Created with the C# programming language and the .NET Framework, this application includes an easy-to-use graphical user interface (GUI). Microsoft SQL Server acts as the strong backend database, guaranteeing data integrity, security, and efficient storage and retrieval of information. This report fully documents the project's entire lifecycle, including the system design, implementation details, code structure, and user interface designs, offering a complete overview of the solution developed.



2. System Overview

The Student Registration System is a desktop application designed for Windows. Its main purpose is to help the school add new students and view all student records easily. It replaces paper forms with a digital system.

The application features three main screens:

1. **Home Screen:** This is the main menu. From here, you can access the registration form, view the list of students, or exit the application.
2. **Registration Form:** This screen is used to add a new student. You enter the student's details like ID, name, address, and phone number. You also select their gender and grade from the available options.
3. **Student Details Screen:** This screen shows a list of all students saved in the system. It displays their information in a clear table.

All student information is saved securely in a database on the computer. This ensures that the data is safe, organized, and easy to find when needed. The system is simple to use, with clear buttons and instructions on every screen.

5. Form Designs and Screenshots

The application includes three main forms, each with a specific role in the student management process. The user interface is meant to be simple and easy to use, with straightforward navigation and visual cues.

5.1 Main Navigation Form (Home Screen)



The Main Form acts as the main hub of the application. It gives users clear choices to access the key functions of the system or to exit.

- ❖ **Institution Branding:** Shows the name "ALMEDA M.V" and the system's title.
- ❖ **Navigation Buttons:** Three clearly labeled buttons:
- ❖ **Student Register:** Opens the student registration form.

- ❖ **View Students Details:** Opens the form to see all registered students.
- ❖ **Exit Application:** Closes the application after confirming the action. **Visual Design:** Features a picture box, likely for the school logo or crest, improving visual identity.

5.2 Student Registration Form

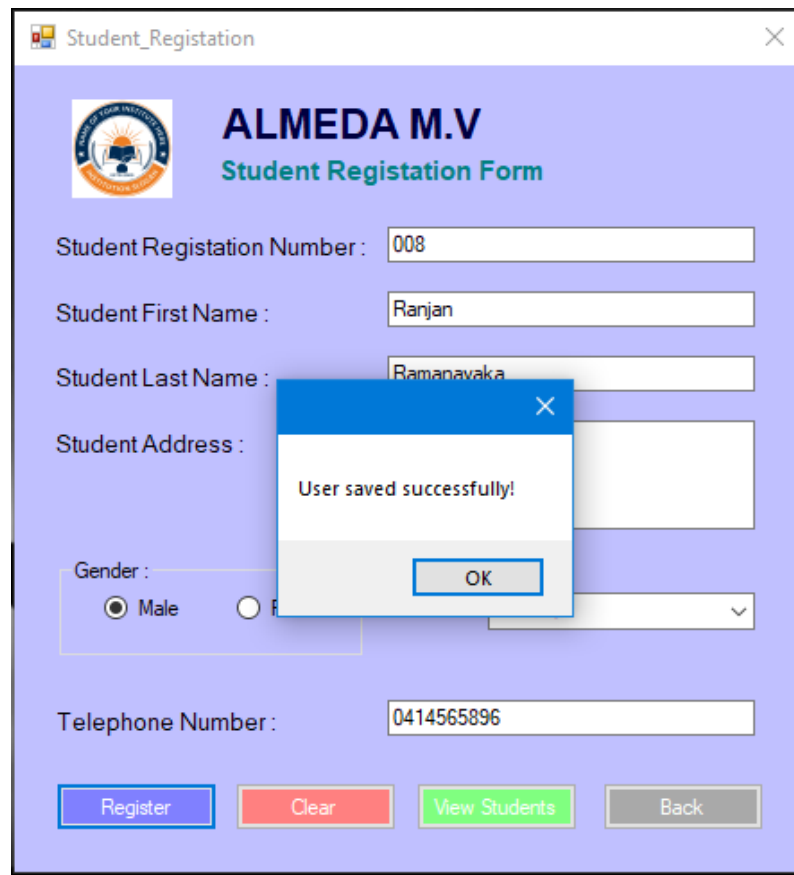
This form is where new students are added to the system. It includes various input controls to gather all necessary student information.

- ❖ **Structured Input Fields:** Textboxes for entering the Student Registration Number, First Name, Last Name, Address, and Telephone Number.
- ❖ **Gender Selection:** Radio buttons to choose the student's gender (Male or Female).
- ❖ **Grade Selection:** A dropdown list (ComboBox) for selecting the student's grade from a predefined list (e.g., Grade 07, Grade 10, etc.).
- ❖ **Action Buttons:**
 - **Register:** Validates the input and saves the new student record to the database.
 - **Clear:** Resets all input fields to their default, empty state.
 - **View Students:** Navigates to the Student Details form.
 - **Back:** Returns the user to the main navigation form.

The screenshot shows a web application window titled "Student_Registration". Inside, there's a header with a school logo and the text "ALMEDA M.V. Student Registration Form". The form contains several input fields: "Student Registration Number" with the value "008", "Student First Name" with "Ranjan", "Student Last Name" with "Ramanayaka", "Student Address" with "120/B, Colombo", "Gender" with radio buttons for "Male" (selected) and "Female", "Grade" with a dropdown menu showing "Grade 07", and "Telephone Number" with "0412569456". At the bottom, there are four buttons: "Register" (blue), "Clear" (red), "View Students" (green), and "Back" (grey).

Success Feedback:

After saving a student's record, the system shows a confirmation message box to let the user know.



The screenshot displays a web application window titled "Student_Registation". The main heading is "ALMEDA M.V. Student Registration Form". The form contains several input fields: "Student Registration Number" (008), "Student First Name" (Ranjan), "Student Last Name" (Ramanavaka), "Student Address" (empty), "Gender" (radio buttons for Male and Female, with Male selected), and "Telephone Number" (0414565896). At the bottom are four buttons: "Register" (blue), "Clear" (red), "View Students" (green), and "Back" (grey). A blue confirmation dialog box is overlaid on the form, displaying the message "User saved successfully!" and an "OK" button.

5.3 Student Details View Form

This form gives a clear, tabular view of all student records saved in the database. It is designed for quick access and reference.

- ❖ Data Grid View: A table displaying all student records with columns for:
 - ST_ID (Student ID)
 - First Name
 - Last Name
 - Address
 - Gender
 - Grade
- ❖ Database Integration: Automatically loads and shows all records from the database when opened.
- ❖ Navigation Buttons:
 - Register Student: Goes back to the Registration Form to add a new student.
 - Back: Returns the user to the main navigation form.

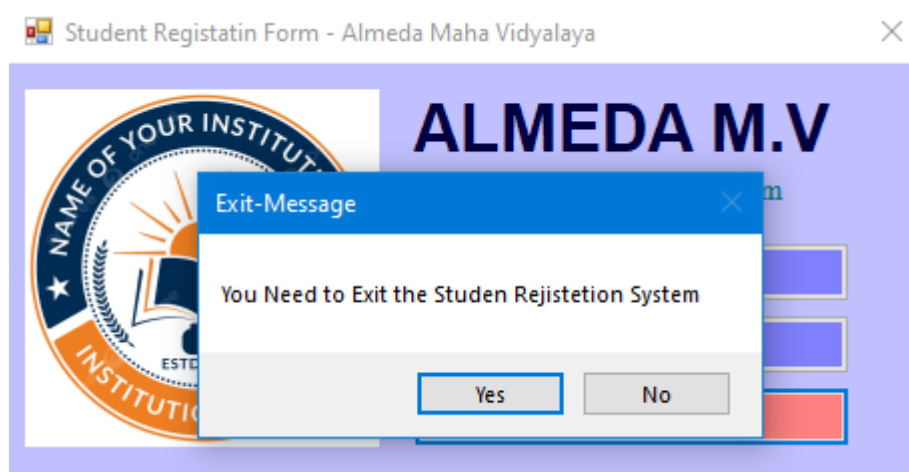
ST_ID	First Name	Last Name	Address	Gender	Grade
001	Kamal	Gunadasa	Kandy	Male	Grade 10
002	Nishantha	Ranathunga	Matara	Male	Grade 11
003	Samanthi	rathnayaka	Colombo	Female	Grade 06
004	Madusha	Malkanthi	Kandy	Female	Grade 10
005	Maneesha	Madhuwanthi	Kaluthara	Female	Grade 13
006	Sandeepa	Sadaruan	Kandy	Male	Grade 12
007	Gayanajith	Wijethunga	No 02 Amunudo...	Male	Grade 12
008	Ranjan	Ramanayaka	120/B, Colombo	Male	Grade 07

Buttons: Register Student, Back

5.4 Exit Confirmation Dialog

To avoid unintentional closure of the application, a confirmation dialog box appears when the user tries to exit. This ensures that any unsaved work is not lost.

- ❖ Clear Message: Asks the user to confirm their decision to exit.
- ❖ Two Options: Offers "Yes" and "No" buttons for the user to either confirm or cancel the action.



6. Code Implementation

6.1 Main Form Code

```
1  using System;
2  using System.Collections.Generic;
3  using System.ComponentModel;
4  using System.Data;
5  using System.Drawing;
6  using System.Linq;
7  using System.Text;
8  using System.Threading.Tasks;
9  using System.Windows.Forms;
10
11 namespace Student_Registration_System
12 {
13
14     6 references | 0 changes | 0 authors, 0 changes
15     public partial class mainForm : Form
16     {
17
18         3 references | 0 changes | 0 authors, 0 changes
19         public mainForm()
20         {
21             InitializeComponent();
22         }
23
24         1 reference | 0 changes | 0 authors, 0 changes
25         private void label12_Click(object sender, EventArgs e)
26         {
27
28
29
30
31
32
33
34         1 reference | 0 changes | 0 authors, 0 changes
35         private void studentRegisterButton_Click(object sender, EventArgs e)
36         {
37             Form registrationForm = new Student_Registration();
38             registrationForm.Show();
39             this.Hide();
40         }
41
42         1 reference | 0 changes | 0 authors, 0 changes
43         private void exitButton_Click(object sender, EventArgs e)
44         {
45             DialogResult result = MessageBox.Show(
46                 "You Need to Exit the Studen Rejistetion System",
47                 "Exit-Message",
48                 MessageBoxButtons.YesNo
49             );
50             if (result == DialogResult.Yes)
51             {
52                 Application.Exit();
53             }
54         }
55
56         1 reference | 0 changes | 0 authors, 0 changes
57         private void viewStudentsDetailsButton_Click(object sender, EventArgs e)
58         {
59             Form studentDetails = new Student_Details();
60             studentDetails.Show();
61             this.Hide();
62         }
63
64         1 reference | 0 changes | 0 authors, 0 changes
65         private void mainForm_Load(object sender, EventArgs e)
66         {
67
68         }
69     }
70 }
71
```

6.2 Student Registration Form Code

```
1 using System;
2 using System.Collections.Generic;
3 using System.ComponentModel;
4 using System.Data;
5 using System.Drawing;
6 using System.Linq;
7 using System.Text;
8 using System.Threading.Tasks;
9 using System.Windows.Forms;
10 using System.Data.SqlClient;
11
12 namespace Student_Registation_System
13 {
14     5 references | 0 changes | 0 authors, 0 changes
15     public partial class Student_Registation : Form
16     {
17         SqlConnection con = new SqlConnection("Data Source=DESKTOP-6D47JTU;Initial Catalog=MIT1469;Integrated Security=True");
18
19         2 references | 0 changes | 0 authors, 0 changes
20         public Student_Registation()
21         {
22             InitializeComponent();
23         }
24     }
25 }
```

```
23 1 reference | 0 changes | 0 authors, 0 changes
24 private void button1_Click(object sender, EventArgs e)
25 {
26     string query = "INSERT INTO MIT1469 (st_id, f_name, l_name, address, gender, grade, telephone_number) VALUES (@st_id, @f_name, @l_name, @address, @gender, @grade, @telephone_number)";
27     SqlCommand cmd = new SqlCommand(query, con);
28
29     cmd.Parameters.AddWithValue("@st_id", stNumberTextBox.Text);
30     cmd.Parameters.AddWithValue("@f_name", fNameTextBox.Text);
31     cmd.Parameters.AddWithValue("@l_name", lNameTextBox.Text);
32     cmd.Parameters.AddWithValue("@address", addressTextBox.Text);
33     cmd.Parameters.AddWithValue("@telephone_number", tNumberTextBox.Text);
34
35     //Radio button add
36     string gender = mailRadioButton.Checked ? "Male" : "Female";
37     cmd.Parameters.AddWithValue("@gender", gender);
38
39     //combobox add
40     cmd.Parameters.AddWithValue("@grade", gradeComboBox.SelectedItem?.ToString() ?? "Not Selected");
41
42     con.Open();
43     cmd.ExecuteNonQuery();
44     con.Close();
45
46     MessageBox.Show("User saved successfully!");
47 }
```

```
47 stNumberTextBox.Clear();
48 fNameTextBox.Clear();
49 lNameTextBox.Clear();
50 addressTextBox.Clear();
51 mailRadioButton.Checked = false;
52 femailRadioButton.Checked = false;
53 gradeComboBox.SelectedIndex = -1;
54 tNumberTextBox.Clear();
55 stNumberTextBox.Focus();
56
57 }
58
59 1 reference | 0 changes | 0 authors, 0 changes
60 private void button2_Click(object sender, EventArgs e)
61 {
62     stNumberTextBox.Clear();
63     fNameTextBox.Clear();
64     lNameTextBox.Clear();
65     addressTextBox.Clear();
66     mailRadioButton.Checked = false;
67     femailRadioButton.Checked = false;
68     gradeComboBox.SelectedIndex = -1;
69     tNumberTextBox.Clear();
70     stNumberTextBox.Focus();
71 }
```

```

59 private void button2_Click(object sender, EventArgs e)
60 {
61     stNumberTextBox.Clear();
62     fnameTextBox.Clear();
63     lnameTextBox.Clear();
64     addressTextBox.Clear();
65     mailRadioButton.Checked = false;
66     femailRadioButton.Checked = false;
67     gradeComboBox.SelectedIndex = -1;
68     tNumberTextBox.Clear();
69     stNumberTextBox.Focus();
70 }
71
72 private void button3_Click(object sender, EventArgs e)
73 {
74     Form studentDetails = new Student_Details();
75     studentDetails.Show();
76     this.Hide();
77 }
78
79 private void button4_Click(object sender, EventArgs e)
80 {
81     Form mainForm = new mainForm();
82     mainForm.Show();
83     this.Hide();
84 }
85
86 private void Student_Registation_Load(object sender, EventArgs e)
87 {
88 }
89

```

6.3 Student Details Form Code

```

1  using System;
2  using System.Collections.Generic;
3  using System.ComponentModel;
4  using System.Data;
5  using System.Drawing;
6  using System.Linq;
7  using System.Text;
8  using System.Threading.Tasks;
9  using System.Windows.Forms;
10 using System.Data.SqlClient;
11
12 namespace Student_Registation_System
13 {
14     public partial class Student_Details : Form
15     {
16         SqlConnection con = new SqlConnection("Data Source=DESKTOP-6D47JTU;Initial Catalog=MIT1469;Integrated Security=True");
17
18         public Student_Details()
19         {
20             InitializeComponent();
21         }
22
23         private void Student_Details_Load(object sender, EventArgs e)
24         {
25             //Open Connection
26             con.Open();
27
28             string sql = "SELECT * FROM MIT1469";
29             SqlCommand cmd = new SqlCommand(sql, con);
30
31             var reader = cmd.ExecuteReader();
32

```

```

33         while (reader.Read())
34         {
35             dataGridView1.Rows.Add(reader["st_id"], reader["f_name"], reader["l_name"], reader["address"], reader["gender"], reader["grade"], reader["telephone_number"]);
36         }
37
38         //Close Connection
39         con.Close();
40
41     }
42
43
44
45     1 reference | 0 changes | 0 authors, 0 changes
46     private void button3_Click(object sender, EventArgs e)
47     {
48         Form studentRegister = new Student_Registration();
49         studentRegister.Show();
50         this.Hide();
51     }
52
53     1 reference | 0 changes | 0 authors, 0 changes
54     private void button2_Click(object sender, EventArgs e)
55     {
56         Form mainForm = new mainForm();
57         mainForm.Show();
58         this.Hide();
59     }
60 }

```

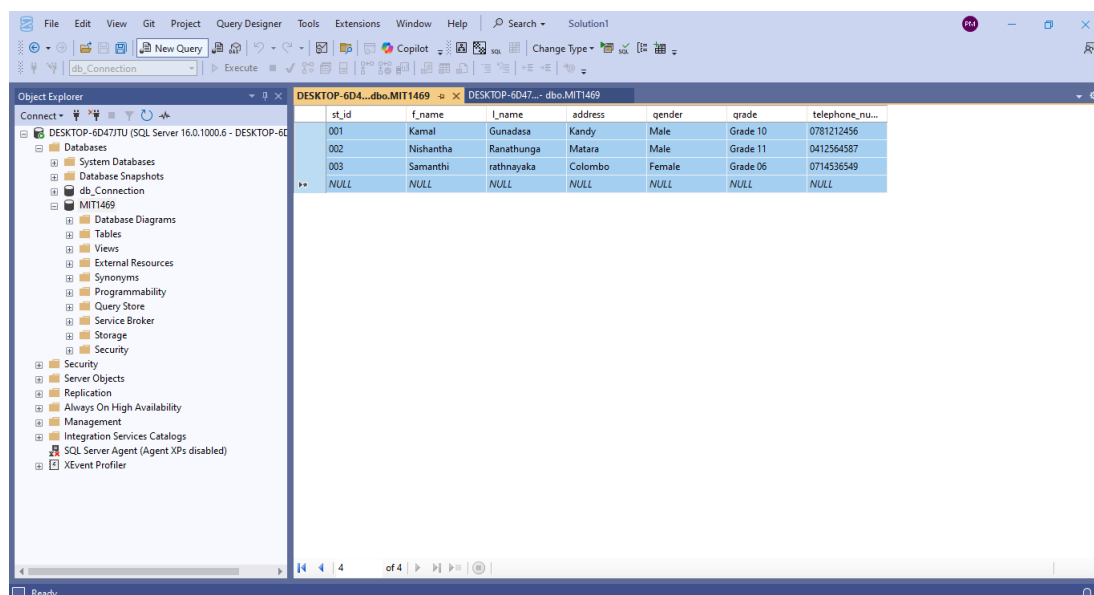
7. Testing and Validation

We carried out a structured testing process to confirm the application's reliability and functionality. The main goal was to ensure all components worked together smoothly, from the user interface to the database.

The first phase focused on essential functionality. We tested each button on every form to make sure navigation worked correctly. Users moved between the main menu, registration form, and student details without errors. We thoroughly checked the data entry and storage processes by inputting different student records, confirming that each was accurately saved to the SQL Server database.

The second phase confirmed data integrity and user feedback. We verified that the Student Details form retrieved and displayed every record from the database accurately. We also ensured that all user prompts, like the success message upon registration and the exit confirmation dialog, appeared and worked as expected, preventing accidental data loss.

The successful completion of all these tests, supported by evidence from the database, shows that the application is reliable, user-friendly, and performs its intended functions correctly. The system consistently maintains data integrity between the front-end interface and the back-end database.



The screenshot shows the SQL Server Enterprise Manager interface. The left pane displays the 'Object Explorer' with a tree view of the database structure. The right pane shows a table with the following data:

st_id	f_name	l_name	address	gender	grade	telephone_number
001	Kamal	Gunadasa	Kandy	Male	Grade 10	0781212456
002	Nishantha	Ranathunga	Matara	Male	Grade 11	0412364587
003	Samanthi	rathnayaka	Colombo	Female	Grade 06	0714536549
NULL	NULL	NULL	NULL	NULL	NULL	NULL

8. Conclusion

The Student Registration System for Almeda Maha Vidyalaya has been successfully designed, developed, and implemented as a complete Windows Forms application. This project effectively modernizes the institution's student data management process by replacing inefficient paper-based methods with a secure, digital, and user-friendly solution. The system streamlines the essential tasks of registering new students and viewing all records. This improves administrative efficiency and data accuracy.

Throughout the development process, we focused on key functions, including easy form navigation, strong database integration using SQL Server, and clear user feedback. The application's structure ensures data integrity and reliability. All operations were validated through thorough testing. The final product is stable and fully functional. It meets the specified requirements and provides a strong foundation for the school's administrative workflow.

In summary, this project shows the successful use of software engineering principles to solve a real-world problem. The system not only serves its immediate purpose but also provides a platform for future improvements, such as adding data editing, deletion, advanced search, and reporting features to support the growing needs of Almeda Maha Vidyalaya.