Technical Documentation

Faculty Information System

Github: https://github.com/aryan2305/Faculty_Information_System
Credentials for admin : Webmail: admin@iitg.ac.in
Password: admin

This software is developed on Microsoft Visual Studio and written using visual basic and MS Access Database.

The purpose of this application is to have a common repository for all faculty information of Indian Institute of Technology, Guwahati. This project will also incorporate all the software engineering principles involved in the design and implementation of a complete working system. This system will help faculty members store and retrieve all their information. Students can also access specific areas of faculty information depending on the access provided.

Faculty Information System is a "Microsoft Access"-based database application wherein all the information regarding the Faculty can be stored and retrieved. The administrator will have access to all the information present in the database, whereas the user will have privileges to view faculty information. The user interface will have the necessary input options to guide them through the process of inserting and updating their information. Data will be inputted using data entry screens (user friendly interfaces), which will have all the steps for proper insertion. The administrator will have all the privileges to add or update any data in the system. Output will be in the form of an information repository showing faculty information pages. Faculty Information System will hold the following information:

- Faculty Personal Information.
- Publication archiving and retrieval for each faculty.
- Degrees earned by the faculty members.
- Grants/Awards given to faculty members.
- Courses taught by the Faculty members.

Major Data Objects:

The following data modules will be presented and managed by the system:

User Authentication / Insertion Module: This object will manage connections to the Users Database and retrieve appropriate information depending on the user login credentials. It will also contain processing to add a new user to specific group in the database.

Data Entry Module : This module will encompass all the data entry to be done in the system. Entries like the departments in the University, courses offered, office addresses, etc.

Faculty Personal Information Module Here personal information for the faculty member can be entered or updated as per the privileges given.

Publication archiving and retrieval Module: This module will have the insertion and display of all the publications present in the database. Users can add or edit publications. Also search facilities will be available to search for a particular publication.

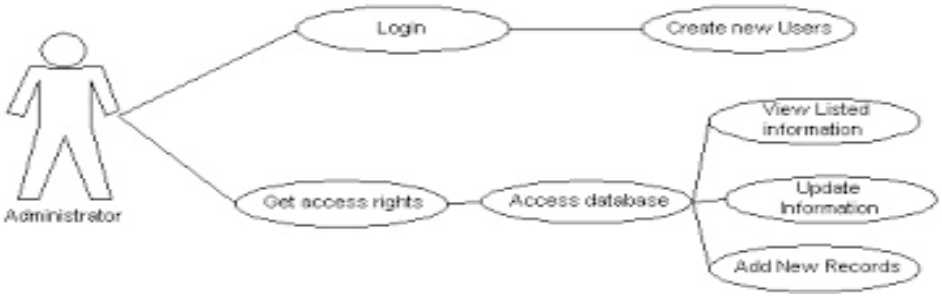
Degrees earned by the faculty members Module: This module links the degrees earned records of the faculty and display it to the users. Users can add more records to their name depending on their rights. Updating of records is also permitted.

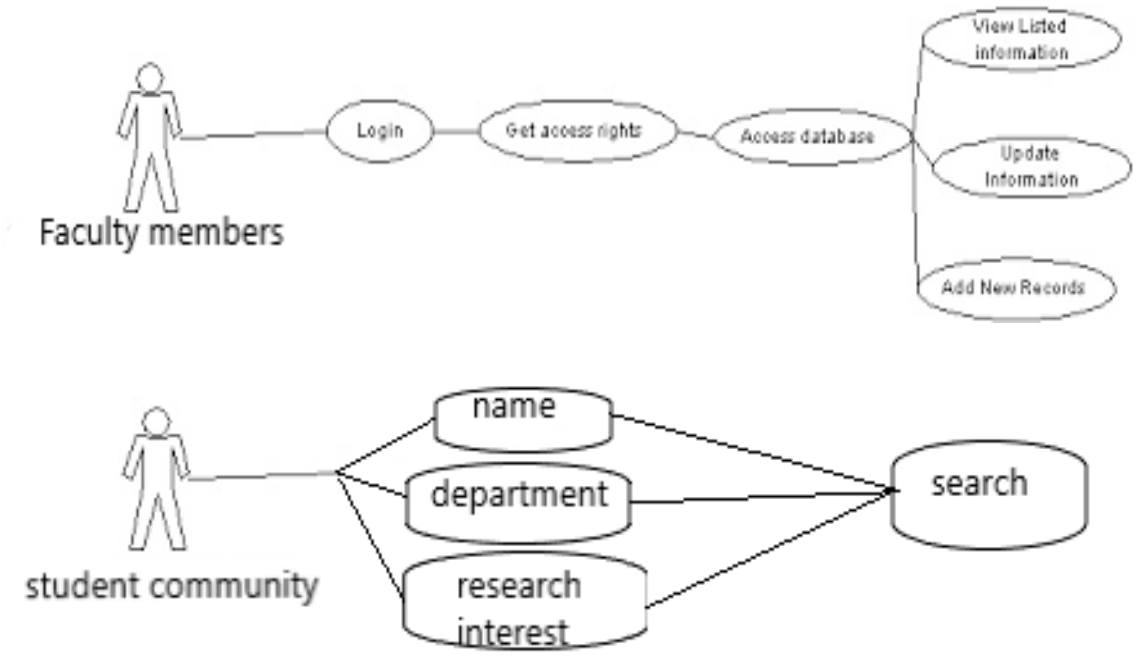
Grants/Awards given to faculty members Module: This module links the Grants and Awards details of the faculty and displays it to the users. Users can add more records to their name depending on their rights. Updating of records is also permitted.

Potential users include faculties, students, university officials such as Dean, chairs, etc.

Faculty members: The system allows each faculty member to first login into their account and then manipulate his/her own information like the basic information, publications, grants details, etc. The operations can be Add, delete, and modifying his/her data.

Cases:





Login The login credentials decide whether the user is an administrator or any of Faculty. This is used to validate against the database. Only if the username and password is correct, does the admin or faculty get access to the database and information.

Database:

Attribute	Type	Description
ID	System.int32	Primary key, Auto increment
Name	System.String	Name of the Faculty
Department	System.String	Department of the Faculty
Email	System.String	Email of the Faculty
Password	System.String	Password of the Faculty
Field1	System.String	Field1 of the Faculty
ResearchInterest	System.String	ResearchInterest of the Faculty
Education	System.String	Education of the Faculty
Position	System.String	Position of the Faculty
Room	System.String	Room of the Faculty
Telephone	System.int32	Telephone of the Faculty
Publications	System.String	Publications of the Faculty
Publications	System.String	Publications of the Faculty
Courses_New	System.String	Courses_New of the Faculty
Additional Responsibility	System.String	Additional Responsibility of the Faculty
Courses_Old	System.String	Courses_Old of the Faculty

Functions:

Imports Microsoft.VisualBasic : The Microsoft.VisualBasic namespace contains types that support the Visual Basic Runtime in Visual Basic.

Imports System.Data.OleDb : The System.Data.OleDb namespace is the.NET Framework Data Provider for OLE DB.

Imports System.Data : The System.Data namespace provides access to classes that represent the ADO.NET architecture. ADO.NET lets you build components that efficiently manage data from multiple data sources.

Assemblies

System.Data.Common.dll, System.Data.dll, netstandard.dll

Imports System.Net,Mail : The System.Net.Mail namespace contains classes used to send electronic mail to a Simple Mail Transfer Protocol (SMTP) server for delivery.

Imports System.Text : The System.Text namespace contains classes that represent ASCII and Unicode character encodings; abstract base classes for converting blocks of

characters to and from blocks of bytes; and a helper class that manipulates and formats String objects without creating intermediate instances of String.

ConnectionSting：is an easy-to-use reference of connection strings for numerous databases and data stores.

System.Data.OleDb.OleDataReader：Provides a way of reading a forward-only stream of data rows from a data source. This class cannot be inherited.

OleDbConnection(connectingstring)：Gets or sets the string used to open a database.

Namespace:

System.Data.OleDb

Assembly:

System.Data.dll

OleDbCommand(query, conn) : Executes an Access against the Connection and returns the number of rows affected.

Namespace:

System.Data.OleDb

Assembly:

System.Data.dll

OleDbDataReader : Provides a way of reading a forward-only stream of data rows from a data source. This class cannot be inherited.

Namespace:

System.Data.OleDb

Assembly :

System.Data.dll

Cmd.ExecuteScalar() : Executes the query, and returns the first column of the first row in the result set returned by the query. Additional columns or rows are ignored.

Namespace:

System.Data.OleDb

Assembly:

System.Data.dll

Cmd.ExecuteReader() : To retrieve data using a **DataReader**, create an instance of the **Command** object, and then create a **DataReader** by calling **Command.ExecuteReader** to retrieve rows from a data source. The **DataReader** provides an unbuffered stream of data that allows procedural logic to efficiently process results from a data source sequentially.

Reader.Read() : This will search a specific name related to the particular Branch, if Searched then increment Count variable.

MessageBox.Show() : Will pop up a window having some developer entered information/Instruction.

DataGridView1.Show() : Will show the DataGridView Bar.

reader.Close() :

tb.Rows.Add(n.ToString, email.ToString, dept.ToString) : Will add the the defined n, email and deparment I the DataGridView.

dr.Close() : This will close the ExecuteReader().

Conn.Close() : This will close the connection to the Database.

Conn.Dispose() : A class implements IDisposable interface contains a method called `Dispose()`, where you can release resources or do something else.

Form.Show() : This is used to show the applicable form.

ComboBox.Show() : This will show the Combo_box containing the departments (in our software).

ComboBox.ResetText() : This will reset the text area in the Combobox.

ComboBox.Hide() | DataGridView.Hide() | Form.Hide() : Hiding the Combobox, DataGridView Or the form.

Button.Enabled : Boolean type, If it is true then button will be enabled else disabled.

RadioButton.Checked : Return True or False after checking whether radiobutton is checked or not.

tb.Columns.Add("Variable", Type.GetType("System.Type")) : Will add A column to the DataGridView named as Variable and will store items as System.Type .

SearchBox.Text | TextBox.Text : Will return whatever is written or typed in the SearchBox or TextBox.

tb.Rows.Clear() : This will clear the complete table row.

"SELECT * FROM faculty_info where Email= '" & EmailPass & "';" : Select all the Colums of the row which contain the Email as Emailpass variable.

"delete from faculty_info where Email =@sno" : Delete all the entries from the database whose Email is @sno

cmd.Parameters.Add(New OleDbParameter("name", CType(variable, type))) : Represents a parameter to an OleDbCommand and optionally its mapping to a DataSet column. This class cannot be inherited.

Namespace:

System.Data.OleDb

Assembly:

System.Data.dll

Image.FromFile(Image Path) : Will choose image from the path provided.

Reader.GetValue(6) : Will return the value stored in 6th column of the Database.

VbNewLine : Newline command.

String.IsNullOrEmpty(TextBox.Text) : Checks the textbox is empty or not.

Cmd.ExecuteNonQuery(): This executes a query that is not expected to produce any results.

sb.Append(a.Substring(index, 1)) : Method is used to append the string representation of some argument to the sequence. There are 13 ways/forms in which the append() method can be used by the passing of various types of arguments (For more visit GeeksforGeeks.org)

Smtp_server.UseDefaultCredentials : Gets or sets a Boolean value that controls whether the DefaultCredentials are sent with requests.

Namespace:

System.Net.Mail

Assemblies:

System.dll, netstandard.dll, System.Net.Mail.dll

Net.NetworkCredentials() : Provides credentials for password-based authentication schemes such as basic, digest, NTLM, and Kerberos authentication.

Inheritance

Object

NetworkCredential

Implements

ICredentials ICredentialsByHost

Namespace:

System.Net

Assemblies:

System.Net.Primitives.dll, System.dll, netstandard.dll, System.Net.dll

Smtp_server.Port : Defines the port number for the simple mail transfer protocol.

Smtp_server.Host : Setup/Defines the host Email Id.

MailMessage() : Represents an email message that can be sent using the SmtpClient class.

Namespace:

System.Net.Mail

Assemblies:

System.dll, netstandard.dll, System.Net.Mail.dll

MailAddress() : Represents the address of an electronic mail sender or recipient.

Namespace:

System.Net.Mail

Assemblies:

System.dll, netstandard.dll, System.Net.Mail.dll

e_mail.From : Represents the address of electronic mail sender.

E_mail.To.Add : Represents the address of electronic mail recipient.

e_mail.Subject : Represents the subject of the mail that to be send to recipient.

e_mail.Body : Represents the body of the mail that to be send to recipient.

Smtp_server.Send(e_mail) : Method to send the email.

Restrictions, Limitations, and Constraints :

Proper user credentials required.

Only users with access rights can perform privileged tasks.