1. **Documentation**
2. **Introduction**

Contract Monthly Claim System (CMCS) is a web-based application built to help Independent Contract (IC) Lecturers to file claims which are then later verified and approved by both the Academic Manager (AM) and Program Coordinator (PC). The Application is built using C# ASP.NET MVC core that provides a structured and easy to understand way of building web applications.

1. **Design Choices**

* **Visual design**: The web application makes use of whitespace and consistent colors which are kept at minimal. All pages use the same layout but have different contents. The buttons use the same color as the navigation bar to promote consistency. The navigation bar has icons and descriptions which are easy to understand.
* **Layout And structure**: The navigation is a side bar placed on the left side making 10% of the page and the content is placed on the right side making 90% of the page.
* **Technologies**: The application uses C# ASP.NET MVC Core framework for the design of web pages, documents will be stored on cloud storage, and LINQ will be used to querying the database. The UML Class diagram is designed using Microsoft Visio, while the project plan is Designed on Microsoft project.

1. **Database Structure**:

The tables below are for database structure which are normalized to third normal form to reduce data redundancy.

**USER Table:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Data Type** | **Constraints** | **Description** |
| UserID | INT | PRIMARY KEY, NOT NULL,AUTO INCREMENTED | Unique identifier for the user |
| Email | VARCHAR(255) | UNIQUE,NOT NULL | User login email |
| Password | VARCHAR(255) | NOT NULL | Encripted field |
| FirstName | VARCHAR(255) | NOT NULL | User’s first name |
| LastName | VARCHAR(255) | NOT NULL | User’s last name |
| PhoneNumber | VARCHAR(13) | NULL | User’s phone number |
| UserType | ENUM | NOT NULL | Types: lecturer, Academic manager, and Program coordinator |

**LECTURER TABLE:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Data Type** | **Constraints** | **Description** |
| LecturerCode | VARCHAR(10) | PRIMARY KEY, NOT NULL | Unique identifier |
| UserID | INT | FOREIGN KEY, NOT NULL, AUTO INCREMENTED | Unique identifier for the user |
| DepartmentCode | VARCHAR(10) | FOREIGN KEY, NOT NULL | Lecturer’s department |
| HourlyRate | DECIMAL | NULL | Lecturer’s standard rate |

**DEPARTMENT TABLE:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Data Type** | **Constraints** | **Description** |
| DepartmentCode | VARCHAR(10) | PRIMARY KEY, NOT NULL | Unique identifier |
| DepartmentName | VARCHAR(100) | NOT NULL | Name of department |

**PROGRAM TABLE:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Data Type** | **Constraints** | **Description** |
| ProgramCode | VARCHAR(10) | PRIMARY KEY, NOT NULL | Unique identifier |
| ProgramName | VARCHAR(100) | NOT NULL | Name of department |

**PROGRAM COORDINATOR TABLE:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Data Type** | **Constraints** | **Description** |
| CoordinatorCode | VARCHAR(10) | PRIMARY KEY, NOT NULL | Coordinator’s unique identifier |
| UserID | INT | FOREIGN KEY, NOT NULL, AUTO INCREMENTED | Unique identifier for the user |
| DepartmentCode | VARCHAR(10) | FOREIGN KEY, NOT NULL | Coordinator’s department |
| ProgramCode | VARCHAR(10) | FOREIGN KEY, NOT NULL | Program they coordinate |
| Office | VARCHAR(100) | NULL | Cordinator’s office location |

**PROGRAM TABLE:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Data Type** | **Constraints** | **Description** |
| ProgramCode | VARCHAR(10) | PRIMARY KEY, NOT NULL | Program offered |
| ProgramName | VARCHAR(100) | NOT NULL | Name of program |

**ACADEMIC MANAGER TABLE:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Data Type** | **Constraints** | **Description** |
| AcademicManagerCode | VARCHAR(10) | PRIMARY KEY, NOT NULL | Unique identifier for academic manager |
| UserID | INT | FOREIGN KEY, NOT NULL, AUTO INCREMENTED | Unique identifier for the user |
| ManagerLevel | VARCHAR(50) | NOT NULL | College, high school |

**CLAIM TABLE:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Data Type** | **Constraints** | **Description** |
| ClaimNumber | VARCHAR(10) | PRIMARY KEY, NOT NULL | Unique identifier for a claim |
| LecturerCode | VARCHAR(10) | FOREIGN KEY, NOT NULL | Unique identifier |
| ClaimMonth | VARCHAR(50) | NOT NULL | Month that the claim is made |
| ClaimStatus | VARCHAR(50) | NOT NULL | Status of claim |
| TotalAmount | DECIMAL | NOT NULL | Total amount of the claim |

1. **GUI LAYOUT**

**Lecturer page:**

* **Navigation:** The navigation is a side bar navigation with dashboard, new claim, notification, and sign out as navigation menu options. The navigation bar also contains a profile section with a profile picture for a lecturer and the job title.
* **The content section**: The Content top section has statistics cards showing the claims pending, rejected, approved and paid. The bottom section contains claims that the lecturer has filed together with a submit and upload documents button. On the far right there is a notification area that has all the notifications about claim statuses and missing documents.

**Program Coordinator and Academic Manager page:**

* **Navigation:** The navigation is also side bar navigation with a dashboard, view claims, notification, and sign out as navigation menu options. The navigation bar also contains a profile section with a profile picture for a Program Coordinator or Academic manager and the job title.
* **The content section**: The Content top section has statistics showing the number of pending, rejected, approved and paid claims. The bottom section contains claims that the PC or AM can approve or reject with the click of a button. On the far right there is a notification area as well as the claim value which summarizes the amounts of claims paid, pending, approved, rejected, and the total overall amount.

1. **Constraints and assumptions**

* Claims must be submitted before a deadline date in a month
* Only lecturers can submit claims
* Only academic managers and program coordinators can approve or reject claims
* Documents uploaded must not exceed 5 MB
* A claim cannot be paid out unless it has been approved by either the PC or the academic manager
* Lecturers must be familiar with the claim policy including the acceptance and rejection of claims
* A lecturer can make one or more claims; and a claim is made by one and only one lecturer
* A program coordinator can coordinate one or more programs; and a program is coordinated by one and only one program coordinator
* A department can have more than one lecturer; and a lecturer belongs to one and only one department

1. **UML Class diagram for databases**

A diagram of a program

AI-generated content may be incorrect.

1. **Project Plan**

* The Work breakdown structure below highlights the tasks and the dependencies (Predecessors) of the monthly claim system:

**A screenshot of a computer

AI-generated content may be incorrect.**

* Below is a 45-day TimeLine for the whole project. The TimeLine excludes weekends and holidays:

A long line of a train

AI-generated content may be incorrect.

1. **GUI / UI**

**Lecturer Page:**

**A screenshot of a computer

AI-generated content may be incorrect.**

**Program Coordinator/ Academic Manager Page:**

**A screenshot of a computer

AI-generated content may be incorrect.**

1. **Version Control**

Github Commits:

* **A screenshot of a computer

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