

T-Notes

DBMS Project

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1. INTRODUCTION

As a college student, it is not uncommon to have a mess of notes scattered throughout your computer in multiple directories and sub-directories. T Notes is designed to help anyone organize and secure their notes in one place. The application allows for users to keep track of notes through multiple classes and semesters without the hassle of traditional note taking practices.

2. SYSTEM STUDY

2.1. Proposed system

T Notes provides the user with all the familiar functionality they would expect from such an application. Right off the bat, your notes are secured behind individual logins protected with user passwords. This allows for multiple users to share the application on one system or have an added layer of security. The application allows for the user to organize their notes by courses, which are defined by the course name, subject, semester, year, and the professor. T Notes provides the user with the ability to delete unwanted notes in order to clear clutter or modify existing notes to add information they might have missed the first time. Knowing the all too familiar structure of classes, T Notes furthermore allows for the user to define chapters and sections, so you can be sure to follow the professor with added ease. No more flipping through a traditional notebook, trying to keep up with that speedy professor! To add to the ease of going back and searching your notes, But wait, there's more! The body of the notes is used to automatically generate as many keywords as necessary to facilitate quick easy searches for the user. T Notes allows you to write a short summary in relation to each note you take, this way you can preview the notes before opening them and checking them out.

- **Ability to search notes by keyboards**
- **Records are efficiently maintained by DBMS**
- **A single machine allows access for multiple users**
- **Concrete dashboard gives quick access to all functions**
- **Hashing is added to the passwords for an extra added layer of security**

2.2. Introduction about the front end

This proposed software was developed using the technology from Microsoft called Visual Studio 2017 CE. It is the software that was used in order to sync, build and connect branches from all team members with GitHub as well as to design the user interface.

- Visual Studio was used for its highly interactive Graphical User Interface. It also partially generated code as it was built.
- Graphics were used from stock photography & photoshop to edit the stock photography
- Inkscape was used to create the T Notes logo from scratch
- The orange hue throughout the project RGB was used from the Sam Houston State University website as well as the SHSU logo

2.3. Introduction about the back end

Back end extensively utilized C# for its object-oriented design aiding in fast and streamlined development. C# was created by Microsoft to make software engineering for its windows environment developer friendly.

- C# provides essential feature rich libraries for concrete and rapid development
- Its object-oriented design allows for efficient and easy coding
- C# gives developers ample functionality for database interaction using the MySQL library

3. SYSTEM SPECIFICATION

3.1. Hardware Requirements:

- 512 MB RAM or above
- 5 GB Hard Disk or above
- Extended peripherals: Mouse, Keyboard, Monitor

3.2. Software Requirements:

- Operating system : Windows 7, 8, 10
- Front end : Visual Studio 2017
- Platform : MYSQL instance
- IDE : Visual Studio 2017 CE
- Database : MYSQL Workbench 8.0 CE
- Back end : C#

4. DATABASE DESIGN

4.1. Conceptual design

MySQL Workbench 8.0 CE was used to maximize the database performance and scalability. It provided the data modeling and SQL development for the server configuration on the backend for a single integrated environment.

- **SQL Development:** Enables you to create and manage connections to database servers. As well as enabling you to configure connection parameters. MySQL Workbench provides the capability to execute SQL queries on the database.
- **Data Modeling:** Enables you to create models of your database schema graphically, reverse and forward engineer between a schema and a live database, and edit all aspects of your database using the comprehensive Table Editor. The Table Editor provides easy-to-use facilities for editing Tables, Columns, Indexes, Triggers, Partitioning, Options, Inserts and Privileges, Routines and Views.
- **Server Administration:** Enables you to create and administer server instances.
- **Data Migration:** Allows you to migrate from Microsoft Visual Studio 2017

a.) Requirement Analysis:

List of Entities:

- User
- Note
- Course
- Keyword
- is_taking
- contains

List of attributes:

User:

1. user_id
2. username
3. password
4. first_name
5. last_name

Note:

1. note_id
2. note_title
3. chapter
4. section
5. summary
6. date
7. notes

Course:

1. course_id
2. course_name
3. subject
4. prof
5. semester
6. year

Keyword:

1. keyword_id
2. keyword

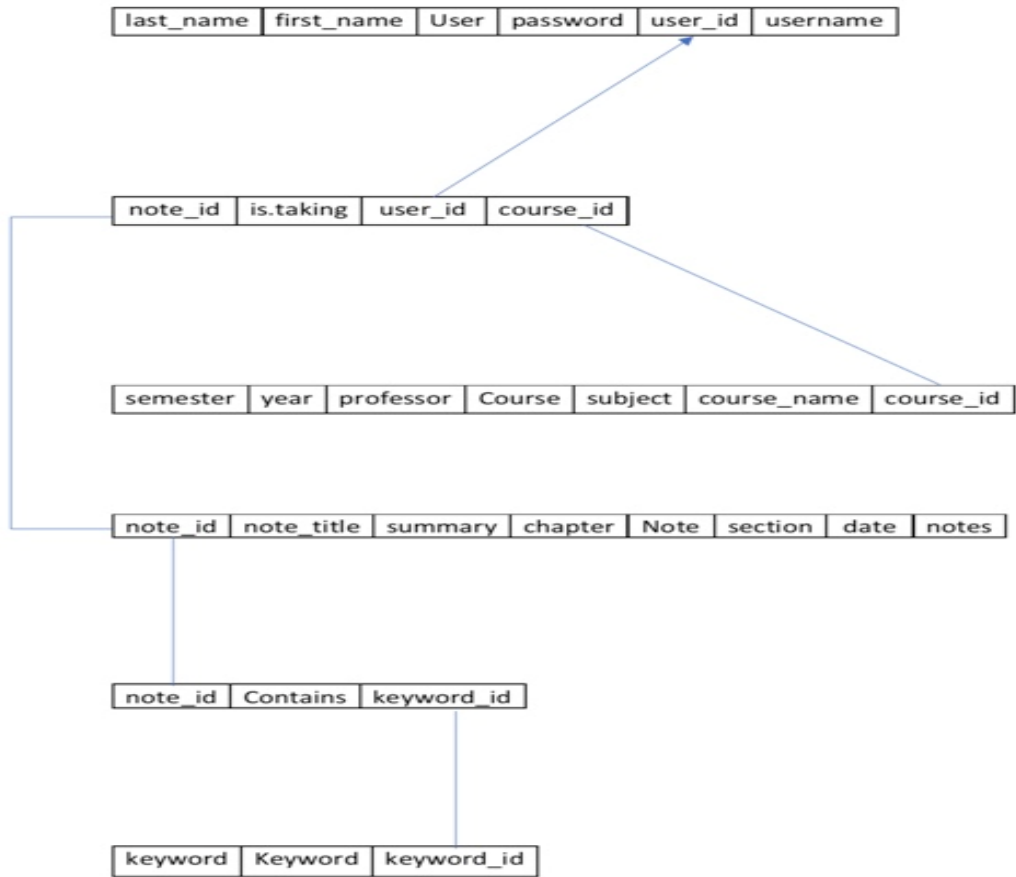
is_taking:

1. course_id
2. user_id
3. note_id

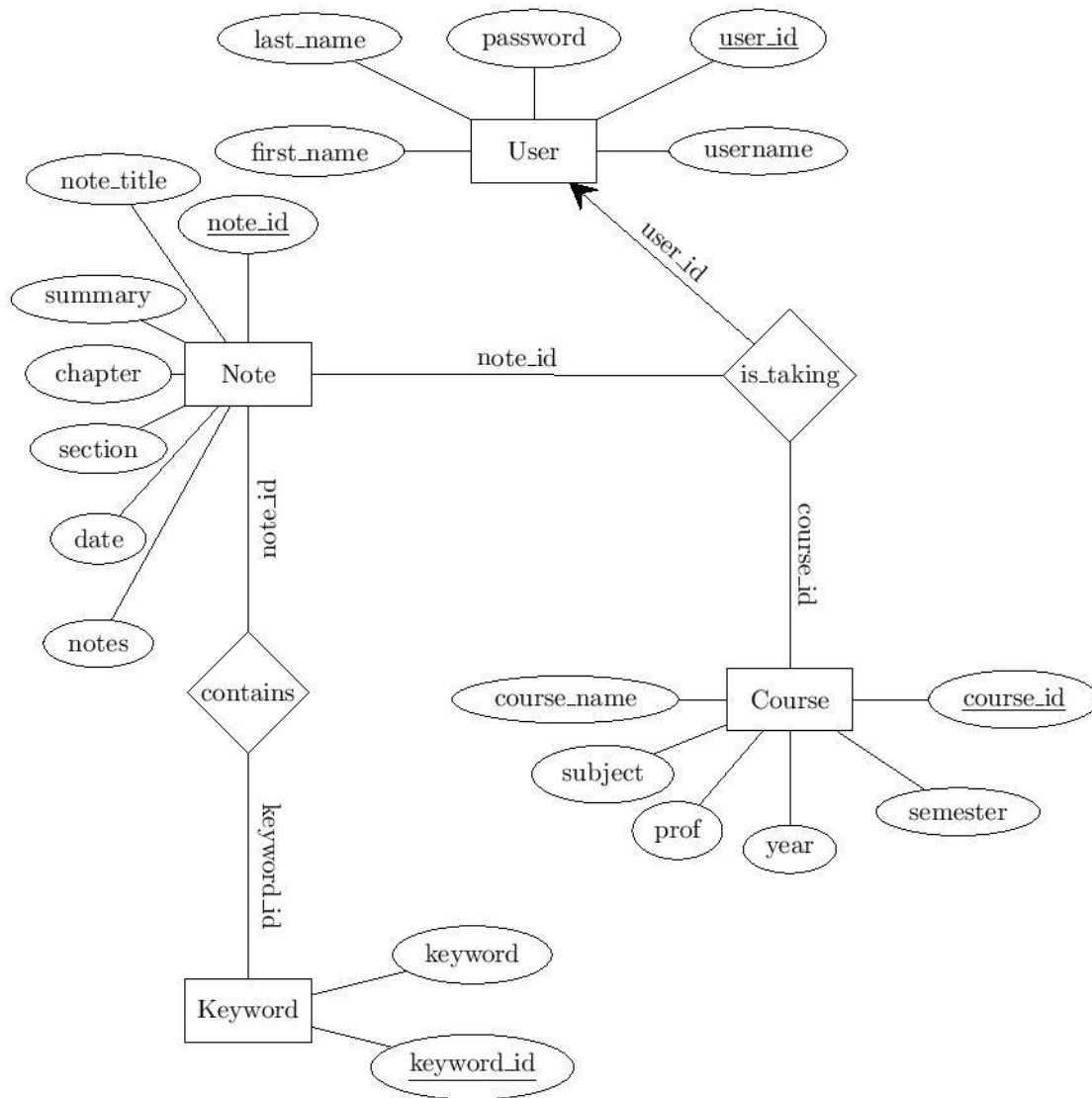
contains:

1. note_id
2. keyword_id

Schema:



b.) ER-MODEL:



4.2. Logical design:

1. Note: Keeps record of notes.

```
CREATE TABLE `note` (  
  `note_id` int(11) NOT NULL,  
  `note_title` varchar(45) DEFAULT NULL,  
  `chapter` int(11) DEFAULT NULL,  
  `Section` int(11) DEFAULT NULL,  
  `Summary` varchar(1000) DEFAULT NULL,  
  `Date` date NOT NULL,  
  `notes` longtext NOT NULL,  
  PRIMARY KEY (`note_id`),  
  UNIQUE KEY `note_id` (`note_id`)  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

.S.no	Field name	Data type	Description	Constraints
1	note_id	int(11)	Utilized for the Primary Key	Primary key
2	note_title	varchar(45)	Title of the note	
3	chapter	int(11)	Signifies the note chapter	
4	section	int(11)	Signifies the chapter section	
5	summary	varchar(1000)	Summary of the note	
6	date	date	Date the note was taken	
7	notes	longtext	Stores the note with a data limit of 4GB	

2. User: Keeps record of individual user information.

```
CREATE TABLE `user` (  
  `user_id` int(11) NOT NULL,  
  `username` varchar(45) NOT NULL,  
  `password` varchar(45) NOT NULL,  
  `first_name` varchar(45) DEFAULT NULL,  
  `last_name` varchar(45) DEFAULT NULL,  
  PRIMARY KEY (`user_id`),  
  UNIQUE KEY `username_UNIQUE` (`username`)  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

S.no	Field name	Data type	Description	Constraints
1	user_id	int(11)	Utilized for the Primary Key	Primary key
2	user_name	varchar(45)	Unique user name to identify the user	username_UNIQUE
3	password	varchar(45)	Password for each user account	
4	first_name	varchar(45)	Define users first name	
5	last_name	varchar(45)	Define users last name	

3. Course: Keeps track of user defined courses.

```
_CREATE TABLE `course` (  
  `course_id` int(11) NOT NULL,  
  `course_name` varchar(45) DEFAULT NULL,  
  `subject` varchar(45) DEFAULT NULL,  
  `prof` varchar(45) DEFAULT NULL,  
  `semester` varchar(45) DEFAULT NULL,  
  `year` int(11) DEFAULT NULL,  
  PRIMARY KEY (`course_id`)  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

S.no	Field name	Data type	Description	Constraints
1	course_id	int(11)	Utilized for the Primary Key	Primary key
2	course_name	varchar(45)	User defined course name to identify course	
3	subject	varchar(45)	User defined subject to categorize the courses	
4	prof	varchar(45)	User defined professor to categorize the courses	
5	semester	varchar(45)	User defined semester to categorize the courses	
6	year	int(11)	User defined year to categorize the courses	

4. Keyword: Auto generated keywords for the notes.

```
CREATE TABLE `keyword` (  
  `keyword_id` int(11) NOT NULL,  
  `keyword` varchar(45) DEFAULT NULL,  
  PRIMARY KEY (`keyword_id`),  
  UNIQUE KEY `keyword_id` (`keyword_id`),  
  UNIQUE KEY `keyword` (`keyword`)  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

S.no	Field name	Data type	Description	Constraints
1	keyword_id	int(11)	Utilized for the Primary Key	Primary key
2	keyword	varchar(45)	Backend generated keywords from the notes	keyword

5. is_taking: Defines the relationship between the user, notes and courses.

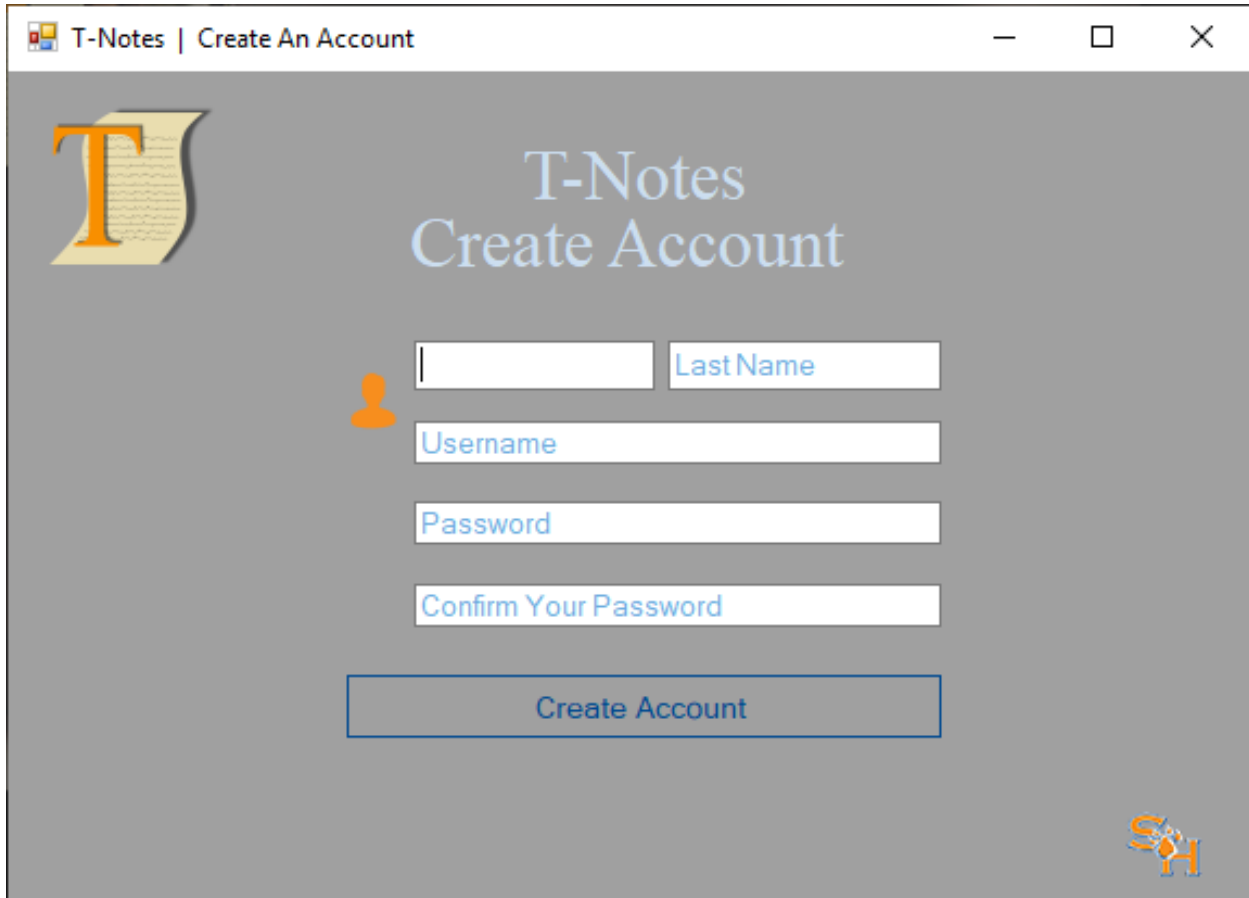
```
CREATE TABLE `is_taking` (  
  `course_id` int(11) NOT NULL,  
  `user_id` int(11) NOT NULL,  
  `note_id` int(11) NOT NULL,  
  PRIMARY KEY (`course_id`,`user_id`,`note_id`)  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci
```

S.no	Field name	Data type	Description	Constraints
1	course_id	int(11)	Primary key to form relationships	Primary key
2	user_id	int(11)	Primary key to form relationships	Primary key
3	note_id	int(11)	Primary key to form relationships	Primary key

5. IMPLEMENTATION


Briefly introduce each function of your program with screen shot to demonstrate
([instruction manual of your program](#))

Create an account allows for the user to create a T-Notes account



T-Notes | Create An Account

T-Notes
Create Account

 Last Name

Username

Password

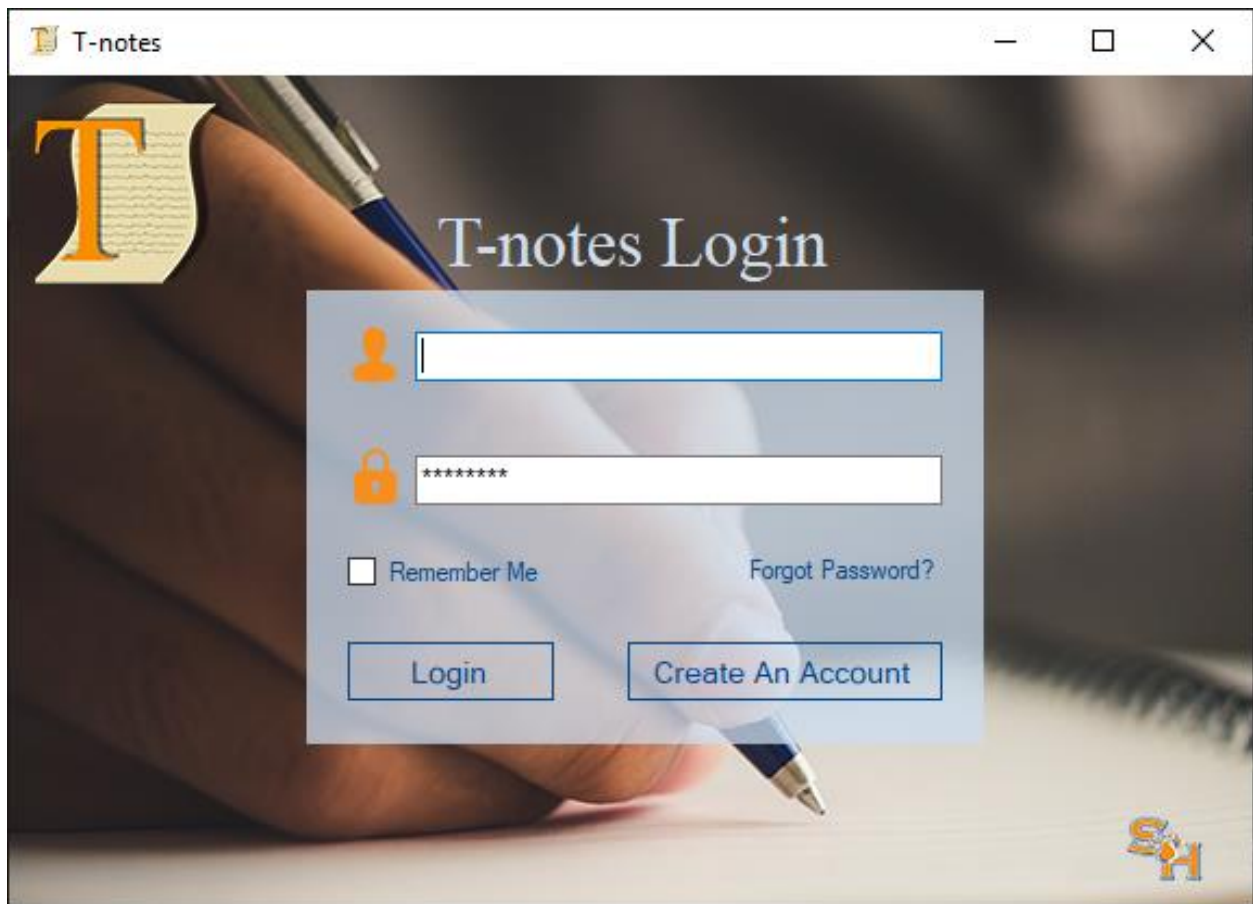
Confirm Your Password

Create Account

SH

Login

Allows the user to Login to T-Notes



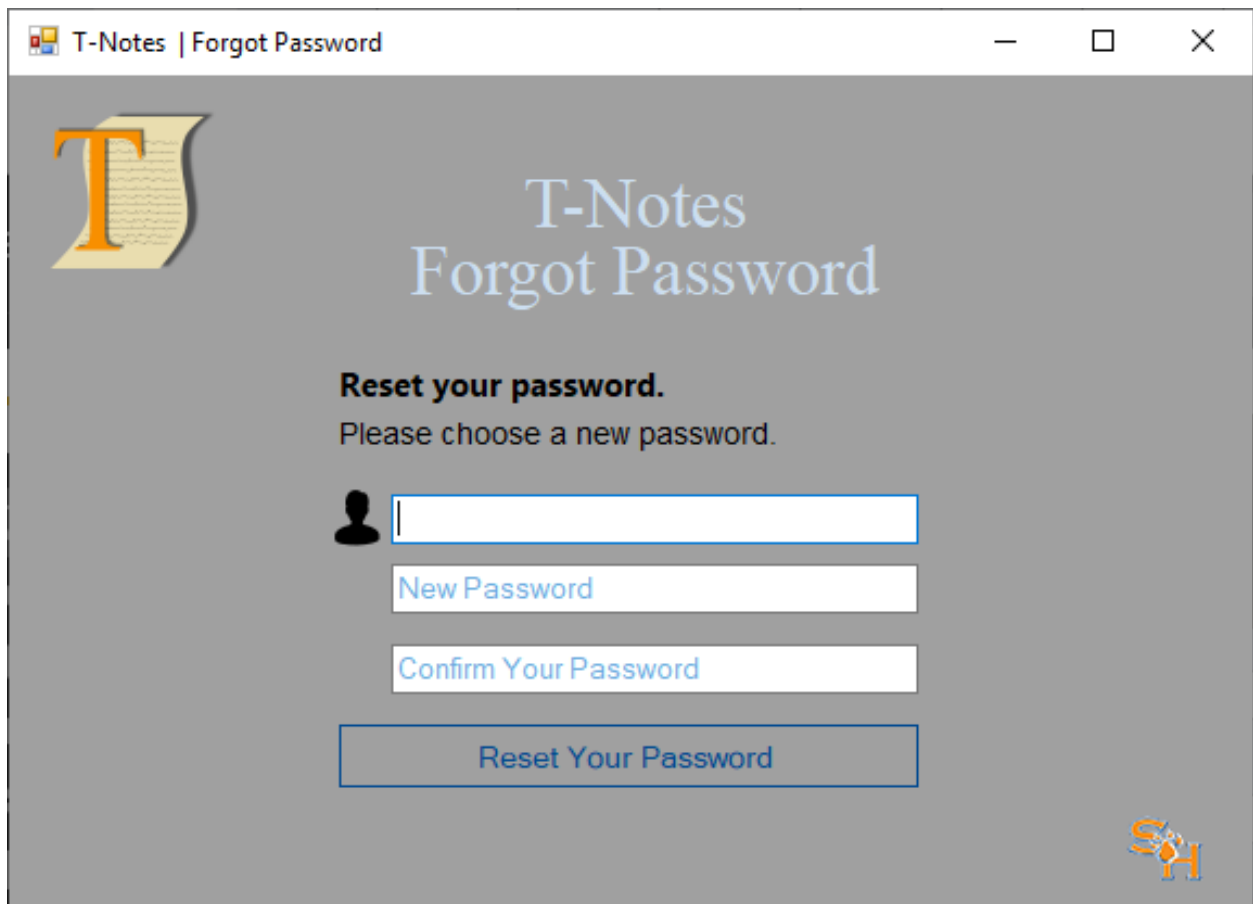
The screenshot shows a web browser window titled "T-notes". The background image depicts a hand holding a pen, writing on a notepad. In the top left corner, there is a large orange letter "T" on a piece of paper. The text "T-notes Login" is displayed in a large, white, serif font. A semi-transparent blue login form is centered on the page. The form contains the following elements:

- A username input field with an orange person icon to its left.
- A password input field with an orange padlock icon to its left and masked text "*****".
- A checkbox labeled "Remember Me" with the text "Forgot Password?" to its right.
- A "Login" button.
- A "Create An Account" button.

In the bottom right corner of the background image, there is a small logo with the letters "S" and "H" in orange and blue.


Forgot Password

Enables a user to reset their password




The screenshot shows a web browser window titled "T-Notes | Forgot Password". The page has a grey background. In the top left corner, there is a logo featuring a large orange letter 'T' on a yellow scroll. The main heading "T-Notes" is in a large, light blue serif font, and "Forgot Password" is in a slightly smaller, light blue serif font below it. The instructions "Reset your password." and "Please choose a new password." are in a bold black sans-serif font. Below these are three input fields: the first is preceded by a black person icon and is empty; the second is labeled "New Password" in light blue; the third is labeled "Confirm Your Password" in light blue. A blue "Reset Your Password" button is at the bottom. A small "SH" logo is in the bottom right corner.


T-Notes | Forgot Password



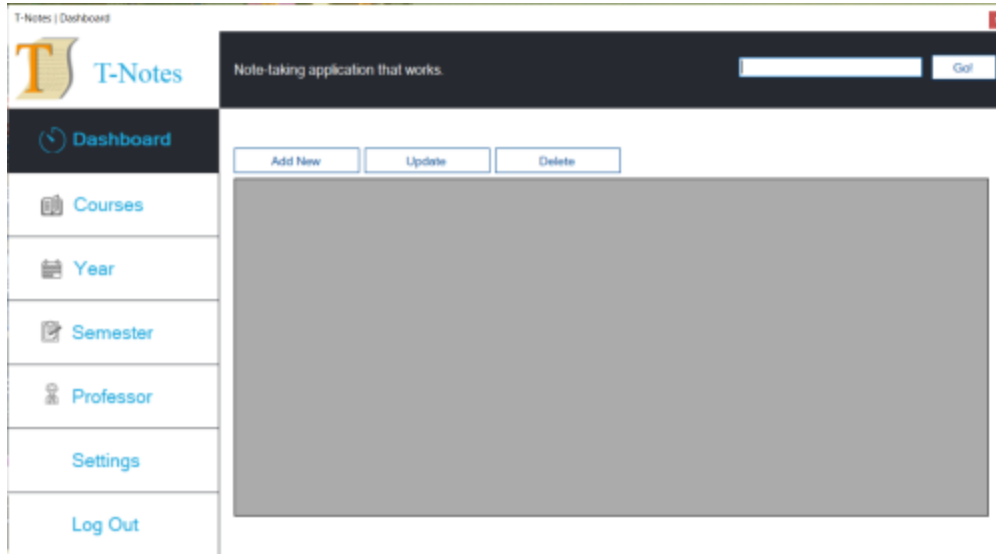
T-Notes Forgot Password

Reset your password.
Please choose a new password.



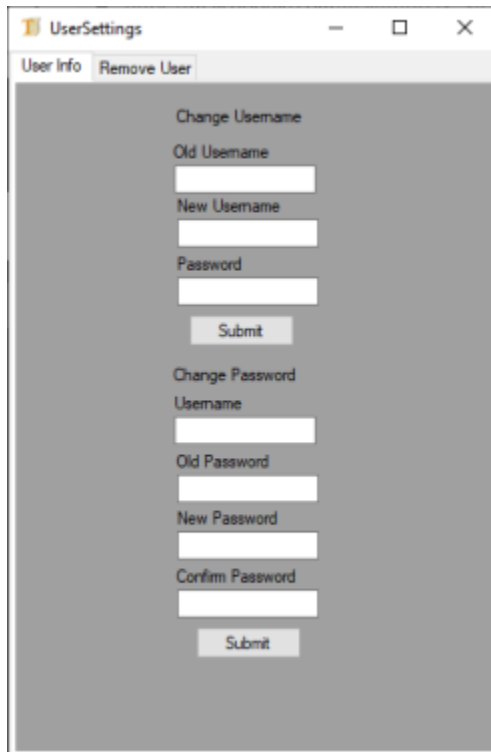


Dashboard – after login it takes the user to the dashboard



User Settings – Accessed via Dashboard

Ability to change their username and password after login

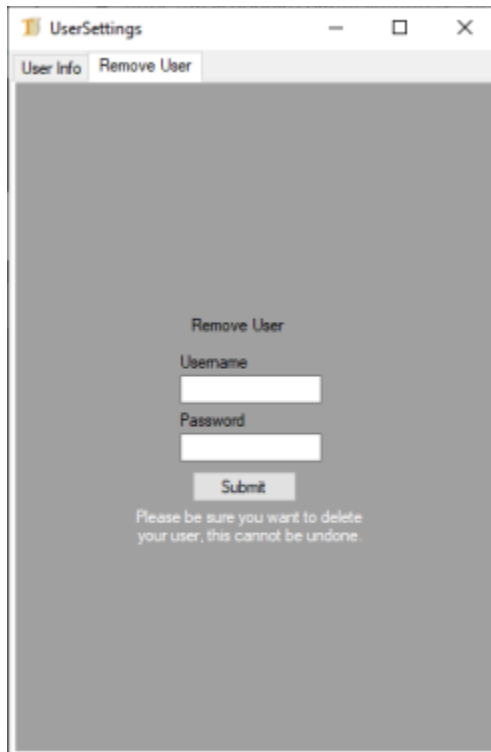


The screenshot shows a web application window titled "UserSettings". It has two tabs: "User Info" (selected) and "Remove User". The "User Info" tab contains two main sections:

- Change Username:**
 - Old Username:
 - New Username:
 - Password:
 - Submit:
- Change Password:**
 - Username:
 - Old Password:
 - New Password:
 - Confirm Password:
 - Submit:

User Settings – Accessed via Dashboard

Ability to delete a user



The screenshot shows a web application window titled "UserSettings". It has two tabs: "User Info" and "Remove User", with the latter being the active tab. The main content area is a light gray rectangle. In the center, the text "Remove User" is displayed. Below it are two input fields: "Username" and "Password". A "Submit" button is positioned below the password field. At the bottom of the form, a warning message reads: "Please be sure you want to delete your user; this cannot be undone."

UserSettings

User Info Remove User

Remove User

Username

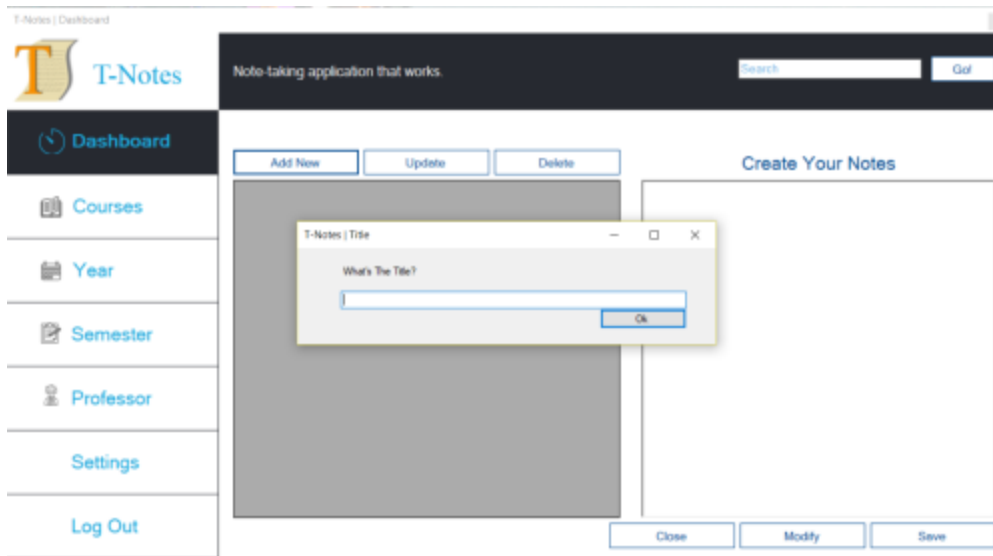
Password

Submit

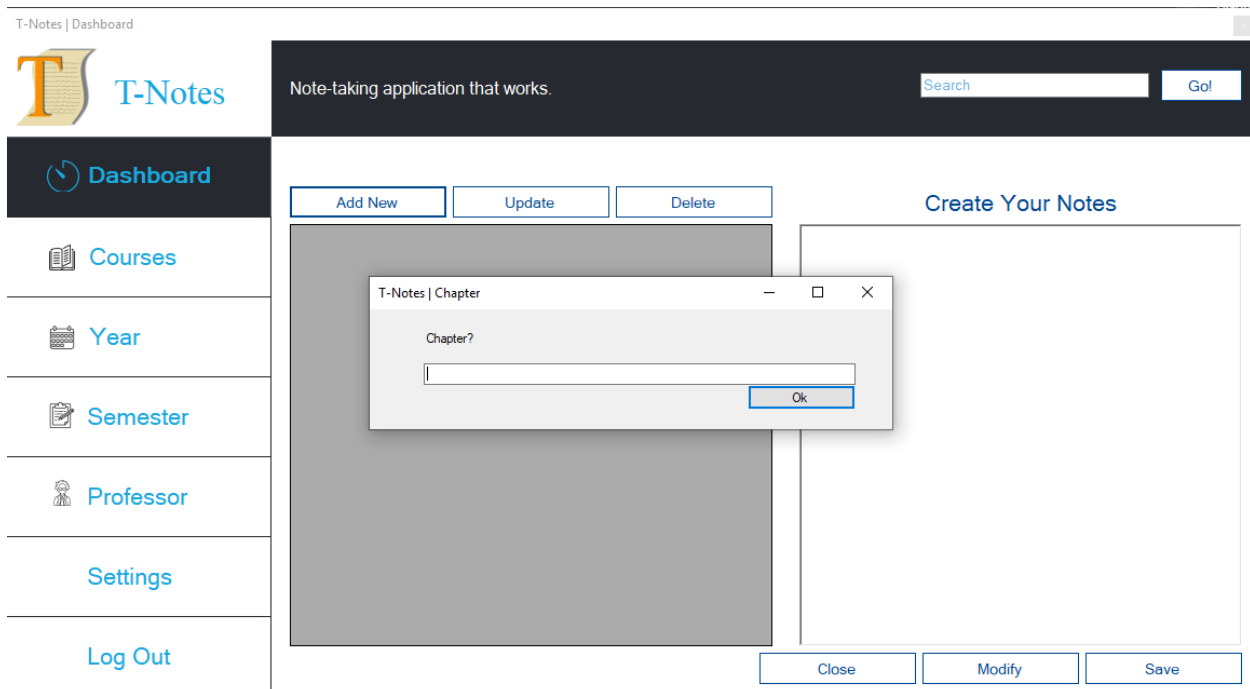
Please be sure you want to delete your user; this cannot be undone.

ADD Function

Ability to Add a note starting with title.



Next define the Chapter



Define the section

T-Notes | Dashboard

T-Notes Note-taking application that works.

Dashboard

Create Your Notes

T-Notes | Section

Section?

Define the summary of the note

T-Notes | Dashboard

T-Notes Note-taking application that works.

Dashboard

Create Your Notes

T-Notes | Summary

Short Summary?

Select the course you would like to save it to

T-Notes | Dashboard

T-Notes

Note-taking application that works.

Dashboard

Courses

Year

Semester

Professor

Settings

Log Out

Create Your Notes

T-Notes | Select Course

DBMS

Course Subject Professor Semester Year

Now you can type out your note and save it

T-Notes | Dashboard

T-Notes

Note-taking application that works.

Dashboard

Courses

Year

Semester

Professor

Settings

Log Out


Create Your Notes

Hello world

Function via Display all courses

Ability to Add a note, Update a note and Delete a note

T-Notes | Dashboard



Note-taking application that works.

Dashboard

Courses

Year

Semester

Professor


Settings

Log Out

Course ID	Courses	Subject	Professor	Semester	Year
1	DBMS	COSE	Jenny	Spring	2019
*					

Display all available courses

T-Notes | Dashboard



Note-taking application that works.

Dashboard

Courses

Year

Semester

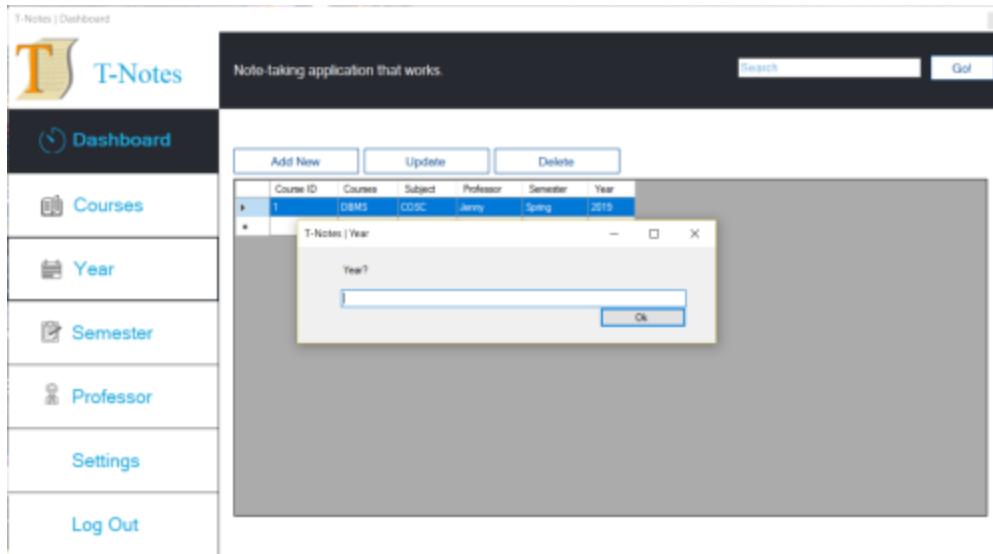
Professor

Settings

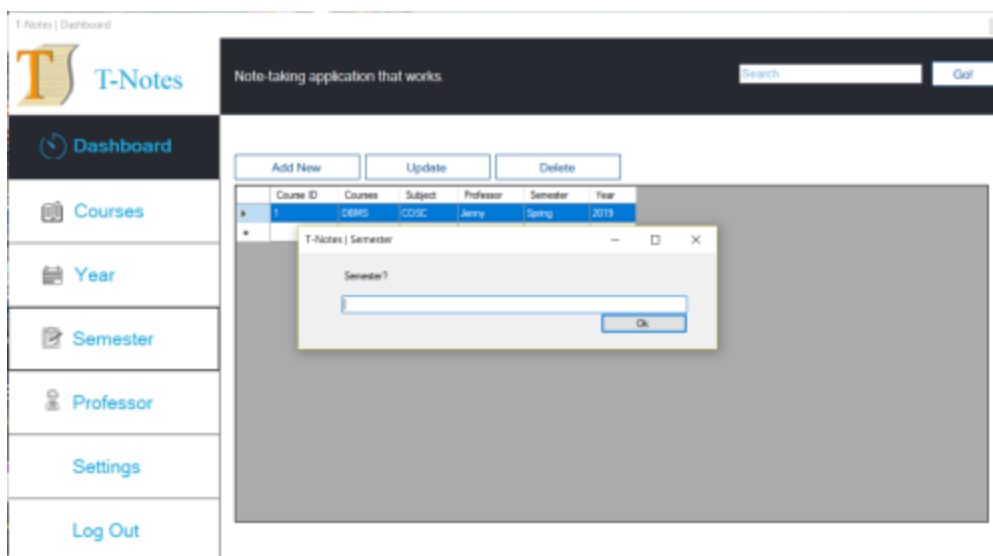
Log Out

Course ID	Courses	Subject	Professor	Semester	Year
1	DBMS	COSE	Jenny	Spring	2019
*					

Display all courses by year



Display all courses by semester



Display all courses by professor

T-Notes | Dashboard

T-Notes

Note-taking application that works.

Search

Go!

Dashboard

Courses

Year

Semester

Professor

Settings

Log Out

Add New

Update

Delete

Course ID	Courses	Subject	Professor	Semester	Year
1	DBMS	COSE	Jerry	Spring	2019

T-Notes | Professor

Professor?

Ok

Search a Keyword

T-Notes | Dashboard

T-Notes

Note-taking application that works.

hello

Go!

Dashboard

Courses

Year

Semester

Professor

Settings

Log Out

Add New


Update

Delete

Note ID	Note Name	Chapter	Section	Date	Summary
2	asfasdfasdf	1	1	4/30/2019 12:00...	asfasdfas
1	asdfasdfas	1	1	4/30/2019 12:00...	1

Open notes from the Database

T-Notes | Dashboard

 T-Notes

Note-taking application that works.

Dashboard

Courses

Year

Semester

Professor

Settings

Log Out

Add New

Update

Delete

	Note ID	Note Name	Chapter	Section
▶	2	asfasdfasdfasdf	1	1
	1	asdfasdfasdfas	1	1
*				

Create Your Notes

Hello world

6. ADDITIONAL COMMENTS (optional)

Work more on different features to develop T-notes into a windows universal application.

Implement a web-based interface to allow access from anywhere.

Utilize the keyword entity to create flashcards for the user.

MD – 5 hashing on passwords

7. SOURCECODE

Attach you source code – Included in a Zip file in this email.