



KVVFJ

Certificate of Completion

This certificate is awarded to

Krishna Noutiyal

for his excellent performance in Python and MySQL based
Computer Science Project

Given this October 14, 2022.

Yogesh Gupta
Teacher



About Us

Hello and welcome to our CS Project,
We call it

!! The Demonstrator !!

We are the students of a great school :

" Kendriya Vidhyalay Vehical Factory Jabalpur "

Studying in 12th,

This is our CS Project given to use by,

Our great CS teacher : **Mr. YOGEH GUPTA**

The Project Theme was,

Interaction of Python and MySQL

Our Project Name is : **Demonstrator**

The Demonstrator

In total Took around 7 days to develop and has
multiple, great ways to protect the

Sensitive Information of a User

From getting Breached





This project encrypts the user's Sensitive Information
before it gets transferred to the database

With not just any Encryption.

Features of Encryption:

1) SHA256 Hashing algorithm

2) One-Way Encryption

3) Decryption key

4) Key is 128 bit

5) Randomly generated Key



INTRO

Hello and welcome to our CS Project this project is a practical demonstration of how user's information is secured by a website.

Securing user's information doesn't only include the use of strong passwords by the user or two step verification but instead

It also includes the following things:

- **The protocol used while exchange of data from the server to website to a client**
- **How the password is stored in a database**
- **How the data is retrieved from the database to server**
- **And finally, how the data is retrieved from the server to the client**

There are obviously many more things to be considered to maintain the security integrity and reliability of data

We are living in a modern world in which data breaches occur more often than the change in ruling party in a government.

And in this world, internet addiction is more than the alcoholic addiction

This means the data needs to be Guarded 24/7 without any mistake
But the truth is humans make mistakes it's in human nature.



Here comes the **COMPUTERS**,

Computers don't make mistakes that's why we can trust them and ensure a 24 into 7 guarding of the precious Data without any mistake.

When it comes to protection there are multiple ways in which data can be protected from the hackers or at least from someone who shouldn't have it.

How data is protected on website ?

Multiple ways by which data is protected in this digital world are:

1. Using hashing
2. Using secure protocols like HTTPS instead of HTTP
3. Lowering the access to data

**Below are the meanings of each term used
above 😊**





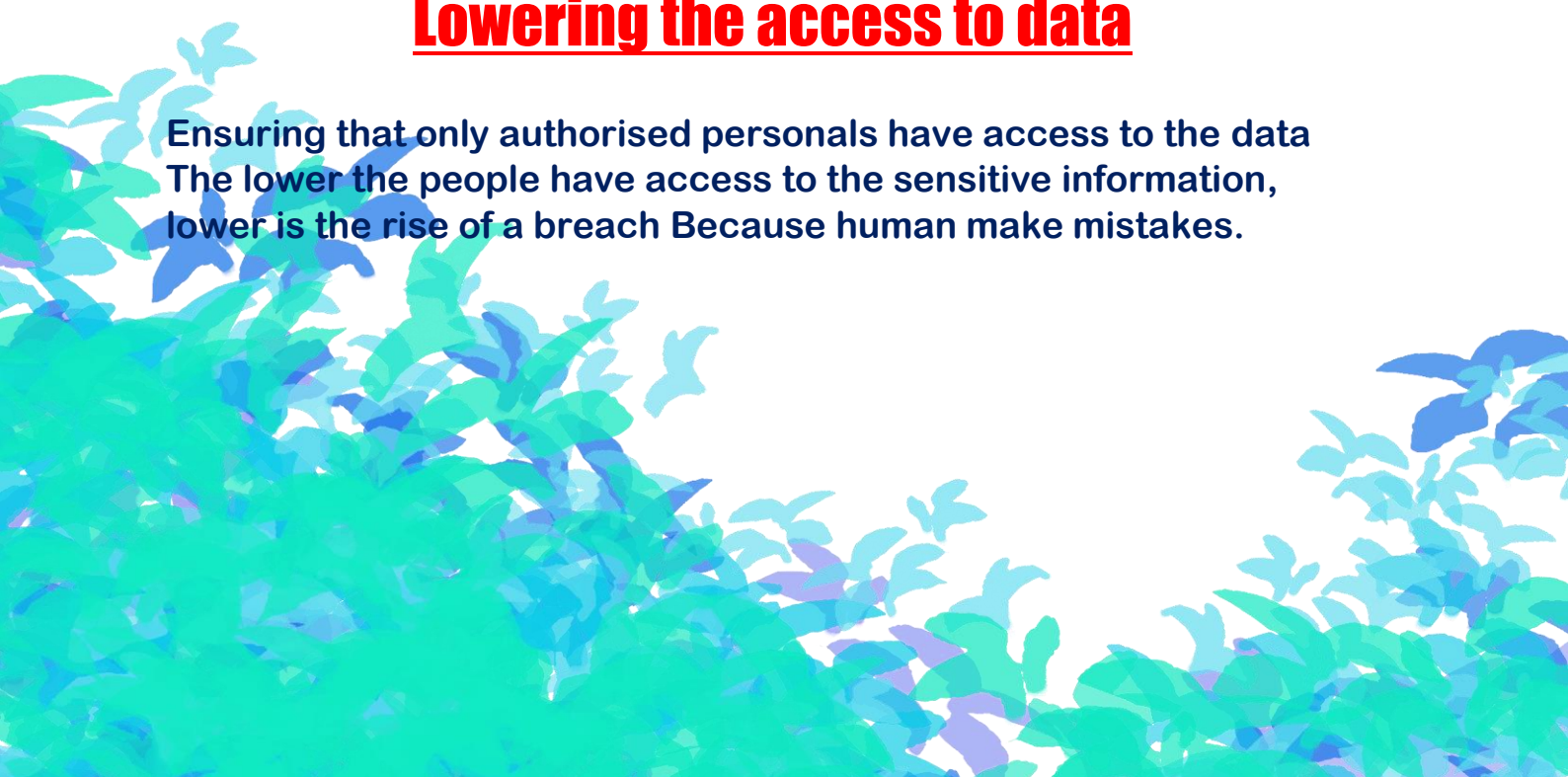
Hashing

Hashing is the process of transforming any given key or a string of characters into another value which is hard to remember or crack. In addition to hashing, salting is also used to ensure additional security of sensitive information.

HTTPS AND HTTP

HTTPS (Hypertext Transfer Protocol Secure) is an extension of the HTTP (Hypertext Transfer Protocol). It is used for secure communication over a computer network. The communication protocol is encrypted using Transport Layer Security.

Lowering the access to data



Ensuring that only authorised persons have access to the data. The lower the people have access to the sensitive information, lower is the risk of a breach. Because humans make mistakes.



How the website is made ?

The website is made in flask a module of Python which is used in web development and the database this website connects to is a local instance of MySQL

Modules used

1. json

2. flask

3. mysql.connector

4. cryptography

5. Virtualenv





Use of these modules

1. Json

Use in the interaction of JavaScript and Python to transfer the data from client to server.

2. Flask

Used for local deployment of server for the website and its template manipulation and other functionalities for easy in the development process of website.

3. Mysql.connector

Connector module used for the interaction between server and my SQL database

4. Cryptography

It is used for the encryption of sensitive information provided by the user that has to be stored in the database.

5. Virtualenv

Used to create a Virtual Environment for a fresh development

Content of the Python file

```
import json
from flask import Flask, render_template, redirect, url_for, request
import mysql.connector as sql
from cryptography.fernet import Fernet
app = Flask(__name__)

log = False
UserName = ""
Passwd = ""

def Key():
    """Returns the Key to be used"""
    return open("Encryption.key", "rb").read()

def Encrypt(String, Key=Key()):
    """Encrypts a string \nReturns Encrypted string"""
    return Fernet(Key).encrypt(String.encode())

def Decrypt(String, Key=Key()):
    """Decrypts a string \nReturns Decrypted string"""
    return Fernet(Key).decrypt(String).decode()

# Variable containing the Mode of the website if dark ('dark') if light ('')
BodyMode = ""
SideBar = ""

# Display : Msg1 displayed if UserName and Passwd is incorrect
Display = ""

# Display : Msg2 displayed if UserName and Passwd is incorrect
Display1 = ""

# Msg Displayed when redirected from Signup page to Login Page
SignupDisplay=""
SignupDisplay1=""
```

Content of the Base.html file

```
<!DOCTYPE html>
<html Lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-
scale=1.0" />

    <!--===== CSS ===== -->
    <link
      rel="stylesheet"
      href="{{url_for('static', filename='CSS/Nav.css')}}}"
    />
    <link
      rel="stylesheet"
      href="{{url_for('static', filename='CSS/Loader.css')}}}"
    />

    <!--===== FAV Icon ===== -->
    <link
      rel="shortcut icon"
      href="{{url_for('static', filename='Images/Logo.jpg')}}}"
      type="image/x-icon"
      style="border-radius: 50px"
    />

    <!--===== Boxicons CSS ===== -->
    <link
      href="https://unpkg.com/boxicons@2.1.1/css/boxicons.min.css"
      rel="stylesheet"
    />

    {% block head %} {% endblock %}
  </head>
```


Content of Nav.scss file

```
/* Google Font Import - Poppins */
@import
url('https://fonts.googleapis.com/css2?family=Poppins:wght@300;400;500;
600;700&display=swap');
*{
  margin: 0;
  padding: 0;
  box-sizing: border-box;
  font-family: 'Poppins', sans-serif;
}

:root{
  /* ===== Colors ===== */
  --body-color: #E4E9F7;
  --sidebar-color: #FFF;
  --primary-color: #695CFE;
  --primary-color-light: #F6F5FF;
  --toggle-color: #DDD;
  --text-color: #707070;

  /* ===== Transition ===== */
  --tran-03: all 0.2s ease;
  --tran-03: all 0.3s ease;
  --tran-04: all 0.3s ease;
  --tran-05: all 0.3s ease;
}

body{
  min-height: 100vh;
  background-color: var(--body-color);
  transition: var(--tran-05);
}

::selection{
  background-color: var(--primary-color);
  color: #fff;
}
```

Content of Loader.scss file

```
@use "Var";
.Loader-Wrapper {
  width: 100%;
  height: 100%;
  position: fixed;
  z-index: 1000;
  top: 0;
  left: 0;
  background-color: Var.$primary-color;
  display: flex;
  flex-direction: column;
  justify-content: start;
  align-items: center;
  & .Loading-Text {
    margin-top: 5rem;
    color: Var.$primary-color-light;
    font-size: 64px;
    font-weight: 800;
    letter-spacing: 4px;
    padding-left: 3rem;
  }
}
body.dark .Loader-Wrapper{
  background-color: Var.$Darkprimary-color;
}
.Lds-ring {
  margin-top: 20rem;
  display: inline-block;
  position: relative;
  width: 80px;
  height: 80px;
}
.Lds-ring div {
  box-sizing: border-box;
  display: block;
  position: absolute;
}
```


Content of Login.scss file

```
@use "Var";

body.dark {
  --body-color: #18191a;
  --sidebar-color: #242526;
  --primary-color: #3a3b3c;
  --primary-color-light: #3a3b3c;
  --toggle-color: #fff;
  --text-color: #ccc;
}

.FormCont {
  height: 90vh;
}

.formbars {
  width: 100%;
  height: fit-content;
  // background-color: Var.$primary-color;
  & form {
    width: 30%;
    margin: auto;
    display: flex;
    align-items: center;
    justify-content: start;
    margin-top: 5rem;
    flex-direction: column;
    & span {
      // align-self: ;
      padding: 22px 20px;
      display: flex;
      flex-direction: column;
    }
    & button {
      align-self: flex-end;
      margin-right: 2rem;
      color: Var.$text-color;
      cursor: pointer;
      &:hover {
        color: Var.$Darkbody-color;
      }
    }
  }
}
```

Size of the Project

There is much more content in the Project but it cannot be presented in a PDF because it will be too long to represent.

This is a web application running on flask in Python
Thus there are multiple webpages included in this project.

The project took over **20 hours** of work and was completed in **7 days**.

This Web app (Demonstrator) is made by the use of

HTML

CSS / SCSS

JS / jQuery

Python

MySQL

In terms of no. of lines of code:

This Project contains more than **1500+ lines of code**
written amongst multiple files of **HTML, SCSS, CSS, JS, PY**



Q) Well, if I can't see the code in pdf, where else can I get the Source code of this project ?

Ans. You can get the source code of this project by visiting my GitHub repository.

Link to the GitHub repository:

[Click Me](#)

Or

Follow this link :

<https://github.com/Krishna-Noutiyal/Python-MySQL-Project.git>



Software & Website Used

When developing a website or an app the most important thing to consider is time.

Specific software gives use special feature to write fast and effective program saving a chunk lot of time.

Software used in the development:

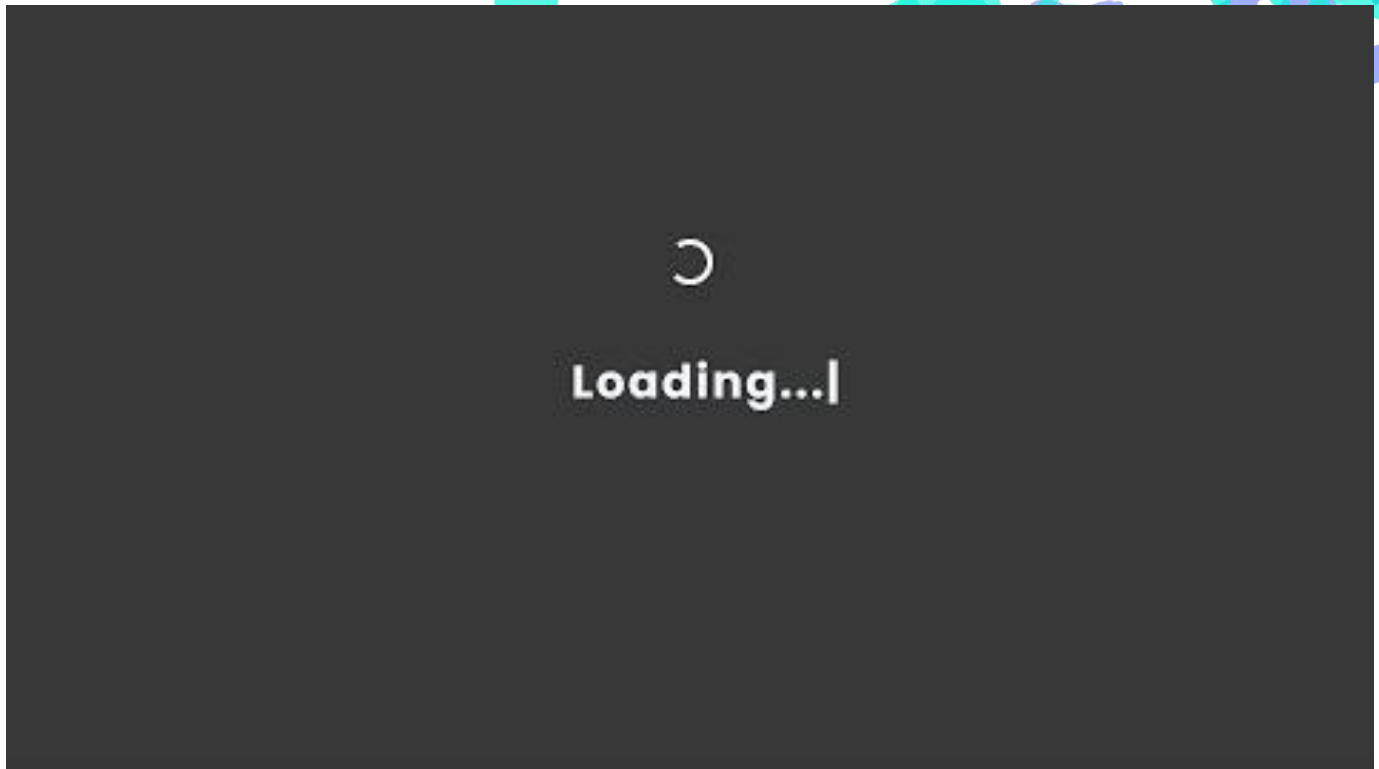
1. Text Editor : VS Code
2. Web Browser : Chrome
3. Terminal : Window's Terminal
4. Compilers : Sass Compiler, Python compiler
5. Online Host : GitHub

Website used in the development:

1. Font used in the website : fonts.google.com
2. jQuery used in the website : ajax.googleapis.com
3. Loader in the website : <https://loading.io/css/>
4. Navigation bar in the website : codinglabweb.com
5. Solving Errors in development : stackoverflow.com
6. Icons used in the Website : boxicons.com
7. Typing animation : github.com/mattboldt/typed.js/

Output Video

Animated Video demonstration of our project :



If you are seeing the hard copy above is the video demonstration
Of the project:

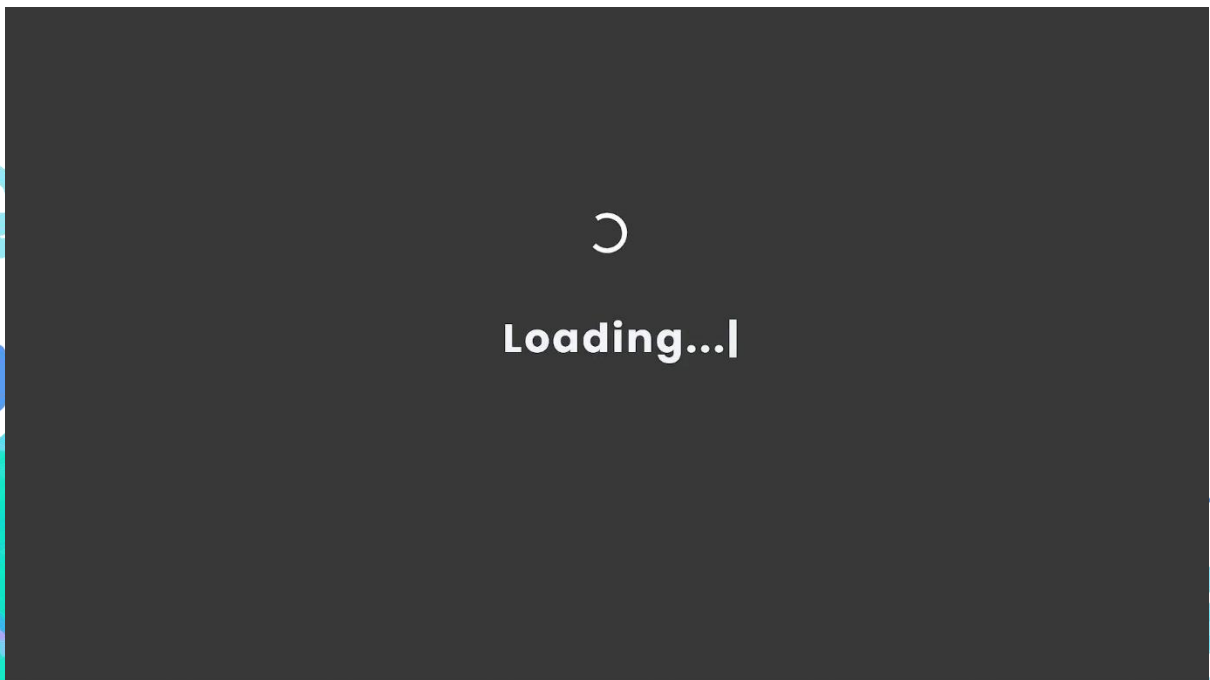
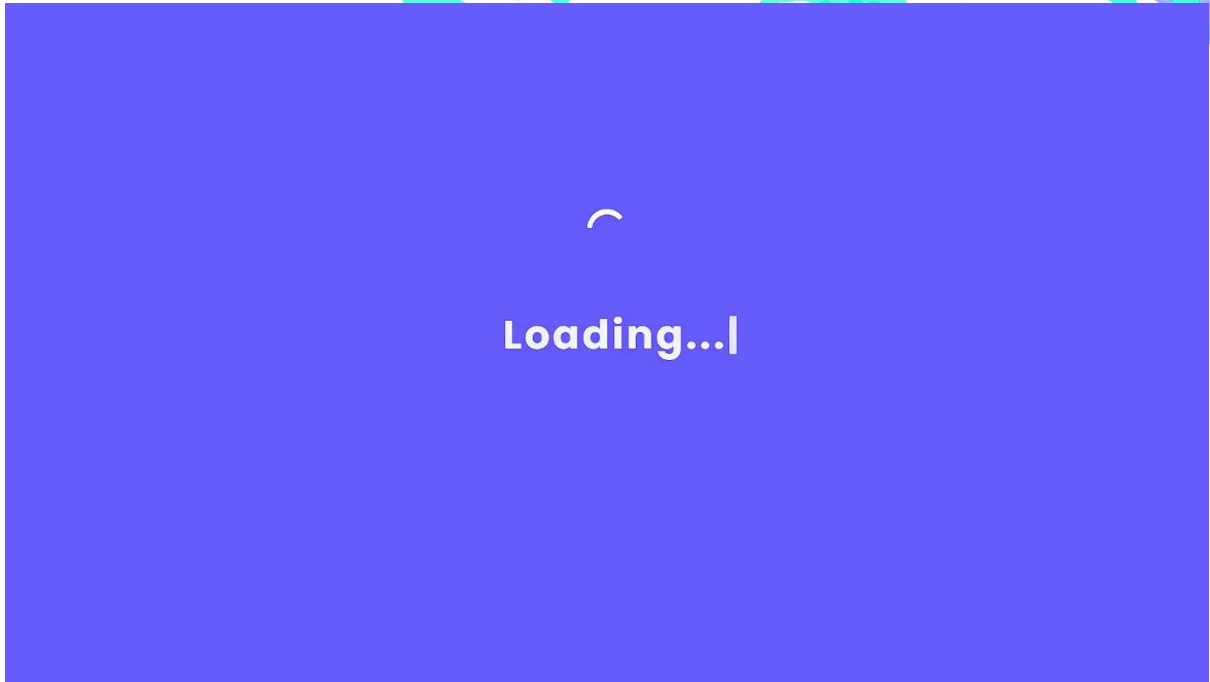
This video shows the main highlighting
Features of the website

This gives an overview of what this project is made for

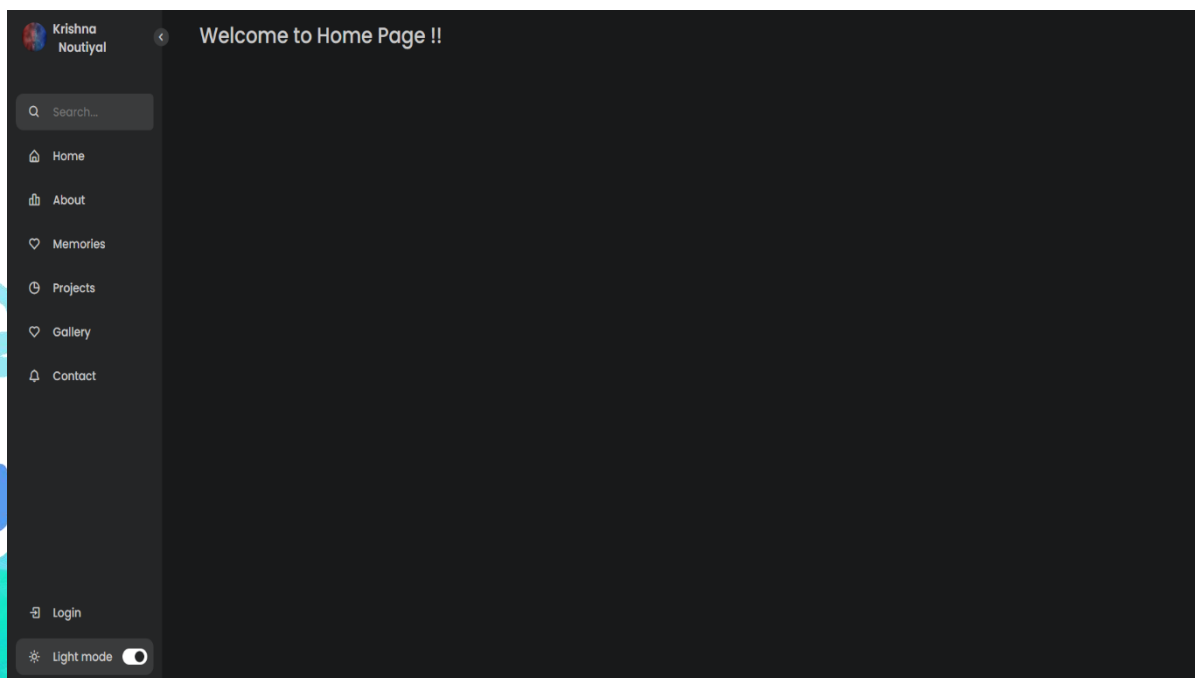
“To demonstrate the security of Data in this World”

Output Images


Loading Screen :



Home Page :



Login Page :



Krishna Noutiyal

✕

Login to your Account

Q Search...

Home

About

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Projects

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Contact

Login

Dark mode ☐

Login Form

UserName :


Username

Password :

Password

Submit

[Signup](#)[Forgot Password ?](#)



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Q Search...

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Login Form

UserName :

Username


Password :

Password

Submit

[Signup](#)[Forgot Password ?](#)

Signup Page :



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SignUp for an Account !!

Be Carefull while entering the Username and Email
UserName and Email can't be changed later ON !!

SignUp Form

UserName :

Username

Email :


Enter your Email...

Password :

Password

Submit

[Back to Login](#)



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SignUp Form

UserName :

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Email :

Enter your Email...


Password :

Password

Submit

[Back to Login](#)

Recovery Page :



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Recover Your UserName and Password

Enter the Email Associated with your ACCOUNT

You will get your UserName and Password linked with your Email


Recovery Form

Email :

Submit

[Change Credentials](#)

[Back to Login](#)



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[Change Credentials](#)

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Change Credentials Page :

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Dark mode ☐

Change Your Login Credentials

Enter Correct Username and Email linked to your Account
Both Email and Password must be Correct

Change Credentials

UserName :


AND

Email :

New Password :

Submit

[Back to Login](#)

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Light mode ☒

Change Your Login Credentials

Enter Correct Username and Email linked to your Account
Both Email and Password must be Correct

Change Credentials

UserName :

AND

Email :

New Password :

Submit

[Back to Login](#)

Database:

Enter password: *****

Welcome to the MySQL monitor. Commands end with ; or \g.

Your MySQL connection id is 13

Server version: 8.0.30 MySQL Community Server - GPL

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Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

```
mysql> use flask;
Database changed
mysql> select * from flask;
```

Username	Email	Passwd	UDate
a	gAAAAABjQn0CNlP8sq0_8tGfJzXdGuHlduFU68uKhSGftvKNO3ff9Suyk0820hbq2bOZT5LyrpxBNPvn6ER07yqa-9tItt==	gAAAAABjQn0CfzAax87XpbyLnVNm08vocqMD_3JsM83IzGFTInc0hLJXp7ZEA1UatDhplvcN84qByKpHkV8Fp_nfuVpdwLQBw==	2022-10-09 13:19:22
bb	gAAAAABjQk8rGjvmdIU5yRYV-M5KS9msGpGrV5fsXETyQV3q0L40B3V5W0_u0s4YIbovV7FvTWK20TVLyb_yR4QrjAWTRHuM04xx6cliHg3Tzh2dwV=	gAAAAABjQltUsluYdGZf17wFgeR201PCzDyVR03mCptxQRNj1q6pmp20gm4HG98qB1jaqFQpAmiRqMBvzKMcA-Jk_g4HoWeg==	2022-10-09 10:57:05
boyz	gAAAAABjR0MS2eM7TBWDXZ3IRLsLfxzLqsn-nrv3PZDpsagn_v2nfiqc50c26vQD21QeqQ9Cvng6L901F6H9j2WmMcKj_hg==	gAAAAABjR0MSJqVYFOYf-bgfscKREG8YusKASXeh3VnldhC0Z5ToFqc99fLSz6_Agplv290LGB1fIZMbvSbt-98Z60L3sow==	2022-10-10 20:29:05
dd	gAAAAABjQoOm_dU9F-yiIRU3Kad_K-1nH1Dpdn32BCSprwLLSDGmb0MTHU67pvx--mACojpTAnP6qEl6jTeaHR-vom5_A==	gAAAAABjQoNZItALuG0ni3CVOzNsFP5VYlap8HilYB9DBRq3nT9DpyoX0uXhgm5AMWx0nSM16LsvEhmttqkmPqv3Pmuqc8A==	2022-10-09 13:47:42
Dummy	gAAAAABjQeJ8Sp7_fLLsblnkSatffxq8pGc-HNTjKz6sluhITK_P7ktub-NGRrPnV8eueH-vCsp26S320wpYfSqs8FLV9r-g==	gAAAAABjQeInPBOU26_EBodeCqFYUf1g_5h8XIMy7Q7FTcK83lpkM-DEP3KX3RNRrczrpsTOVJQKr1E300n3bbFLv1Ik3Q==	2022-10-09 02:20:04
Gauri	gAAAAABjQoMDed9XG9aiaL8Ubg5LJC83JRG6b6v9m9uxC5Q8W0YHfU4JiJ8q9MlMyiV8GC5rcsYVESJ74P6KtCibit-IpULug==	gAAAAABjQoMDQ1NuDwLhMKPw9URBN8NHfYBLa81_SS1QW3FF5Cpl3TUBLtyUuRAGY_U1sJubvgUSnAoqvixLlgB3XnMnk93Cg==	2022-10-09 13:55:39
Hola	gAAAAABjQmYnIy0qhzsufLMSnltsRQ5SmL7jyZnd_tVEBki86EHXfU6kyuZ202j9fz2eALv9vofb1ZUzgiNqQ_XZswcAFj9A==	gAAAAABjQmYny-Gb6wh-gw_niq8COUanGjKpbnhgAsdt5YBRhPnoo5eUyjj-vtjs_NI78ung8oKg6hCiljMNYAuQ7QKJfStg==	2022-10-09 13:17:51
Holo	gAAAAABjQl1RbUor0IaET4ltmsf2-34Z9U_3X0aBJNcEn8s8b0Ar5VhLYmhLue3KyvF9Sj8XkgADwiE3rieSF9jYPMNaMD3uLg==	gAAAAABjQl1H-eulrZioCTVCkS_rVuDEKRRF7Kyf08d4D3ndrpsRQKR_17Rj8n-rZ_wno2023lFSNaxel8S582nhvg8C9qrUg==	2022-10-09 11:04:09
LOL	gAAAAABjQnpJmbFYDC5wzvgxve2m_Pa8ENZU_m7HlgRniLZnj0Sk_MnJtUkRnke97UF_WS0k08vVQvC8un6VrxZd1PiH9SA==	gAAAAABjQnpJyuaFVu86H3E7oEf_alvZU826swkg0e5Wok1o_LxGTV2mD8ghbH44WmqRltkZvoHJrqofj4kXkNOC6uLxzUA==	2022-10-09 13:07:45
lool	gAAAAABjQn1Z8snNyxLvl1QFcpYrVadp6ahmyJ6sEWGpVTONYBFVAhnhXNR5In-Uj-vL4B8ahor-CbJPKMxavDKihFnpKA==	gAAAAABjQn1Z-H4dg3HBLB41FTfTociAZgg_ZY2xpIauJ0VL6FBrWqhoHnCR_c8bn0s0q-fqkuFFGorpkBPneQMK8M02_ypm==	2022-10-09 13:20:49
Naughty	gAAAAABjQl7mbU-1sJ8keLjcrLmmy6uqjgFZDCRahnxVAs0t2Gusn8Bkuf_jX9vRRv80UCMgYhO2HDX08aVJLmx5qyCSj69g==	gAAAAABjQl7mlcGjY-Pqy15o7L1hs8-Hd8WfnYdYzU72389-2Y-e9Chj_IPBQncvLld9plndLFD0SCSami5WtSvbpFjdYfdm==	2022-10-09 11:11:04
Sagar	gAAAAABjQnltXzUhp8T8c_thLLM5ozeYozEiik8AfKZQNLtSntAH8UQmDn2jRPaEkjveQ68EyoLQyS77LTqRj76rFm7DNjg==	gAAAAABjQnltXzUhp8T8c_thLLM5ozeYozEiik8AfKZQNLtSntAH8UQmDn2jRPaEkjveQ68EyoLQyS77LTqRj76rFm7DNjg==	2022-10-09 12:38:33
srrrr	gAAAAABjQn5cmnf97Dy7v5vOd65i0xglbnLHCPOBhl9TBAf18R47he6JkV0Nk3Li-dUs3Dfgpr8aGLTmepTnJrzXDh1rTP7P53-RjeBQWwZApUcllc=	gAAAAABjQn2c-4Rc2TP7sqian2XyJ7u98zLCPmZ2VEKtsPGKw9BACi7H58LryB7mR75oXfW0SEsusVfFolTrfAwh_gEz8ebq==	2022-10-09 13:25:08
Test	gAAAAABjQTL6L8y3vSgC0R3pG2r28202_njyyEOLnKBN3Dvr352PFSU0HSInCwHlFdmnFP8D_45v6ZlvkUcFKAZAZ7TRHq==	gAAAAABjQTL6L8y3vSgC0R3pG2r28202_njyyEOLnKBN3Dvr352PFSU0HSInCwHlFdmnFP8D_45v6ZlvkUcFKAZAZ7TRHq==	2022-10-08 14:40:35
YogeshGupta	gAAAAABjRDSMe00uXzK5a8_n6Fz4mpSSU8VU11v0DnT3Qptp88EGEpgU1fjh06L8cj73Rga-sAc3Gxf-u9jFahuSat6SQJA==	gAAAAABjRDSNpoh880cZ8TXyFcusTicVrIV5Taa3D_ljSvp8SqVuo9VKrUHzpK2V_cNHS12HXFPLh63mxQ8V73x6_IbA==	2022-10-10 20:34:45

15 rows in set (0.00 sec)

The data stored in the database is encrypted with **SHA256**

Which is considered as one of the **best hashing algorithms** in the world.

Thus adding additional security to the sensitive information

And protecting the data from getting leaked even if someone has access to the Database.

THANK YOU

