NUTRITION ASSISTANT APPLICATION

1.Introduction

1.1 Overview

Evaluation of nutritional status is critical, either to identify if an individual has nutritional imbalance due to an underlying condition or to assess if an individual is likely to develop a pathological condition due to nutritional imbalance. A detailed, systematic evaluation of a patient's nutritional status conducted by healthcare providers in a team-based setting to diagnose malnutrition and identify underlying pathologies to plan intervention constitutes nutritional assessment. This article provides an overview of nutritional evaluation, including components of nutritional assessment, factors that affect nutritional status, and the role of inter professional teams involved in managing patients at nutritional risks.

Due to being ignorant of healthy food habits, obesity rates, diabetes, sleep apnea, fattylever, etc. are increasing at an alarming speed which is reflective of the risks to people'shealth. According to CBS News large study, poor diet is associated with 1 in 5 deaths worldwide which is equivalent to 11 million deaths a year that makes unhealthy eatinghabits responsible for more deaths than tobacco and high blood pressure. People need to control their daily nutritional intake by eating healthier foods which is the most basicmethod to avoid these risks. However, although food packaging comes with nutrition labels, it’s still not very convenient for people to refer packaged food due to the use of various preservatives which are not good for health.

Therefore, we developed a web-based nutrient dashboard system which can analyze real-time images of a meal for nutritional content which can be very handy and improves the dietary habits, and thus helps in maintaining a healthy lifestyle.

1.2 Purpose

Our purpose is that every food vendor and clients will be aware of the meal's quality and the nutrients that are present in the food in an instant. Previously before starting a good diet clients had to study about the nutritional components of each of the food material and calculate the overall nutritional supplements present in an individual food before consuming it. That is too much time consuming and false knowledge in this matter can lead to having

unbalanced diet which can be rather cost effective.

But with this application clients can easily get to now about the nutritional components that is present in the food just by using our web application and by clicking a capture of image of the food or upload the food's picture from the galary in the module and the module will give you the nutrients that is present in that food as output.

2. Literature Survey

2.1 Existing System

Nutrient deficiencies are prevalent worldwide. Diseases and morbid conditionshave been described to result from nutritional deficiencies. It is essential to address nutrient deficiencies as these may lead to chronic long-term health problems such as rickets, iron deficiency anemia, goiter, obesity, coronary heart disease, type 2 diabetes,stroke, cancer and osteoporosis. In the present review we surveyed the extent and severity of nutritional deficiencies in Israel through a selective and comprehensive

Medline review of previous reports and studies performed during the last 40 years. Israeli populations have multiple nutritional deficiencies, including iron, calcium, zinc,folic acid, and vitamins B12, C, D and E, spanning all age groups, several minorities, and specific regions. In Israel, some of the nutrients are mandatorily implemented and manyof them are implemented voluntarily by local industries. We suggest ways to prevent and treat the nutritional deficiencies, as a step to promote food fortification in Israel.

2.2 Proposed Solution

We are developed web application to take a picture of the food that is being served, the picture is stored in internal memory and automatically applied to the module. And that model is capable of predicting the kind of food image. after that thepredicted output will be match to the dataset of composition of food nutrients. The output will be displayed as composition of all the nutrients present inside the particularfood. on the web and mobile application's display once the process is complete.so, anypeople know the type nutrients and its composition of the food.

2.3 Hardware / Software designing

Hardware

1. No Hardware is required for this project.

Software

1. There is only one web application needed.
2. For application deployment, we use Red Hat OpenShift and docker-file.
3. We use Virtual Studio code for writing the code.

3.Experimental Investigation

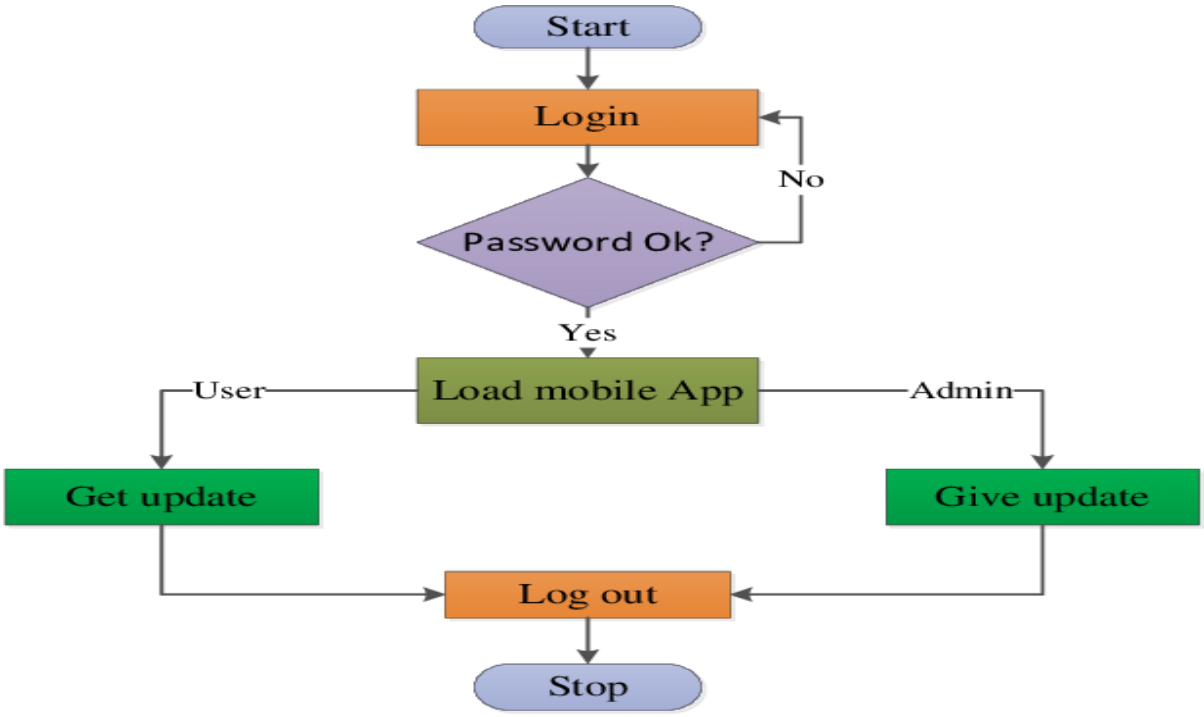
Vitamin deficiencies remain major etiological factors in the global burden ofdisease, especially in low- and middle-income countries. The purpose of this state-of- the-art review was to update current information on deficiencies of vitamins and public health approaches to addressing them. Some stages of life present a higher risk of deficiency than others: risks are higher in pregnant women, children (from conception toyoung childhood), adolescents, the elderly, and all of the over 800 million people globally who are undernourished. At risk are approximately 125 million preschool children with vitamin A deficiency, as well as sub-populations at risk of deficiencies of folate,thiamine, vitamin B12, niacin, riboflavin, other B vitamins. and vitamin D. Addressing micro nutrient deficiencies requires identifying those at risk and then working to preventand manage that risk. Public health approaches include improved, diversified diets; supplementation; fortification and bio fortification; and other supportive public health measures.

Therefore, we have made the decision to create a user-friendly device. to assist folks who do not know the nutritional value of the food while they are purchasing. They buy food accordingly to their nutrient needs. In the field of medical, the equipment is quite beneficial.

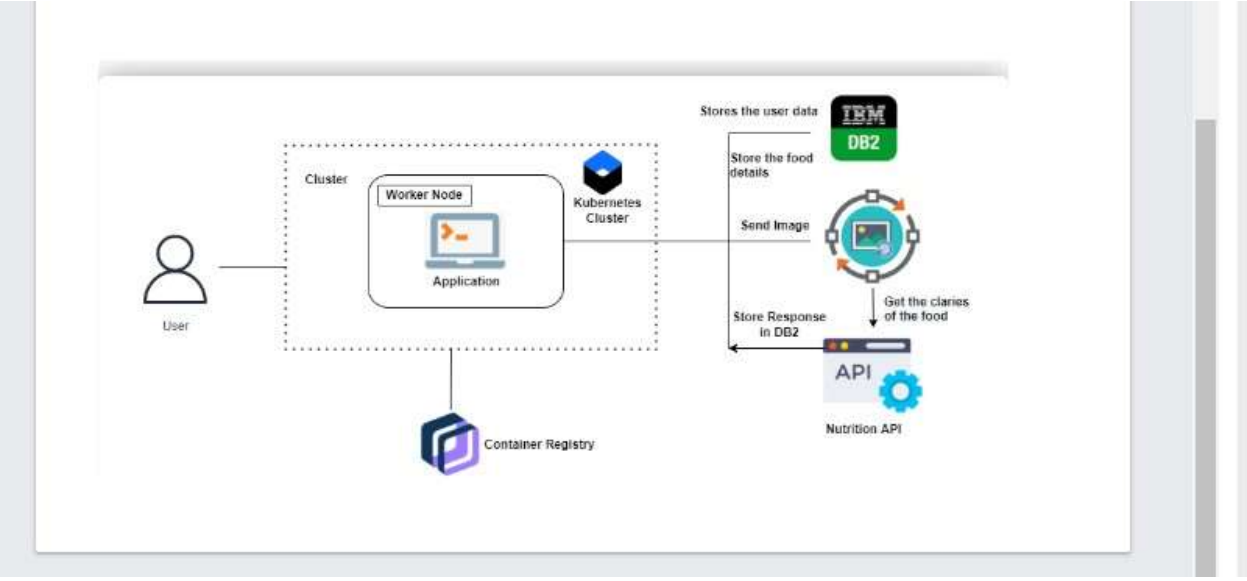
By using the developed web application to take a picture of the food that is being served, the picture is stored in internal memory and automatically applied to themodule. And that model is capable of predicting the kind of food image. after that the predicted output will be match to the dataset of composition of food nutrients. The output will be displayed as composition of all the nutrients present

inside the particular food. on the web and mobile application's display once the process is complete.so, anypeople know the type nutrients and its composition of the food.

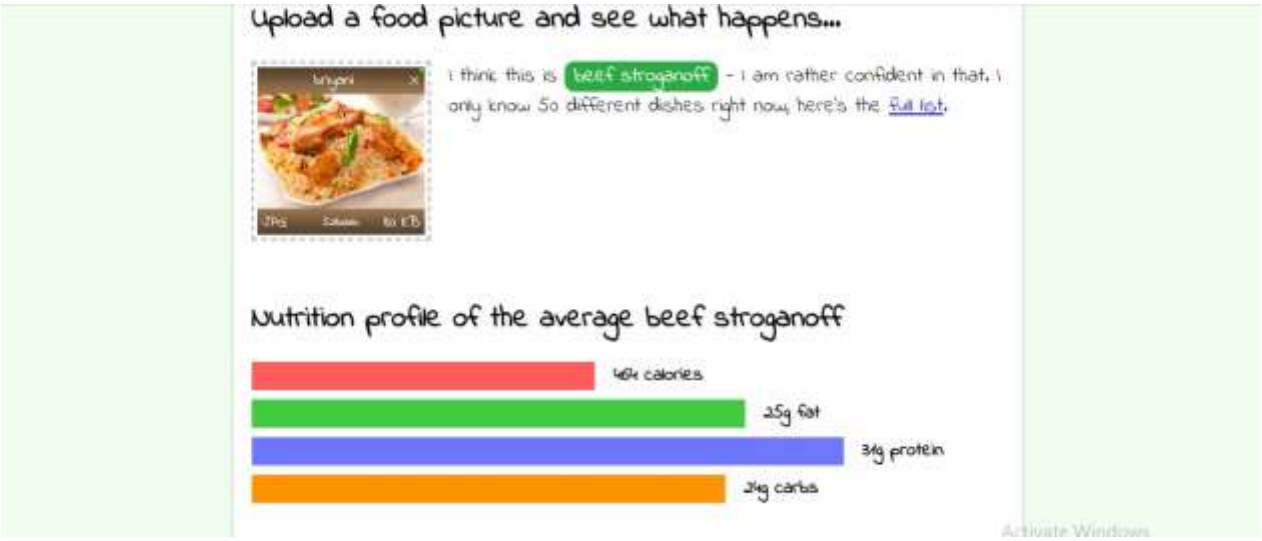
4.Flow chart of login



5. Architecture



6. Result



7. Advantages and disadvantages

Advantages:-

1. This device is user friendly.
2. Its only required the image of the food .
3. To know the different type of nutrients present in food .
4. And also know that how much composition of the nutrients are present.
5. Output of the screen is easy understandable.

Disadvantage:-

1. This device is not able to predict the multiple image as input.
2. The internet is only necessary for opening the web application.(After convertingthe mobile app internet is not necessary for opening .)

Source Code

Register.html

```
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<style>
    *{
    padding:0;
    margin:0;
    font-family: sans-serif;
}
body{
 background: url(C:\Users\THENMOZHI\Downloads\shutterstock_1015800871-
1.jpg)no-repeat;
 background-size: cover;
 }
 .registration-form{
position:absolute;
top:50%;
left: 50%;
transform: translate(-50%, -50%);
width:400px;
 }
.registration-form h1{
    font-size: 30px;
    text-align: center;
    text-transform: uppercase;
    margin: 0 4px;
    display:flex;
    justify-content: center;
    cursor: pointer;
    border-radius: 20px;
    color:blue;
    text-shadow:0 0 15px blue,0 0 25px yellow;
    animation: animate 1.5s linear infinite;
}
.registration-form p{
    font-size: 20px;
```

```
    margin: 15px 0;
}
.registration-form input{
    font-size: 16px;
    padding: 15px 10px;
    width: 100%;
    border: 0;
    border-radius: 5px;
    outline: none;
    background: rgba( 255, 255, 255, 0.25 );
box-shadow: 0 8px 32px 0 rgba( 31, 38, 135, 0.37 );
backdrop-filter: blur( 4px );
-webkit-backdrop-filter: blur( 4px );
border-radius: 10px;
border: 1px solid rgba( 255, 255, 255, 0.18 );
}
.registration-form button{
    font-size: 18px;
    font-weight: bold;
    margin: 20px 0;
    padding: 10px 15px;
    width: 50%;
    border: 0;
    border-radius: 5px;
    background-color: #fff;
    background: rgba( 255, 255, 255, 0.25 );
box-shadow: 0 8px 32px 0 rgba( 31, 38, 135, 0.37 );
backdrop-filter: blur( 4px );
-webkit-backdrop-filter: blur( 4px );
border-radius: 10px;
border: 1px solid rgba( 255, 255, 255, 0.18 );
}
.registration-form button:hover{
    color: blue;
}
.alreadylogin{
    text-align: center;
    font-size: 18px;
}
.alreadylogin h3{
```

```
    text-align: center;
    font-size: 15px;
}
.alreadylogin a{
    font-size: 15px;
}
.alreadylogin a:hover{
    color: blue;
}
<title>
    Login page
</title>
</style>
</head>
<body>
<div class="registration-form">
    <h1>
     Login
    </h1>
    <form action="#" method="post">

        <p>
         Email:
        </p>
        <input type="email" name="email" placeholder="Email">
        <p>
         Password:
        </p>
        <input type="password" name="password" placeholder="Password">
        <br>
        <button type="submit">
        Login
        </button>
    </form>
    <br>
    <div class="alreadylogin">
        <h3>if you don't register please click here </h3><a
href="register.html">REGISTER HERE</a>
    </div>
</div>
```

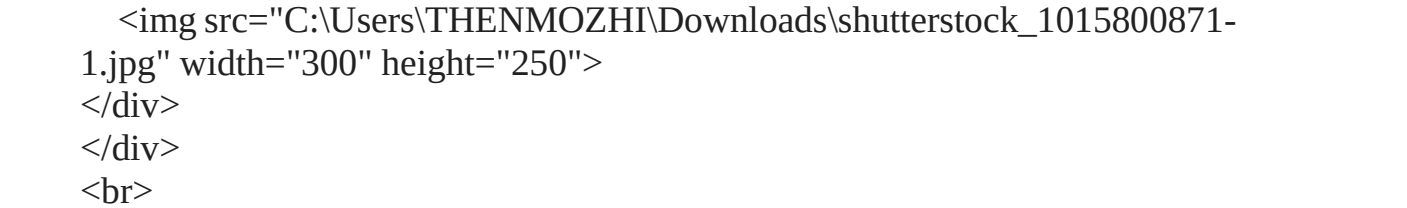
```
</div>

<div class="square"></div>

</body>
</html>
```

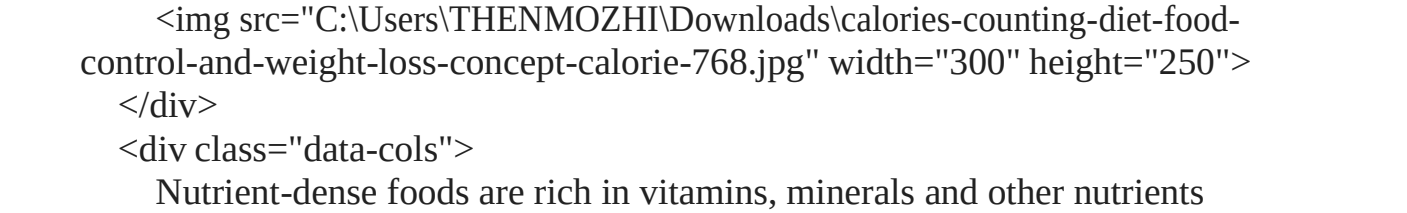
Index.html

```
<html>
<head>
<meta name="viewport"content="with=device-width, initial-scale=1.0">
<title>
Nutrition Assistant Application
</title>
<link rel="stylesheet" href="thenmozhi.css">
<link rel="preconnect" href="https://fonts.googleapis.com">
<link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
<link
href="https://fonts.googleapis.com/css2?family=Poppins:ital,wght@0,100;0,200;0,
300;0,400;0,500;1,100&display=swap" rel="stylesheet">
<link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/@fortawesome/fontawesome-
free@6.2.0/css/fontawesome.min.css">
</head>
<body>
   <section class="header">
      <div class="title">
         <h1>NUTRITION ASSISTANT</h1>
       </div>
      <nav>

   <div class="nav-links">

      <ul>
         <li>
            <a href="register.html">REGISTER</a>
         </li>
         <li>
            <a href="login.html">LOGIN</a>
```

```
            </li>
            <li>
                <a href="upload image.html">UPLOAD IMAGE</a>
            </li>
            <li>
                <a href="#">HISTORY</a>
            </li>
        </ul>
    </div>

</nav>
<nav>
<div class="container">
    <video src="C:\Users\THENMOZHI\Documents\videoes.mp4"  autoplay muted loop></video>
</nav>
<br>
<div class="text-box">
    <h1>
        Nutrition app
    </h1>
    <p>
        A Nutrition Assistant is a specialist that uses diagnostic procedures to identify nutrition deficiencies in patients.
        <br> They work closely with nutritionists and dietitians to improve the well-being of patients through proper nutrition.
        <br> Nutritionists need to determine their patients' needs through interviewing them and giving them the best meal plans after assessing all risk factors.

    </p>
</div>
<br>
    </section>
    <! ------data-->
    <section class="data">
<h1>
     Nutrition Food
</h1>
<div class="row">
```

Providing dieticians with the facility's meal and menu planning.
Obtaining dietary information and assessing the nutritional habits of patients.
Recording individual risk factors or dietary restrictions that might impact meal planning.
Coordinating meal plans with nutritionists and healthcare professionals.
Performing ongoing nutrition assessments, including the measurement of caloric intake and activity levels.
Facilitating immediate interventions for signs of malnutrition, allergic reactions, or refusal to eat.
Assisting in meal distribution, ensuring correctly delivered, and timely served meals.
Maintaining proper sterilization protocols in the clearing away and cleaning of plates and utensils.
Safely discarding leftover portions to prevent the spread of disease.
Instructing patients and families on nutrition plans and healthy eating habits.





Nutrient-dense foods are rich in vitamins, minerals and other nutrients important for health, without too much saturated fat, added sugars and sodium. We're talking fruits, vegetables, whole grains, non-fat and low-fat dairy, fish and seafood, unprocessed lean meat and skinless poultry, nuts and legumes.Water is the best choice for quenching your thirst. etes, and obesity.

```
</div>

    </section>
   <section class="upload">
    <h1>
        Nutrition Benifits
    </h1>
   <br>

<div class="row">
    <div class="upload-col">
        <img src="C:\Users\THENMOZHI\Downloads\is-the-dash-diet-right-for-
you-722x406.jpg">
        <div class="layer">
            <h3>Nutrition<br>
                Nutrient-dense foods are rich in vitamins, minerals and other nutrients
important for health, without too much saturated fat, added sugars and sodium.
We're talking fruits, vegetables, whole grains, non-fat and low-fat dairy, fish and
seafood, unprocessed lean meat and skinless poultry, nuts and legumes.Water is
the best choice for quenching your thirst. Etc s, and obesity.
            </h3>
        </div>
    </div>
</div>
   </section>


   </section>
</body>
```

Python Code

```
from flask import Flask, render_template, request, redirect, url_for, session
import ibm_db
import re

app = Flask(__name__)

app.secret_key = 'a'
```

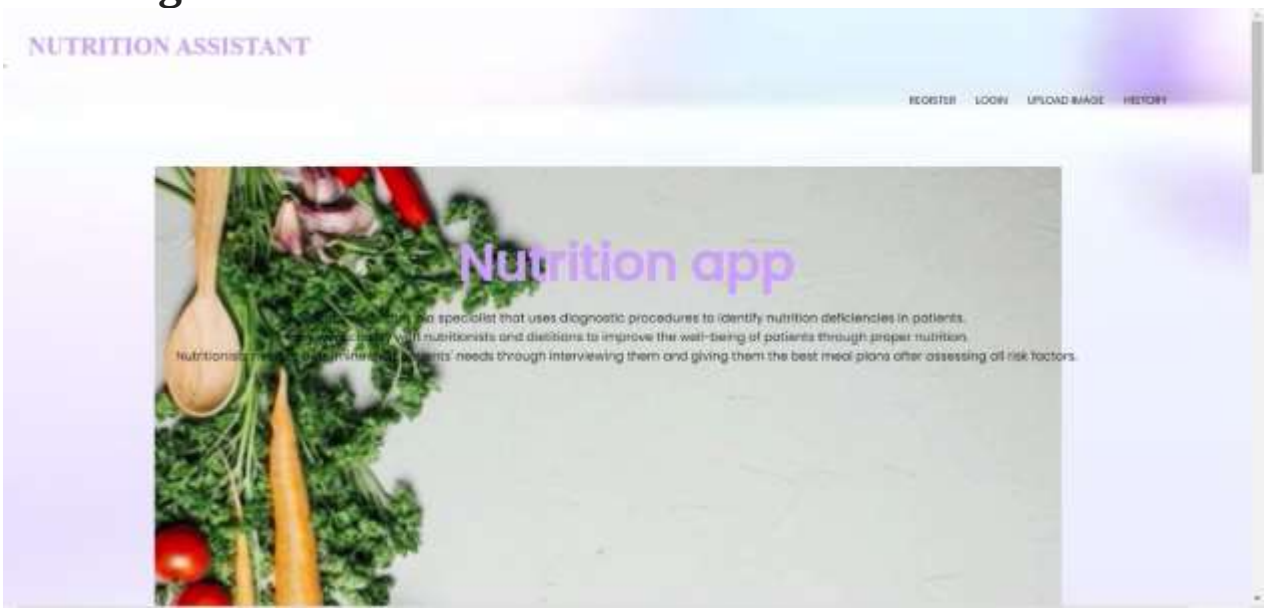
```
conn = ibm_db.connect("DATABASE=bludb;HOSTNAME=125f9f61-9715-46f9-9399-
c8177b21803b.c1ogj3sd0tgtu0lqde00.databases.appdomain.cloud;PORT=30426;SECURITY=SSL;
","","")

@app.route('/')

def homer():
    return render_template('home.html')


@app.route('/login',methods =['GET', 'POST'])
def login():
    global userid
    msg = ''


    if request.method == 'POST' :
        username = request.form['username']
        password = request.form['password']
        sql = "SELECT * FROM users WHERE username =? AND password=?"
        stmt = ibm_db.prepare(conn, sql)
        ibm_db.bind_param(stmt,1,username)
        ibm_db.bind_param(stmt,2,password)
        ibm_db.execute(stmt)
        account = ibm_db.fetch_assoc(stmt)
        print (account)
        if                          account:
            session['loggedin'] = True
            session['id'] = account['USERNAME']
            userid= account['USERNAME']
            session['username'] = account['USERNAME']
            msg = 'Logged in successfully !'

            msg = 'Logged in successfully !'
            return render_template('dashboard.html', msg = msg)
        else:
            msg = 'Incorrect username / password !'
    return render_template('login.html', msg = msg)
```

```
@app.route('/register', methods =['GET', 'POST'])
def registet():
    msg = ''
    if request.method == 'POST' :
        username = request.form['username']
        email = request.form['email']
        password = request.form['password']
        sql = "SELECT * FROM users WHERE username =?"
        stmt = ibm_db.prepare(conn, sql)
        ibm_db.bind_param(stmt,1,username)
        ibm_db.execute(stmt)
        account = ibm_db.fetch_assoc(stmt)
        print(account)
        if account:
            msg = 'Account already exists !'
        elif not re.match(r'[^@]+@[^@]+\.[^@]+', email):
            msg = 'Invalid email address !'
        elif not re.match(r'[A-Za-z0-9]+', username):
            msg = 'name must contain only characters and numbers !'
        else:
            insert_sql = "INSERT INTO  users VALUES (?, ?, ?)"
            prep_stmt = ibm_db.prepare(conn, insert_sql)
            ibm_db.bind_param(prep_stmt, 1, username)
            ibm_db.bind_param(prep_stmt, 2, email)
            ibm_db.bind_param(prep_stmt, 3, password)
            ibm_db.execute(prep_stmt)
            msg = 'You have successfully registered !'
    elif request.method == 'POST':
        msg = 'Please fill out the form !'
    return render_template('register.html', msg = msg)


@app.route('/logout')

def logout():
   session.pop('loggedin', None)
   session.pop('id', None)
   session.pop('username', None)
```

```
    return render_template('home.html')

if __name__== '__main__':
    app.run(host='0.0.0.0')
```

Screenshots

UI Page



Login Page

Register Page