

A Project Report
ON
NUMBER GUESSING GAME
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Abstract

Problem statement

Python web application for a **Number Guessing Game**. The application will allow users to guess a randomly generated number within a defined range and provide feedback on whether their guess is too high or too low.

Problem Solution

Create an engaging, user-friendly, and feature a web-based interface using HTML5, JavaScript and Python. The site should work well in all leading browsers including Chrome, IE, Firefox etc

Chapter – 1

Requirements

- Monitor/Screen
- Mouse
- Keyboard
- Web Browser

1.1 Project Definition

Number Guessing Game

➤ Web Numbers Game

1.2 Project introduction

This is a website where allow users to guess a randomly generated number within a defined range and will be given feedback on weather their guess was too high or too low

Durable Furnitures website was built using HTML5, CSS, JavaScript and Angular JS.

Project Goals

Goals for this website where to:

1. Challenge gamers
2. Educate some gamers
3. Keep gamers busy

1.3 Features

1. Simple and clear design
2. Responsive
3. Fast to load
4. Accurate information
5. Keep track of score

1.4 Summary

Number guessing game is an engaging game where a random number will be generated and the gamer will try to guess the number correctly and if user is able to guess the number correctly within ten (10) tries they win and failure to guess the number will result to a loss

Admins:

Admins can create, read, update and delete users.

Gamer:

The customer can share feedback about game. Once user has played the game they can view their ranking in the leaderboard to see where they rank in the world and user can also view their details in the details page where they will also see their ranking, number of games won and lost, and also see their total score and their highest score

Chapter - 2

2.1 Analysis

The Numbers game home page has a suitable logo with a menu button where user can navigate and there is a user profile section where user will see the picture selected as profile picture and when hovered over user will be able to perform actions like viewing profile and editing their profile. The theme of the website is yellow black and grey. Under the content there is a link that shows the instructions when clicked on. At the bottom of the website there is copyright text with a link that will show you the popup page

In the next page when user has clicked on start there is a levels page where user will select the level, he/her wishes to play. Levels available are Low with number 0 - 99, Moderate with number 0 - 999 and Expert with number 0 – 9999 all levels have a maximum of ten (10) tries.

The Next page will be the actual game which has a form where user will be able to input their guess and under the input there will be hints below where user will be told weather their guess was low, high or invalid. When user wins or loses, they will be redirected to the next page. For winners they will be able to view their score and attempts it took for them to win

The leaderboard page will show the ranking of the top six players sorting them based on their score whereby the highest score will be number one and numbers not ranked in top 6 will not be shown.

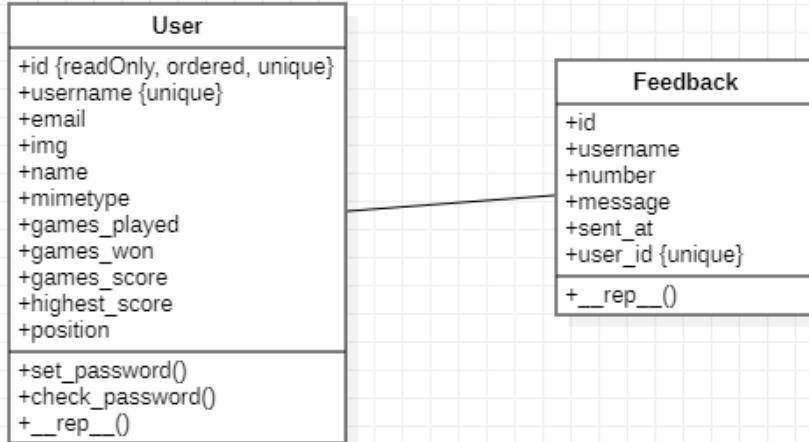
Profile page will show the user score and highest score scored during their gaming times and user will be able to see their world ranking along with the number of games played, won and lost.

There is also a feedback form where user clicks on the link and the form will popup with your name based on your login status.

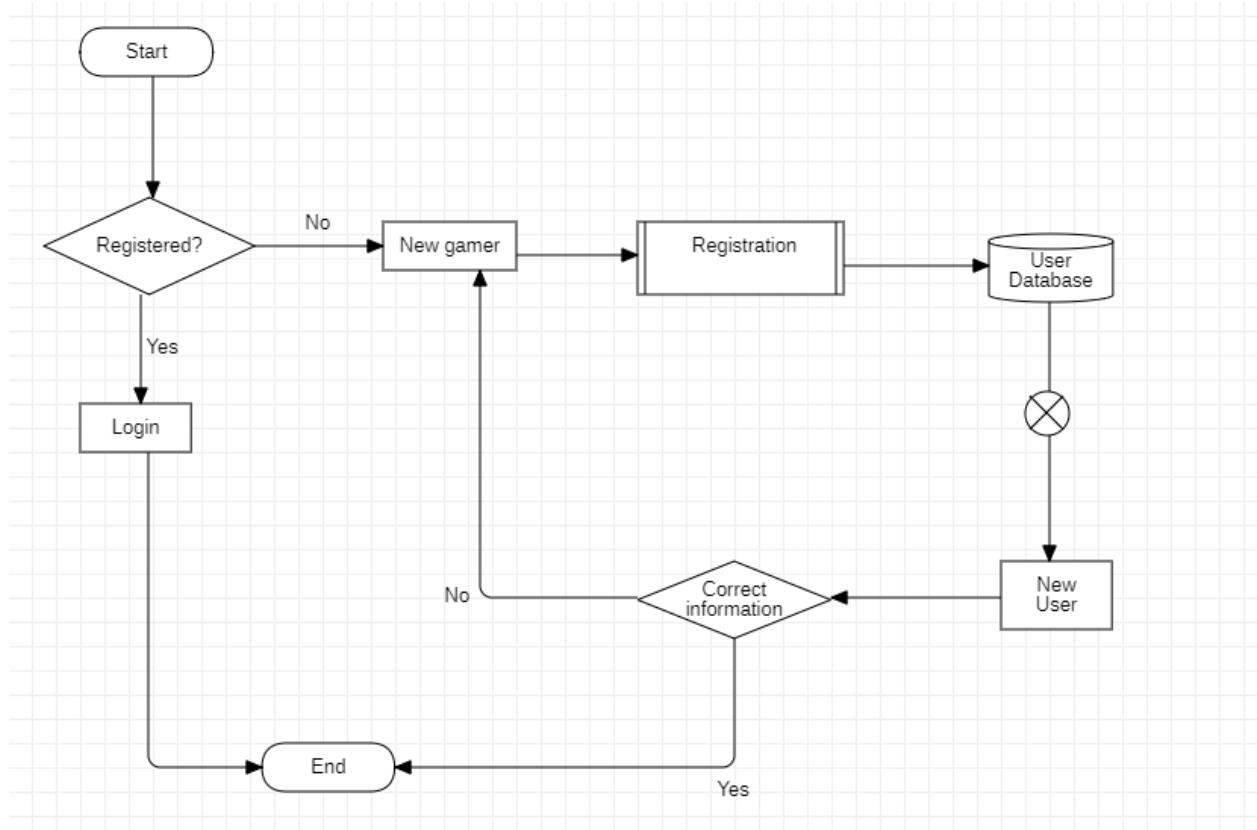
In our contact us page, you will find a form which will allow you to send a message to Us if you want to send a direct email to us you can click on the email next to the form.

Chapter – 3

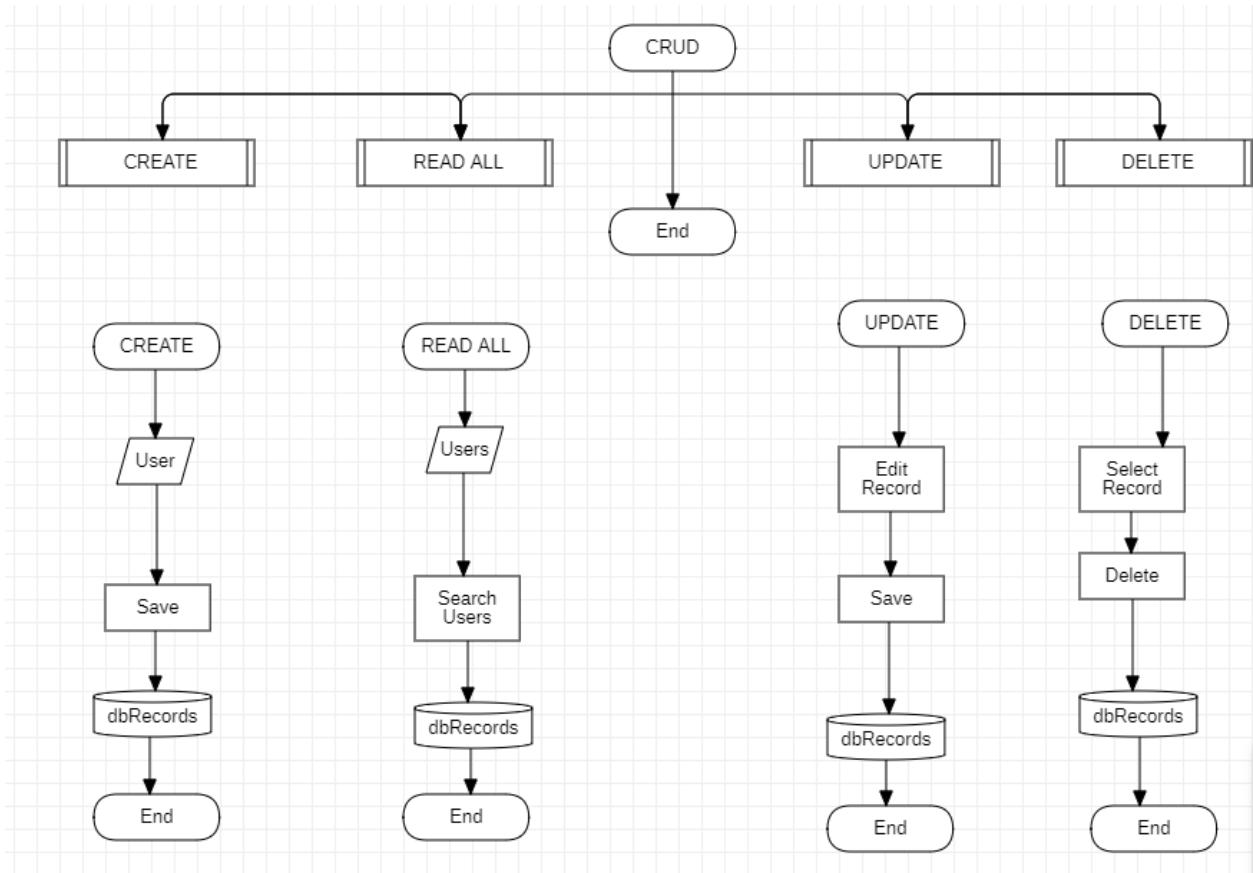
3.1 Entities



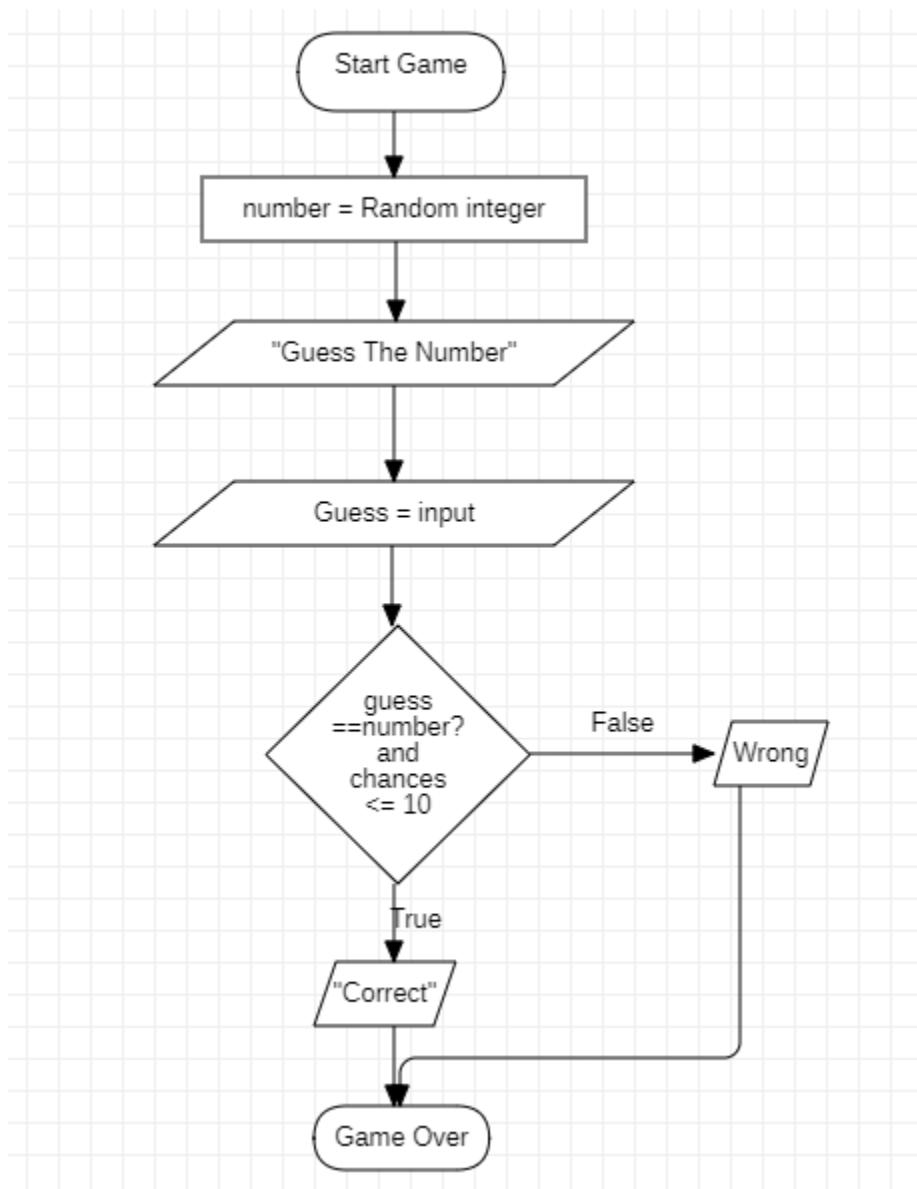
3.2 Login Process diagram



3.3 Admin Process Diagram



3.4 Number guessing game Flow diagram



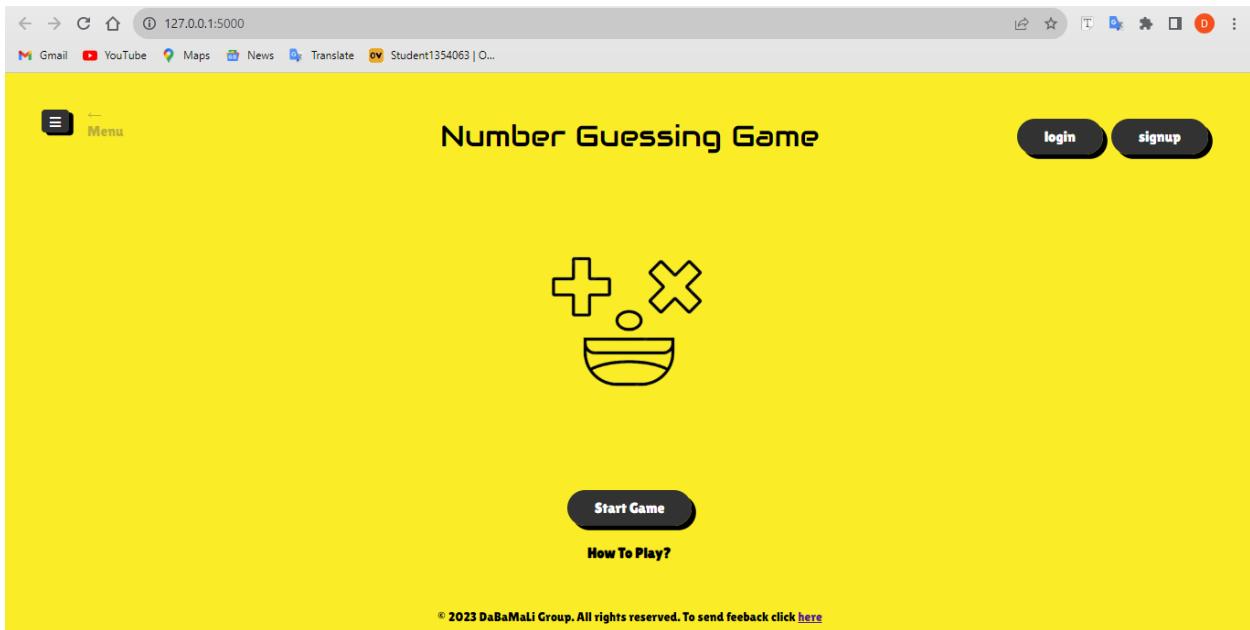
Chapter – 4

Screen Shots

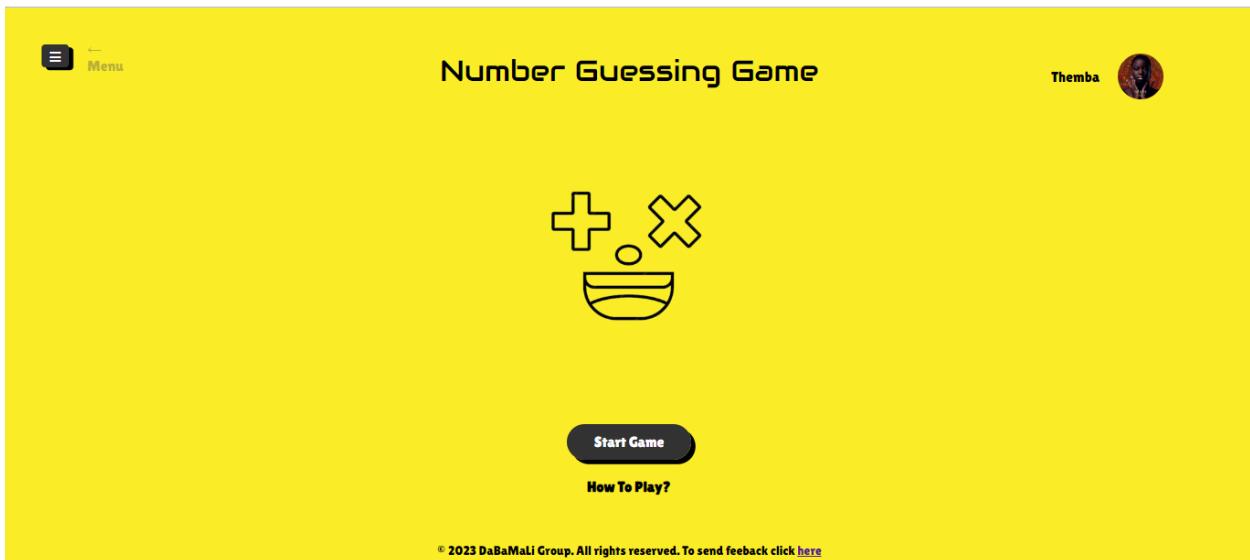
These screen shots will be taken using chrome web browser

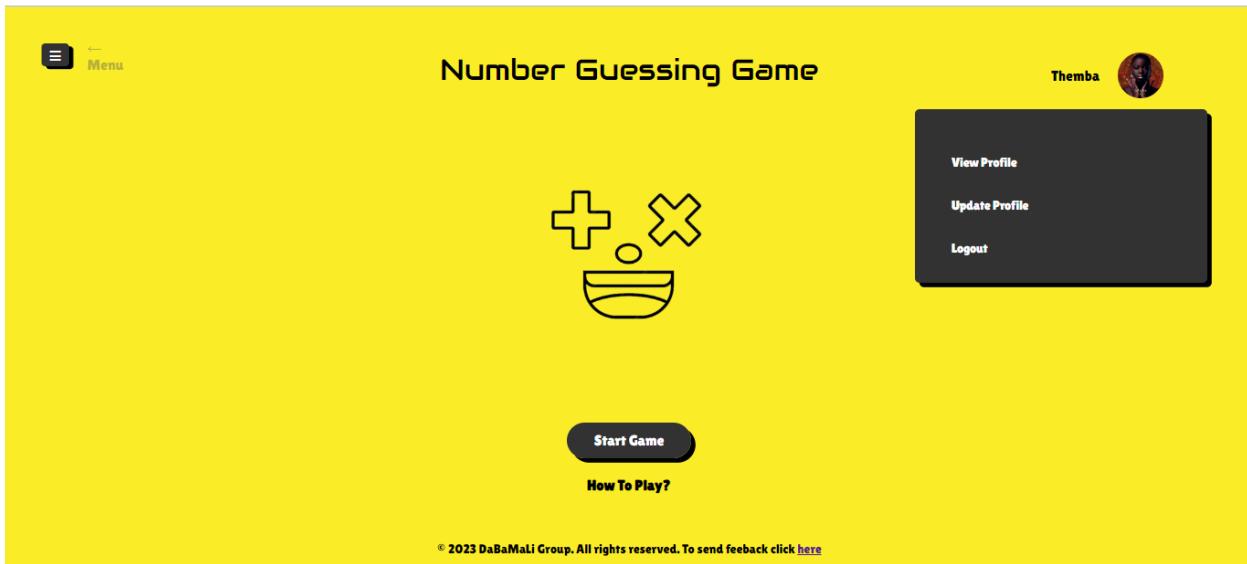
4.1 Home page

Without login

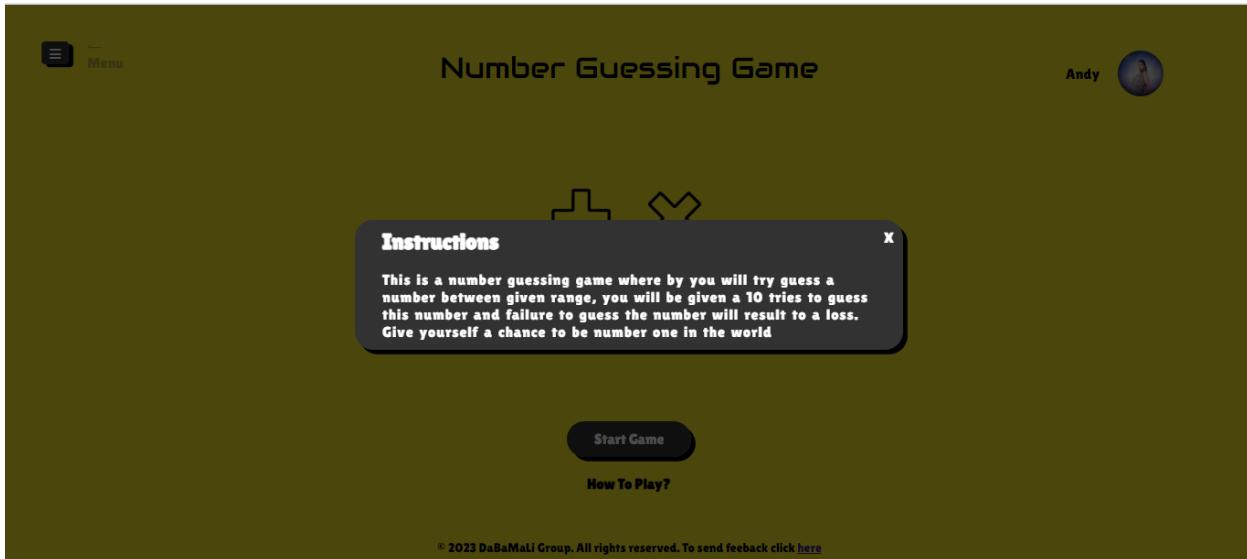


With login

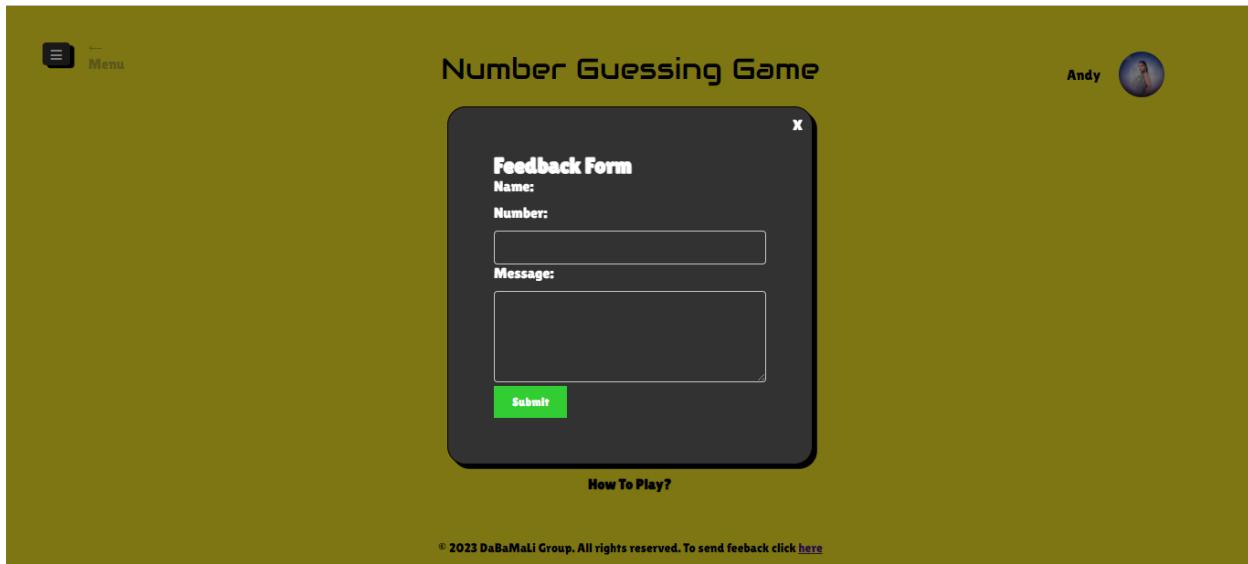




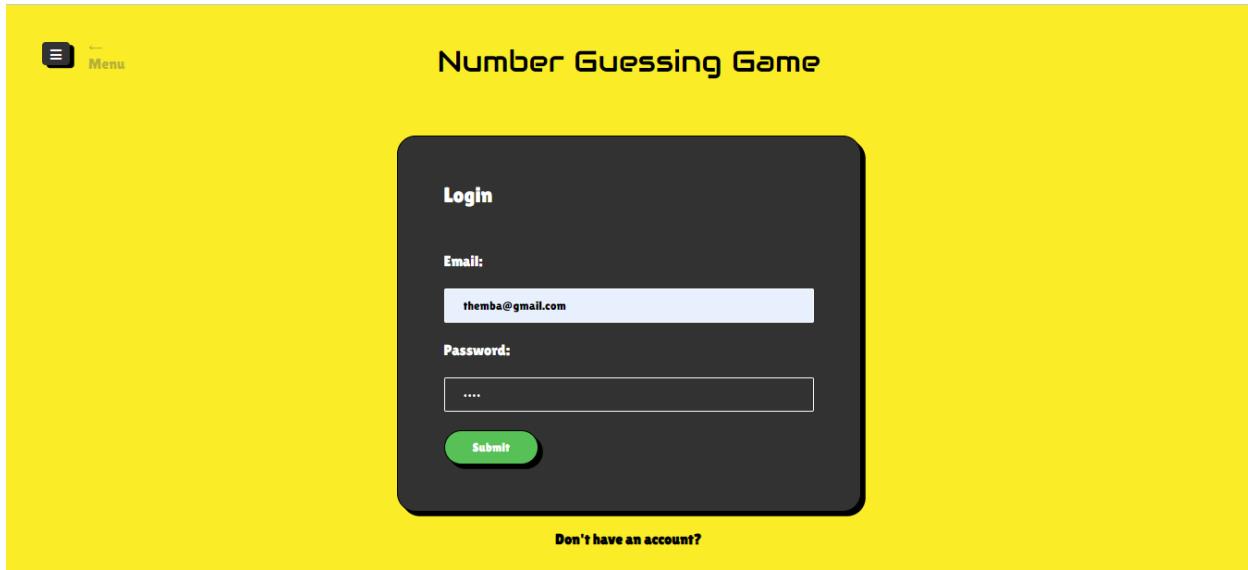
Viewing instructions click how to play link



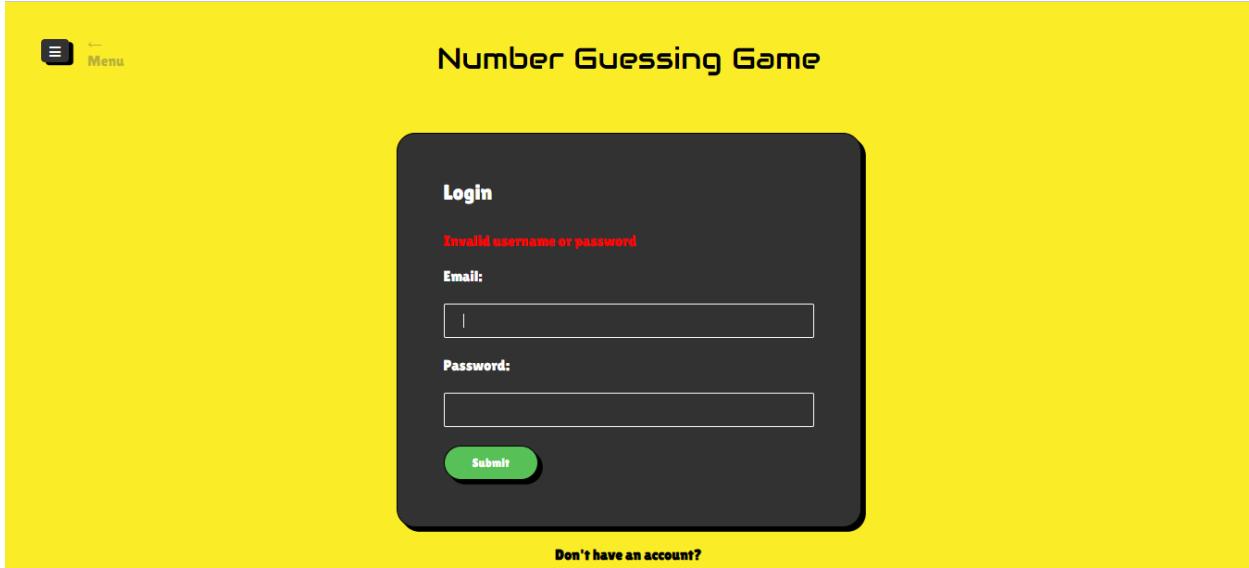
To send feedback click the footer link



4.2 Login page

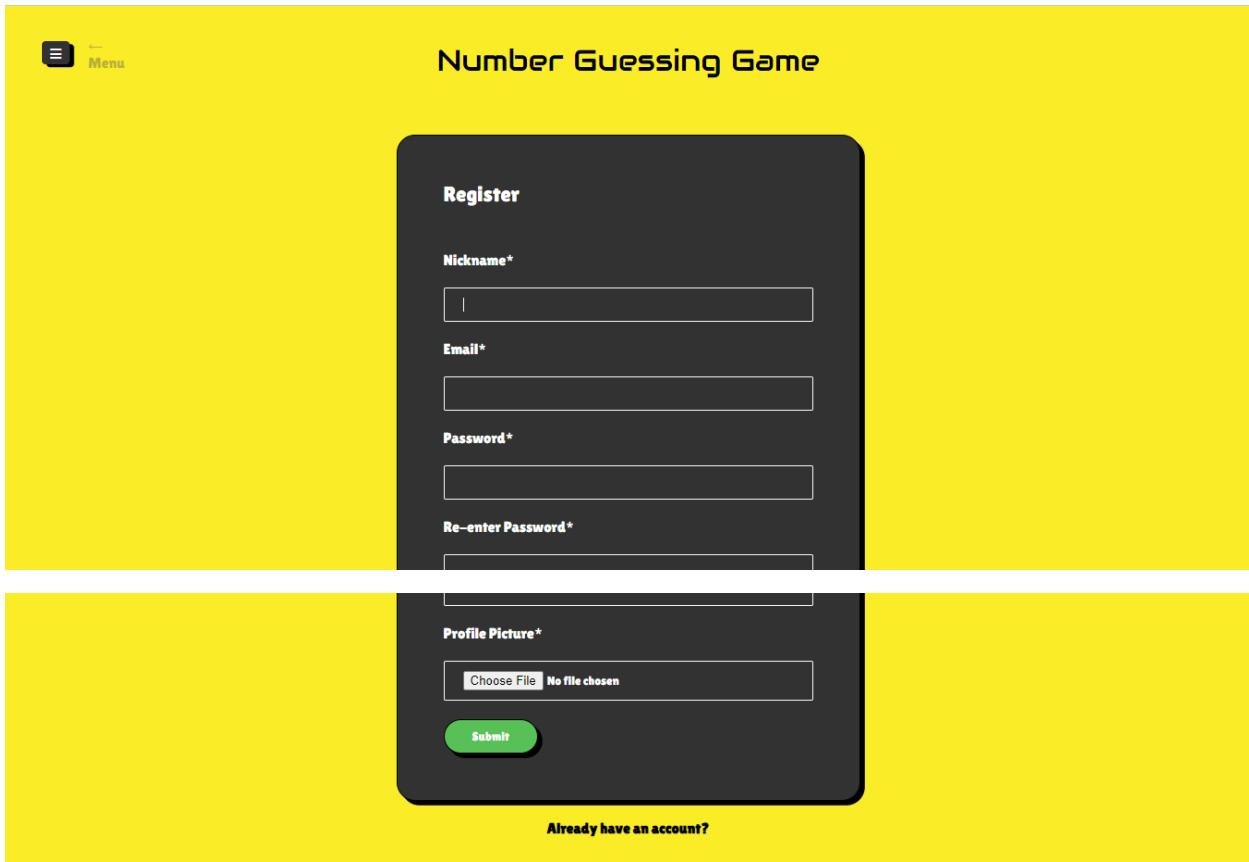


When wrong credentials are entered



The image shows the login page of a Number Guessing Game. At the top left is a 'Menu' icon. The title 'Number Guessing Game' is centered at the top. Below it is a dark gray rounded rectangle containing a 'Login' form. The form includes a red error message 'Invalid username or password'. It has fields for 'Email:' (with placeholder '_') and 'Password:' (with placeholder '_'). A green 'Submit' button is at the bottom. At the very bottom of the page is a link 'Don't have an account?'

4.3 Register page



The image shows the register page of the Number Guessing Game. At the top left is a 'Menu' icon. The title 'Number Guessing Game' is centered at the top. Below it is a dark gray rounded rectangle containing a 'Register' form. The form has fields for 'Nickname*' (placeholder '_'), 'Email*' (placeholder '_'), 'Password*' (placeholder '_'), and 'Re-enter Password*' (placeholder '_'). Below the form is a section for 'Profile Picture*' with a file input field showing 'Choose File No file chosen'. A green 'Submit' button is at the bottom. At the very bottom of the page is a link 'Already have an account?'

When error occurs

Register

Password should be at least 6 characters long.

Nickname*

Email*

Password*

Re-enter Password*

Profile Picture*

Choose File 1945x1945bb.jpg

Submit

4.4 Levels page (next page)

☰ Menu

Number Guessing Game

Andy 

Low (0-99)

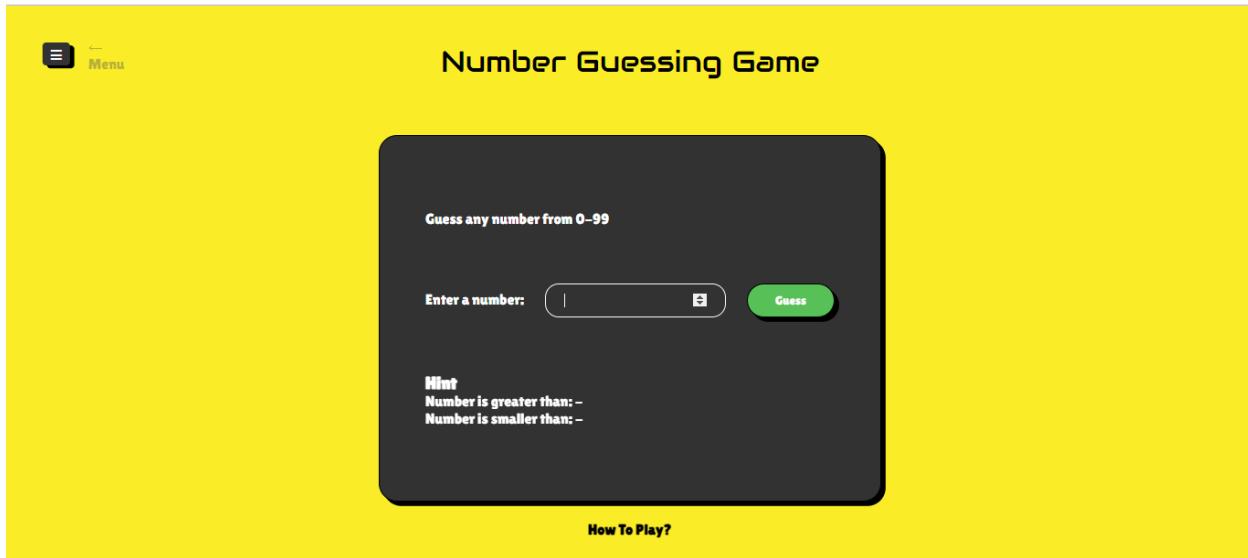
Moderate (0-999)

Expert (0-9999)

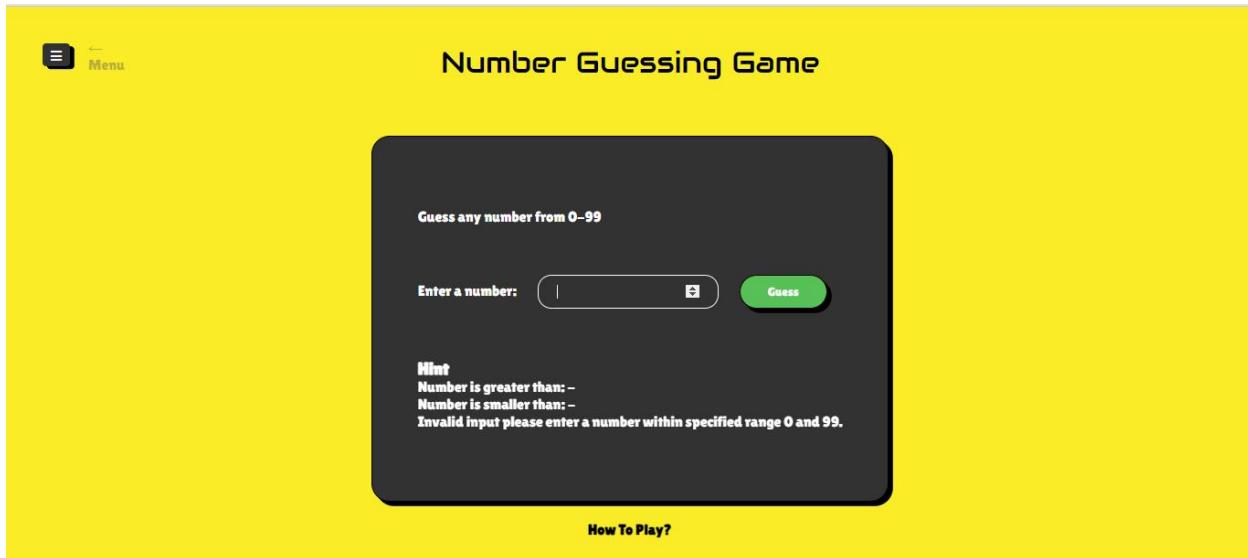
How To Play?

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4.4 Game (Low)



When user enters large number



Game logic

 Menu

Number Guessing Game

Guess any number from 0-99

Enter a number: Guess

Hint
Number is greater than: 70
Number is smaller than: 80
Attempts left: 7

[How To Play?](#)

4.5 Completion Page

When user wins

 Menu

Number Guessing Game

Congratulations!

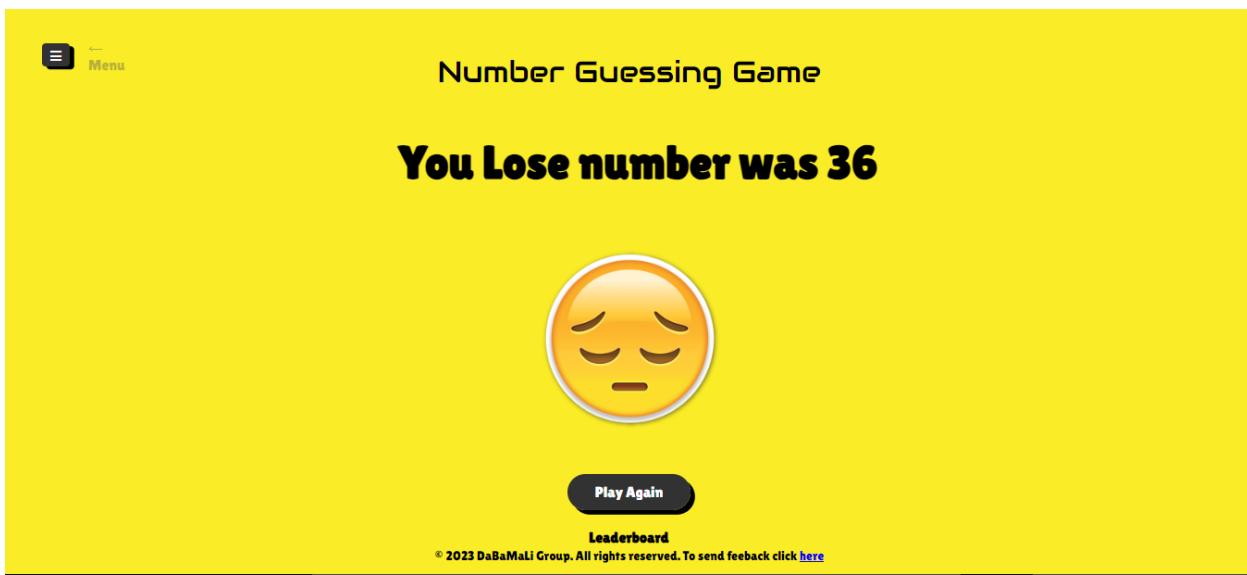


Play Again

You won in 5 attempts
Your Score: 25

[View Leaderboard](#)

When user loses



4.6 Leaderboard

A screenshot of the Number Guessing Game interface showing the Leaderboard. At the top left is a 'Menu' button. The title 'Number Guessing Game' is centered at the top. On the right, there is a profile icon for 'Andy'. Below the title is a horizontal line. The word 'Leaderboard' is centered above a list of players and their points. The list is divided into two sections by another horizontal line. The top section contains five entries: 1. Thabo (215 points), 2. Sihlelo (195 points), 3. Themba (155 points), 4. Dalubuhile (150 points), and 5. Andy (75 points). The bottom section contains three entries: 6. Temaswati (20 points), 7. Bee (15 points), and 8. dallas (0 points). Below the leaderboards is a 'Profile' button, followed by a 'Play Game' button. The entire page has a yellow background.

Rank	User	Points
1	Thabo	215 points
2	Sihlelo	195 points
3	Themba	155 points
4	Dalubuhile	150 points
5	Andy	75 points
6	Temaswati	20 points
7	Bee	15 points
8	dallas	0 points

4.7 User Profile Page

The screenshot shows the 'View Profile' section of the Number Guessing Game. At the top, there's a 'Menu' icon and a user profile picture of 'Andy'. Below the title 'Number Guessing Game', the 'View Profile' section displays various statistics in colored bars:

Statistic	Value
Score	75 pts
Best Score	50 pts
Games Played	3
Games Won	2
Games Lost	1
World Ranking	5

4.8 Contact us Page

The screenshot shows the 'Contact us' page for the Number Guessing Game. At the top, there's a 'Menu' icon and a user profile picture of 'Andy'. The page is divided into two main sections: 'Send Your Request' on the left and 'Reach Us' on the right.

Send Your Request

Name	Phone
Name Surname	+268 766 35 980

Email abc@gmail.com **Subject** Write Demo

Message

Your Message...

Send

Reach Us

Email	contractus@example.com
Phone	+268 766 35 980
Address	P.O. BOX 4239 Mbabane

4.8 update user Profile



Number Guessing Game

Update user profile

Nickname*

Email*

Password*

Submit

Admin Pages

4.2.1 Admin dashboard

The Admin Dashboard interface features a dark sidebar on the left with navigation links: Dashboard, Users, Notification, and Logout. The main area is titled "Admin Dashboard" and contains three cards:

- Users**: Total: 8
- Feedback**: Total Messages: 4
- Games**: Total Played: 61

4.2.2 Admin user page

The Admin User page displays a table of users with the following columns:

ID	USERNAME	EMAIL	ACCOUNT TYPE	GAMES PLAYED	GAMES WON	SCORE	HIGHEST SCORE	POSITION	ACTIONS
1	Dalubuhle	dshiie875@gmail.com	admin	12	8	150	35	4	<button>Update</button> <button>Delete</button>
2	Thabo	thabo@gmail.com	user	11	9	215	75	1	<button>Update</button> <button>Delete</button>
3	Themba	themba@gmail.com	user	17	12	155	30	3	<button>Update</button> <button>Delete</button>
4	Sihlelo	sihlelo@gmail.com	user	10	8	195	50	2	<button>Update</button> <button>Delete</button>
5	Temaswati	tema@gmail.com	user	3	1	20	20	6	<button>Update</button> <button>Delete</button>

4.2.3 Feedback page

[Dashboard](#)

[Users](#)

[Notification](#)

[Logout](#)

Notifications

Andy

2023-11-15 07:14:09

this is feedback from andy's page to tell you that this is a great website

Themba

2023-11-07 13:50:11

another test

Themba

2023-11-07 13:49:56

this is the second test

Themba

2023-11-07 13:48:36

this is the second test

Chapter – 5

Screen Shots

Source Code for python file

5.1 server.py

```
import random
from flask import Flask, url_for, redirect, render_template, request, session, flash, Response
from werkzeug.security import generate_password_hash, check_password_hash
from flask_jwt_extended import JWTManager, create_access_token, jwt_required, get_jwt_identity
from datetime import timedelta
from sqlalchemy import func
from flask_sqlalchemy import SQLAlchemy
from werkzeug.utils import secure_filename
import base64

lowestNumber = 0
highestNumberLow = 99
highestNumberModerate = 999
highestNumberExpert = 9999
app = Flask(__name__)
app.secret_key = 'Eproject'
app.permanent_session_lifetime = timedelta(hours=1)
app.config['SQLALCHEMY_DATABASE_URI'] = 'sqlite:///game.db'
app.config['SQLALCHEMY_TRACK_MODIFICATION'] = False

# instances
db = SQLAlchemy(app)

# user model
class Users(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    username = db.Column(db.String(255), unique=True, nullable=False)
    password = db.Column(db.String(255), nullable=False)
    email = db.Column(db.String(255), nullable=True)
    # image data start
    img = db.Column(db.BLOB, nullable=False)
    name = db.Column(db.Text, nullable=False)
    mimetype = db.Column(db.Text, nullable=False)
    # image data end
```

```

acctype = db.Column(db.String(255), default='user')
games_played = db.Column(db.Integer, default=0)
games_won = db.Column(db.Integer, default=0)
games_score = db.Column(db.Integer, default=0)
highest_score = db.Column(db.Integer, default=0)
position = db.Column(db.Integer, default=100)

def set_password(self, password):
    self.password = generate_password_hash(password)

def check_password(self, password):
    return check_password_hash(self.password, password)

def __repr__(self):
    return f'<Users: username={self.username}, email={self.email},\
acctype={self.acctype}>'

# feedback table model
class Feedback(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    username = db.Column(db.String(255), nullable=False)
    number = db.Column(db.String(255), nullable=False)
    message = db.Column(db.String(255), nullable=False)
    sent_at = db.Column(db.DateTime(timezone=True), default=func.now())
    user_id = db.Column(db.Integer, db.ForeignKey('users.id'))

    def __repr__(self):
        return f'<Users: username={self.username}, subject={self.subject},\
sent={self.sent_at}>'

# routes
@app.route('/')
def index():
    # this will check if session is available
    if 'user' in session:
        name = session["user"]
        # this will filter by name in session
        user = Users.query.filter_by(username=name).first()
        # image conversion
        image = base64.b64encode(user.img).decode("ascii")
        # return page with image
        return render_template('index.html', image=image)
    else:
        # if session is not found then it will return just the page without image

```

```

        return render_template('index.html')

# ADMIN ROUTE START
@app.route('/admin')
def admin():
    # will check if user is actually admin
    if 'admin' in session:
        users = db.session.query(Users).all()
        feedback = db.session.query(Feedback).all()
        total = db.session.query(func.sum(Users.games_played)).scalar()
        return render_template('/admin/admin.html', users=users,
feedback=feedback, total=total)
    else:
        return redirect(url_for('index'))

@app.route('/admin-users')
def adminUsers():
    if 'admin' in session:
        users = db.session.query(Users).all()
        return render_template('/admin/users.html', users=users)
    else:
        return redirect(url_for('index'))

# route to view feedback from users
@app.route('/admin-feedback')
def adminFeedback():
    if 'admin' in session:
        feedback = db.session.query(Feedback).all()
        return render_template('/admin/notifications.html', feedback=feedback)
    else:
        return redirect(url_for('index'))

@app.route('/add-user', methods=['GET', 'POST'])
def addUser():
    # confirms if the method being used is POST
    if request.method == 'POST':
        # form data collection
        username = request.form['name']
        email = request.form['email']
        image = request.files['image']
        filename = secure_filename(image.filename)
        mimetype = image.mimetype
        password = request.form['password']
        # user is added using constructor

```

```

user = Users(username=username, email=email,
             img=image.read(), name=filename, mimetype=mimetype)
# password hash is sent to db
user.set_password(password)
# user is added and database actions are committed
db.session.add(user)
db.session.commit()
# returns the url for viewing users
return redirect(url_for('adminUsers'))
# default template to be rendered
return render_template('/admin/add-user.html')

@app.route("/delete/<int:user_id>")
def delete(user_id):
    # user will be filtered out by id from the url
    user = db.session.query(Users).filter(Users.id == user_id).first()
    # user will be deleted and database actions are committed
    db.session.delete(user)
    db.session.commit()
    flash('User successfully deleted')
    return redirect(url_for("adminUsers"))

# update route done by admin
@app.route("/update", methods=["GET", "POST"])
def update():
    if request.method == "POST":
        user_id = request.form["id"]
        # user will be filtered by id from the form
        user = db.session.query(Users).filter(Users.id == user_id).first()
        # form data start
        user.username = request.form["name"]
        user.email = request.form["email"]
        user.acctype = request.form["acctype"]
        user.games_played = int(request.form["played"])
        user.games_won = int(request.form["won"])
        user.games_score = int(request.form["score"])
        user.highest_score = int(request.form["hscore"])
        user.position = int(request.form["position"])
        # form data end
        db.session.commit()
        # if user is successfully updated then this message will be displayed
        flash('User successfully updated')
        return redirect(url_for("adminUsers"))
    else:
        flash('User could not be updated')

```

```

# ADMIN ROUTE END

# Register servlet similar to add-user route
@app.route('/register', methods=['GET', 'POST'])
def register():
    if request.method == 'POST':
        username = request.form['name']
        email = request.form['email']
        image = request.files['image']
        filename = secure_filename(image.filename)
        mimetype = image.mimetype
        password = request.form['password']
        user = Users(username=username, email=email,
                     img=image.read(), name=filename, mimetype=mimetype)
        user.set_password(password)
        db.session.add(user)
        db.session.commit()
        return redirect(url_for('login'))
    return render_template('register.html')

# route for editing user profile (performed by user)
# similar to update route
@app.route('/edit', methods=['GET', 'POST'])
def edit():
    name = session['user']
    user = Users.query.filter_by(username=name).first()
    if request.method == 'POST':
        username = request.form['name']
        email = request.form['email']
        image = request.files['image']
        filename = secure_filename(image.filename)
        mimetype = image.mimetype
        # for image
        if user:
            # if image data is empty then message will be shown
            if not image:
                message = "no image"
            # if image data is wrong error 400 will be displayed
            elif not filename or not mimetype:
                return 'Bad upload!', 400
            # else image will be added
            else:
                user.img = image.read()
                user.name = filename

```

```

        mimetype = mimetype
    user.username = username
    user.email = email
    db.session.commit()
    # this will remove rhe session and redirect user to login page
    if "user" in session:
        session.pop("user", None)
    return redirect(url_for("login"))
return render_template('edit-profile.html', user=user)

# login route
@app.route('/login', methods=['GET', 'POST'])
def login():
    if request.method == 'POST':
        email = request.form['email']
        password = request.form['password']
        # this will filter user by email
        user = Users.query.filter_by(email=email).first()
        # if user is available
        if user:
            # variables for user details
            acc = user.acctype
            name = user.username
            image = user.img
            # if user details match the ones in database and account type is
admin then admin will be redirected to admin page
            if user and user.check_password(password) and acc == 'admin':
                session["user"] = name
                session["admin"] = name
                return redirect(url_for("admin"))
            # if not then user will be redirected to user page
            elif user and user.check_password(password):
                session["user"] = name
                return redirect(url_for("index"))
            # else user will is not available
            else:
                message = 'Invalid username or password'
                return render_template('login.html', message=message,
image=image)
            else:
                message = 'Invalid username or password'
                return render_template('login.html', message=message)
    return render_template('login.html')

# contact us route

```

```

@app.route("/contact")
def contact():
    if 'user' in session:
        name = session["user"]
        user = Users.query.filter_by(username=name).first()
        image = base64.b64encode(user.img).decode("ascii")
        return render_template('contact.html', image=image)
    else:
        return render_template('contact.html')

# route for viewing user profile
@app.route('/profile')
def profile():
    if 'user' in session:
        name = session["user"]
        user = Users.query.filter_by(username=name).first()
        image = base64.b64encode(user.img).decode("ascii")
        return render_template('profile.html', image=image, user=user)
    else:
        return redirect(url_for('login'))

# feed back similar to add user
@app.route("/feedback", methods=["GET", "POST"])
def feedback():
    if request.method == "POST":
        # if user in session then user id will be added to feedback table
        if 'user' in session:
            name1 = session['user']
            name = request.form["name"]
            number = request.form["number"]
            message = request.form["message"]
            user = Users.query.filter_by(username=name1).first()
            # added to feedback table
            feedback = Feedback(username=name, number=number,
                                message=message, user_id=user.id)
            db.session.add(feedback)
            db.session.commit()
        # else id will not be added
        else:
            name = request.form["name"]
            number = request.form["number"]
            message = request.form["message"]
            feedback = Feedback(username=name, number=number, message=message)
            db.session.add(feedback)
            db.session.commit()

```

```

        return redirect(url_for('index'))

# game routes
@app.route('/levels')
def levels():
    if 'user' in session:
        name = session["user"]
        user = Users.query.filter_by(username=name).first()
        image = base64.b64encode(user.img).decode("ascii")
        return render_template('levels.html', image=image)
    else:
        return redirect(url_for('login'))

# leaderboard route
@app.route('/leaderboard')
def leaderboard():
    if 'user' in session:
        name = session["user"]
        user = Users.query.filter_by(username=name).first()
        image = base64.b64encode(user.img).decode("ascii")
        # this will order user by their score and retrieve the top ten leaders
        leaderboard = db.session.query(Users).order_by(
            Users.games_score.desc()).where(Users.position <= 10)
        return render_template('leaderboard.html', image=image,
leaderboard=leaderboard)
    else:
        return redirect(url_for('login'))

# game levels
# route for level (low)
@app.route('/gameLow')
def gameLow():
    if 'user' in session:
        # sessions to store info about game
        session['attempt'] = 0
        # session to store number larger than random number
        session['guesses-g'] = 0
        # session to store number smaller than random number
        session['guesses-s'] = 0
        # variable to store random number (0-99) which is stored in session
        low = random.randint(lowestNumber, highestNumberLow)
        session['number'] = low

```

```

        return render_template('game.html')
    else:
        return redirect(url_for('login'))

# route for level (moderate)
@app.route('/gameModerate')
def gameModerate():
    if 'user' in session:
        session['attempt'] = 0
        session['guesses-g'] = 0
        session['guesses-s'] = 0
        low = random.randint(lowestNumber, highestNumberModerate)
        session['number'] = low
        return render_template('game-moderate.html')
    else:
        return redirect(url_for('login'))

# route for level (moderate)
@app.route('/gameExpert')
def gameExpert():
    if 'user' in session:
        session['attempt'] = 0
        session['guesses-g'] = 0
        session['guesses-s'] = 0
        low = random.randint(lowestNumber, highestNumberExpert)
        session['number'] = low
        return render_template('game-expert.html')
    else:
        return redirect(url_for('login'))

# routes for game mechanisms
@app.route('/guessLow', methods=['POST'])
def guessLow():
    # maximum attempts a user can have
    maxAttemp = 10
    # current attempts which will be incremented with every attempt
    currentAttempt = 0
    # gets random number stored in form
    low = int(request.form['number'])
    session['guesses'] = []
    # this will run while attempts are less than max attempts
    while session['attempt'] < maxAttemp:
        try:
            # this will store the users guess
            guess = int(request.form['guess'])

```

```

if lowestNumber <= guess <= highestNumberLow:
    if guess < low:
        # if guess is less than number attempts will increase
        session['attempt'] += 1
        session['guesses-g'] = guess
        currentAttempt = maxAttemp - session['attempt']
        # users will be notified how many attempts they have
        message = f'Attempts left: {currentAttempt}'
    elif guess > low:
        # if guess is higher than number attempts will increase
        session['attempt'] += 1
        session['guesses-s'] = guess
        currentAttempt = maxAttemp - session['attempt']
        message = f'Attempts left: {currentAttempt}'
    elif guess == low:
        # if number is equal to guess then user wins
        message = "win"
    else:
        break
else:
    # when guess is less than the highest number and greater than
    lowest number this message will be shown
    message = f"Invalid input please enter a number within specified
range {lowestNumber} and {highestNumberLow}."

except ValueError:
    # if there is a value error the user will get this message
    message = "Invalid input please enter a number."

if message == "win":
    # number of attempts will be stored here when user wins
    currentAttempt = maxAttemp - (maxAttemp - session['attempt'])
    # user score is calculated
    score = (maxAttemp - session['attempt']) * 5
    name = session['user']
    # user is filtered out from database
    user = Users.query.filter_by(username=name).first()
    if user:
        # user data is updated in the database
        user.games_score = (user.games_score + score)
        user.games_won = (user.games_won + 1)
        user.games_played = (user.games_played + 1)
        if user.highest_score < score:
            user.highest_score = score

```

```

        # positions are updated in the database
        pos = Users.query.order_by(Users.games_score.desc())
        # sorted by score
        for index, player in enumerate(pos):
            # will update position when position is not equal to index of
loop
            if player.position != index + 1:
                player.position = index + 1
            # changes are committed
            db.session.commit()
            # user is then redirected to success page
        return render_template('completed.html', attempts=currentAttempt,
status="win", score=score)
    elif session['attempt'] >= maxAttemp:
        # if user loses
        name = session['user']
        user = Users.query.filter_by(username=name).first()
        if user:
            # users games played will be updated
            user.games_played = (user.games_played + 1)
            db.session.commit()
        # user will be redirected to loss page
        return render_template('completed.html', number=low, status="lose")
    else:
        return render_template('game.html', attempts=currentAttempt,
message=message)

# mechanism similar to above
@app.route('/guessModerate', methods=['POST'])
def guessModerate():
    maxAttemp = 10
    currentAttempt = 0
    moderate = int(request.form['number'])
    session['guesses'] = []
    while session['attempt'] < maxAttemp:
        try:
            guess = int(request.form['guess'])
            if lowestNumber <= guess <= highestNumberModerate:
                if guess < moderate:
                    session['attempt'] += 1
                    session['guesses-g'] = guess
                    currentAttempt = maxAttemp - session['attempt']
                    message = f'Attempts left: {currentAttempt}'
                elif guess > moderate:
                    session['attempt'] += 1

```

```

        session['guesses-s'] = guess
        currentAttempt = maxAttemp - session['attempt']
        message = f'Attempts left: {currentAttempt}'
    elif guess == moderate:
        message = "win"
    else:
        break
    else:
        message = f"Invalid input please enter a number within specified
range {lowestNumber} and {highestNumberLow}."

except ValueError:
    message = "Invalid input please enter a number.

if message == "win":
    currentAttempt = maxAttemp - (maxAttemp - session['attempt'])
    score = (maxAttemp - session['attempt']) * 15
    name = session['user']
    user = Users.query.filter_by(username=name).first()
    if user:
        user.games_score = (user.games_score + score)
        user.games_won = (user.games_won + 1)
        user.games_played = (user.games_played + 1)
        if user.highest_score < score:
            user.highest_score = score
    pos = Users.query.order_by(Users.games_score.desc())
    for index, player in enumerate(pos):
        if player.position != index + 1:
            player.position = index + 1
    db.session.commit()
    return render_template('completed.html', attempts=currentAttempt,
status="win", score=score)
elif session['attempt'] >= maxAttemp:
    name = session['user']
    user = Users.query.filter_by(username=name).first()
    if user:
        user.games_played = (user.games_played + 1)
        db.session.commit()
    return render_template('completed.html', number=moderate,
status="lose")
else:
    return render_template('game-moderate.html', attempts=currentAttempt,
message=message)

```

```

@app.route('/guessExpert', methods=['POST'])
def guessExpert():
    maxAttemp = 10
    currentAttempt = 0
    expert = int(request.form['number'])
    while session['attempt'] < maxAttemp:
        try:
            guess = int(request.form['guess'])
            if lowestNumber <= guess <= highestNumberExpert:
                if guess < expert:
                    session['attempt'] += 1
                    session['guesses-g'] = guess
                    currentAttempt = maxAttemp - session['attempt']
                    message = f'Attempts left: {currentAttempt}'
                elif guess > expert:
                    session['attempt'] += 1
                    session['guesses-s'] = guess
                    currentAttempt = maxAttemp - session['attempt']
                    message = f'Attempts left: {currentAttempt}'
                elif guess == expert:
                    message = "win"
                else:
                    break
            else:
                message = f"Invalid input please enter a number within specified range {lowestNumber} and {highestNumberLow}."
        except ValueError:
            message = "Invalid input please enter a number."
    if message == "win":
        currentAttempt = maxAttemp - (maxAttemp - session['attempt'])
        score = (maxAttemp - session['attempt']) * 30
        name = session['user']
        user = Users.query.filter_by(username=name).first()
        if user:
            user.games_score = (user.games_score + score)
            user.games_won = (user.games_won + 1)
            user.games_played = (user.games_played + 1)
            if user.highest_score < score:
                user.highest_score = score
        pos = Users.query.order_by(Users.games_score.desc())
        for index, player in enumerate(pos):
            if player.position != index + 1:
                player.position = index + 1

```

```

        db.session.commit()
    return render_template('completed.html', attempts=currentAttempt,
status="win", score=score)
elif session['attempt'] >= maxAttemp:
    name = session['user']
    user = Users.query.filter_by(username=name).first()
    if user:
        user.games_played = (user.games_played + 1)
        db.session.commit()
    return render_template('completed.html', number=expert,
status="lose")
else:
    return render_template('game-expert.html', attempts=currentAttempt,
message=message)

# GAME ROUTES END

# route for logout
@app.route("/logout")
def logout():
    # removal of session if available
    if "user" in session:
        session.pop("user", None)
    if "admin" in session:
        session.pop("admin", None)
    return redirect(url_for('index'))

# error handlers
@app.errorhandler(400)
def bad_upload(e):
    return render_template('400.html'), 400

@app.errorhandler(404)
def page_not_found(e):
    return render_template('404.html'), 404

@app.errorhandler(500)
def internal_server_error(e):
    return render_template('500.html'), 500

# running app
if __name__ == '__main__':

```

```
app.app_context().push()
db.create_all()
app.run(debug=True)
```

Source Code for HTML files

5.2 index.html

```
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="../static/css/style.css" />
    <title>Number Guessing Game</title>
</head>

<body>
    <header>
        <details>
            <summary></summary>
            <nav class="menu">
                <a href="/">Home</a>
                <a href="/leaderboard">Leaderboard</a>
                <a href="/contact">Contact</a>
            </nav>
        </details>
    </header>
    <main>
        <section class="start">
            <div class="banner">
                <p class="title-large">Number Guessing Game</p>

                <div class="user">
                    <!-- if user is not logged on then the login buttons will be
shown -->
                    {% if session['user'] == null %}
                    <div class="login-links">
                        <a href="/login" class="game-link">login</a> &nbsp;
                        <a href="/register" class="game-link">signup</a>
                    </div>
                    {% else %}
                    <!-- this will show when user is logged on -->
                    <div class="forms">
                        <div class="nav">
                            <ul class="ul">
                                <li>
                                    <span>{{session['user']}}</span>
                                    {% if image == null %}<img alt="User Profile Picture" />
                                </li>
                            </ul>
                        </div>
                    </div>
                
```

```

        
        {% else %}
        
        {% endif %}
<ul>
    <li class="name">{{name}}</li>
    <li class="sub-item">
        <i class="fa fa-edit"></i>
        <p><a href="/profile" style="color:
white;">View Profile</a></p>
    </li>
    <li class="sub-item">
        <i class="fa fa-edit"></i>
        <p><a href="/edit" style="color:
white;">Update Profile</a></p>
    </li>
    <li class="sub-item">
        <i class="fa fa-sign-out"></i>
        <p><a href="/logout" style="color:
white;">Logout</a></p>
    </li>
</ul>
</li>
</ul>
</div>
</div>
{% endif %}
<!-- end of if statement --&gt;
&lt;/div&gt;

&lt;/div&gt;
&lt;div class="banner-div"&gt;
    &lt;img src="../static/images/banner.png" alt="banner image" /&gt;
&lt;/div&gt;
&lt;div class="btn-div"&gt;
    &lt;div&gt;&lt;a href="/levels" class="game-link"&gt;Start Game&lt;/a&gt;&lt;br
/&gt;&lt;/div&gt;
    &lt;div&gt;
        &lt;a href="#" class="how-to-play popup-link"&gt;How To Play?&lt;/a&gt;
    &lt;/div&gt;
&lt;/div&gt;
&lt;div class="container"&gt;
    &lt;div class="col"&gt;
</pre>

```

```

        <!-- feedback form details -->
        <div class="feedback-form-overlay" id="feedbackFormOverlay"
style="display: none;">
            <div class="feedback-form">
                <h2>Feedback Form</h2>
                <form action="/feedback" method="post">
                    <label for="name">Name:</label>
                    <!-- if user is logged on then his name will be
shown in form -->
                    {% if session['user'] %}
                        <input type="hidden" id="name" name="name"
value="{{session['user']}}" required>
                    {% else %}
                        <input type="text" id="name" name="name"
required>
                    {% endif %}
                    <label for="number">Number:</label>
                    <input type="text" id="number" name="number"
required>

                    <label for="message">Message:</label>
                    <textarea id="message" name="message"
required></textarea>

                    <button type="submit">Submit</button>
                </form>
                <a href="javascript:void(0)" class="feedback-
close">X</a>
            </div>
        </div>
        <p class="copyright">
            © 2023 DaBaMaLi Group. All rights reserved. To send
            feedback click <a href="#" id="feedbackForm">here</a>
        </p>
    </div>
</section>
</main>

<div class="popup-overlay">
    <div class="popup-content">
        <h2>Instructions</h2><br>
        <p>
```

```

        This is a number guessing game where by you will try guess a
number between given range,
        you will be given a 10 tries to guess this number and failure to
guess the number will
            result to a loss.<br>
            Give yourself a chance to be number one in the world
        </p>
        <a href="#" class="close-btn">X</a>
    </div>
</div>

<script src="../static/javascript/script.js"></script>
</body>

</html>
```

5.3 game.html

```

<!DOCTYPE html>
<html lang="en">
    <head>
        <meta charset="UTF-8" />
        <meta name="viewport" content="width=device-width, initial-scale=1.0" />
        <link rel="stylesheet" href="../static/css/style.css" />
        <link rel="stylesheet" href="../static/css/game.css" />
        <title>Number Guessing Game</title>
    </head>

    <body>
        <header>
            <details>
                <summary></summary>
                <nav class="menu">
                    <a href="/">Home</a>
                    <a href="/leaderboard">Leaderboard</a>
                    <a href="/contact">Contact</a>
                </nav>
            </details>
        </header>
        <main>
            <section class="start">
                <div class="banner">
```

```

<p class="title-large">Number Guessing Game</p>
</div>
<div class="banner-div">
  <p class="text">Guess any number from 0-99</p>
  <form action="/guessLow" method="post" class="form">
    <input
      type="hidden"
      id="number"
      name="number"
      value="{{session['number']}}"
    />
    <label for="guess">Enter a number:</label>
    <input type="number" id="guess" name="guess" required autofocus />
    <button type="submit">Guess</button>
  </form>
  <div>
    <h3>Hint</h3>
    <!-- hints will show here -->
    <p>Number is greater than: {{session['guesses-g']}}</p>
    <p>Number is smaller than: {{session['guesses-s']}}</p>
    <!-- message to show attempts and errors -->
    <p>{{message}}</p>
  </div>
</div>
<div class="btn-div">
  <div>
    <a href="#" class="how-to-play popup-link">How To Play?</a>
  </div>
</div>
</section>
</main>
<div class="popup-overlay">
  <div class="popup-content">
    <h2>Instructions</h2>
    <br />
    <p>
      This is a number guessing game where by you will try guess a number
      between given range, you will be given a 10 tries to guess this number
      and failure to guess the number will result to a loss.<br />
      Give yourself a chance to be number one in the world
    </p>
    <a href="#" class="close-btn">X</a>
  </div>
</div>
<script src="../static/javascript/script.js"></script>

```

```
</body>
</html>
```

5.4 levels.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" href="../static/css/style.css">
    <link rel="stylesheet" href="../static/css/level.css">
    <title>Number Guessing Game</title>
</head>
<body>
    <header>
        <details>
            <summary></summary>
            <nav class="menu">
                <a href="/">Home</a>
                <a href="/leaderboard">Leaderboard</a>
                <a href="/contact">Contact</a>
            </nav>
        </details>
    </header>
    <main>
        <section class="start">
            <div class="banner">
                <p class="title-large">Number Guessing Game</p>

                <div class="user">
                    {% if session['user'] == null %}
                    <div class="login-links">
                        <a href="/login" class="game-link">login</a> &ampnbsp
                        <a href="/register" class="game-link">signup</a>
                    </div>
                    {% else %}
                    <div class="forms">
                        <div class="nav">
                            <ul class="ul">
                                <li>
                                    <span>{{session['user']}}</span>
                                </li>
                            </ul>
                        </div>
                    </div>
                {% endif %}
            </div>
        </section>
    </main>
</body>
```

```

        {% if image == null %}
        
        {% else %}
        
        {% endif %}
<ul>
    <li class="name">{{name}}</li>
    <li class="sub-item">
        <i class="fa fa-edit"></i>
        <p><a href="/profile" style="color:
white;">View Profile</a></p>
    </li>
    <li class="sub-item">
        <i class="fa fa-edit"></i>
        <p><a href="/edit" style="color:
white;">Update Profile</a></p>
    </li>
    <li class="sub-item">
        <i class="fa fa-sign-out"></i>
        <p><a href="/logout" style="color:
white;">Logout</a></p>
    </li>
</ul>
</li>
</ul>
</div>
</div>
        {% endif %}
</div>

</div>
<div class="level-div">
    <div>
        <a href="/gameLow" class="game-link">Low (0-99)</a><br>
    </div>
    <div>
        <a href="/gameModerate" class="game-link">Moderate (0-
999)</a><br>
    </div>
    <div>
        <a href="/gameExpert" class="game-link">Expert (0-
9999)</a><br>
    </div>

```

```

        </div>
    <div class="btn-div">
        <div class="btn-div">
            <div>
                <a href="#" class="how-to-play popup-link">How To
Play?</a>
            </div>
        </div>
    <div class="container">
        <div class="col">
            <div class="feedback-form-overlay"
id="feedbackFormOverlay" style="display: none;">
                <div class="feedback-form">
                    <h2>Feedback Form</h2>
                    <form action="/feedback" method="post">
                        <label for="name">Name:</label>
                        <input type="text" id="name" name="name"
required>

                        <label for="number">Number:</label>
                        <input type="text" id="number" name="number"
required>

                        <label for="message">Message:</label>
                        <textarea id="message" name="message"
required></textarea>

                        <button type="submit">Submit</button>
                    </form>
                    <a href="javascript:void(0)" class="feedback-
close">X</a>
                </div>
            </div>
            <p class="copyright">
                © 2023 DaBaMaLi Group. All rights reserved. To send
feedback click <a href="#" id="feedbackForm">here</a>
            </p>
        </div>
    </div>
</main>
<div class="popup-overlay">
    <div class="popup-content">
        <h2>Instructions</h2><br>

```

```

<p>
    This is a number guessing game where by you will try guess a
number between given range,
    you will be given a 10 tries to guess this number and failure to
guess the number will
        result to a loss.<br>
    Give yourself a chance to be number one in the world
</p>
<a href="#" class="close-btn">X</a>
</div>
</div>
<script src="../static/javascript/script.js"></script>

</body>
</html>

```

5.5 completed.html

```

<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" href="../static/css/style.css">
    <link rel="stylesheet" href="../static/css/completed.css">
    <!-- jquery -->
    <script
src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.7.0/jquery.min.js"
        integrity="sha512-
3gJwYpMe3QewGELv8k/BX9vcqhryRdzRMxVfq6ngyWXwo03GFEzjsUm8Q7RZcHPHksttq7/GFoxjCVUjk
jvPdw=="
        crossorigin="anonymous" referrerPolicy="no-referrer"></script>
    <title>Number Guesser Game</title>
</head>

<body>
    <header>
        <details>
            <summary></summary>
            <nav class="menu">
                <a href="/">Home</a>
                <a href="/leaderboard">Leaderboard</a>
                <a href="/contact">Contact</a>
            </nav>
        </details>
    </header>

```

```

        </details>
    </header>
    <main>
        <!-- when user wins this will show -->
        {% if status == "win" %}
        <section class="start">
            <div class="banner">
                <p class="title-large">Number Guessing Game</p>

            </div>
            <div class="congrats">
                <h1>Congratulations!</h1>
            </div>
            <div class="banner">
                <img src='../static/images/trophy.png' alt="trophy">
            </div>
            <div class="btn-div">
                <div>
                    <a href="/levels" class="game-link">Play Again</a><br>
                </div>
                <div>
                    <!-- number of attempts and score will show here -->
                    <p>You won in {{attempts}} attempts </p><br>
                    <p>Your Score: {{score}}</p><br>
                </div>
                <div>
                    <a href="/leaderboard" class="how-to-play">View
Leaderboard</a>
                </div>
            </div>
        </section>

        <!-- when user losses the below will show -->
        {% elif status == "lose" %}
        <section class="start">
            <div class="banner">
                <p class="title-large">
                    Number Guessing Game
                </p>
            </div>
            <div class="congrats">
                <h1>You Lose number was {{ number }}</h1>
            </div>
            <div class="banner">
                <img src='../static/images/sad-emoji.png' alt="sad">

```

```

        </div>
    <div class="btn-div">
        <div>
            <a href="/levels" class="game-link">Play Again</a><br>
        </div>
        <div>
            <a href="/leaderboard" class="how-to-play">Leaderboard</a>
        </div>
    </div>
    <div class="container">
        <div class="col">
            <div class="feedback-form-overlay" id="feedbackFormOverlay"
style="display: none;">
                <div class="feedback-form">
                    <h2>Feedback Form</h2>
                    <form action="/feedback" method="post">
                        <label for="name">Name:</label>
                        <input type="text" id="name" name="name"
required>

                        <label for="number">Number:</label>
                        <input type="text" id="number" name="number"
required>

                        <label for="message">Message:</label>
                        <textarea id="message" name="message"
required></textarea>

                        <button type="submit">Submit</button>
                    </form>
                    <a href="javascript:void(0)" class="feedback-
close">X</a>
                </div>
            </div>
            <p class="copyright">
                © 2023 DaBaMaLi Group. All rights reserved. To send
                feedback click <a href="#" id="feedbackForm">here</a>
            </p>
        </div>
    </div>
</section>
{%
endif %}
</main>

```

```

<script src="../static/javascript/congratulations.js"></script>
</body>

</html>

```

5.6 leaderboard.html

```

<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="../static/css/style.css" />
    <link rel="stylesheet" href="../static/css/leaderboard.css" />
    <title>Number Guessing Game</title>
  </head>

  <body>
    <header>
      <details>
        <summary></summary>
        <nav class="menu">
          <a href="/">Home</a>
          <a href="/leaderboard">Leaderboard</a>
          <a href="/contact">Contact</a>
        </nav>
      </details>
    </header>
    <main>
      <section class="start">
        <div class="banner">
          <p class="title-large">Number Guessing Game</p>

          <div class="user">
            {% if session['user'] == null %}
              <div class="login-links">
                <a href="/login" class="game-link">login</a> &ampnbsp
                <a href="/register" class="game-link">signup</a>
              </div>
            {% else %}
              <div class="forms">
                <div class="nav">
                  <ul class="ul">
                    <li>
                      <span>{{session['user']}}</span>

```

```

        {% if image == null %}
        
        {% else %}
        
        {% endif %}
        <ul>
            <li class="name">{{name}}</li>
            <li class="sub-item">
                <i class="fa fa-edit"></i>
                <p><a href="/profile" style="color:
white;">View Profile</a></p>
            </li>
            <li class="sub-item">
                <i class="fa fa-edit"></i>
                <p><a href="/edit" style="color:
white;">Update Profile</a></p>
            </li>
            <li class="sub-item">
                <i class="fa fa-sign-out"></i>
                <p><a href="/logout" style="color:
white;">Logout</a></p>
            </li>
        </ul>
    </li>
</ul>
</div>
</div>
        {% endif %}
    </div>

</div>
<div class="banner-div">
    <hr>
    <h2 style="text-align: center;">Leaderboard</h2>
    <div class="user-board-div">
        <!-- looping through leaderboard -->
        {% for user in leaderboard %}
        <div class="users-board">
            <div class="number pink">
                <!-- position of user will be shown here -->
                {{user.position}}
            </div>
            <div class="name">

```

```

        <!-- user name will be shown -->
        {{user.username}}
    </div>
    <div class="points">
        <!-- total score of user -->
        <p>{{user.games_score}} points</p>
    </div>
    </div>
    {%endfor%}
</div>
</div>
<div class="btn-div">
    <div>
        <a href="/profile" class="game-link">Profile</a><br>
    </div>
    <div>
        <a href="/levels" class="game-link">Play Game</a><br>
    </div>
</div>
</div>
</section>
</main>
</body>
</html>

```

5.7 profile.html

```

<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="../static/css/style.css" />
    <link rel="stylesheet" href="../static/css/leaderboard.css" />
    <link rel="stylesheet" href="../static/css/profile.css" />
    <title>Number Guessing Game</title>
</head>

<body>
    <header>
        <details>
            <summary></summary>
            <nav class="menu">

```

```

        <a href="/">Home</a>
        <a href="/leaderboard">Leaderboard</a>
        <a href="/contact">Contact</a>
    </nav>
</details>
</header>
<main>
    <section class="start">
        <div class="banner">
            <p class="title-large">Number Guessing Game</p>

            <div class="user">
                {% if session['user'] == null %}
                <div class="login-links">
                    <a href="/login" class="game-link">login</a> &ampnbsp
                    <a href="/register" class="game-link">signup</a>
                </div>
                {% else %}
                <div class="forms">
                    <div class="nav">
                        <ul class="ul">
                            <li>
                                <span>{{session['user']}}</span>
                                {% if image == null %}
                                    
                                {% else %}
                                    
                                {% endif %}
                            <ul>
                                <li class="name">{{name}}</li>
                                <li class="sub-item">
                                    <i class="fa fa-edit"></i>
                                    <p><a href="/profile" style="color:
white;">View Profile</a></p>
                                </li>
                                <li class="sub-item">
                                    <i class="fa fa-edit"></i>
                                    <p><a href="/edit" style="color:
white;">Update Profile</a></p>
                                </li>
                                <li class="sub-item">
                                    <i class="fa fa-sign-out"></i>
                                </li>
                            </ul>
                        </ul>
                    </div>
                </div>
            {% endif %}
        </div>
    </section>
</main>

```

```

                <p><a href="/logout" style="color: white;">Logout</a></p>
            </li>
        </ul>
    </li>
</ul>
</div>
</div>
{%
  endif %}
</div>

</div>
<div class="banner-div">
    <hr>
    <h2 style="text-align: center;">View Profile</h2>
    <!-- this will show the details of user who is currently logged
on -->
    <div class="view-profile">
        <div class="details green">
            <p>Score</p>
            <p>{{user.games_score}} pts</p>
        </div>
        <div class="details pink">
            <p>Best Score</p>
            <p>{{user.highest_score}} pts</p>
        </div>
        <div class="details blue">
            <p>Games Played</p>
            <p>{{user.games_played}}</p>
        </div>
        <div class="details limegreen">
            <p>Games Won</p>
            <p>{{user.games_won}}</p>
        </div>
        <div class="details red">
            <p>Games Lost</p>
            <p>{{user.games_played - user.games_won}}</p>
        </div>
        <div class="details purple">
            <p>World Ranking</p>
            <p>{{user.position}}</p>
        </div>

    </div>
</div>

```

```

<div class="btn-div">
    <div>
        <a href="/leaderboard" class="game-link">Leaderboard</a><br>
    </div>
    <div>
        <a href="/levels" class="game-link">Play Game</a><br>
    </div>
</div>
</section>
</main>

<script src="../static/javascript/script.js"></script>
</body>

</html>

```

5.8 edit-profile.html

```

<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="../static/css/style.css" />
    <link rel="stylesheet" href="../static/css/game.css" />
    <link rel="stylesheet" href="../static/css/login.css">
    <title>Number Guessing Game</title>
</head>

<body>
    <header>
        <details>
            <summary></summary>
            <nav class="menu">
                <a href="/">Home</a>
                <a href="/leaderboard">Leaderboard</a>
                <a href="/contact">Contact</a>
            </nav>
        </details>
    </header>
    <main>
        <section class="start">
            <div class="banner">
                <p class="title-large">Number Guessing Game</p>

```

```

        <div class="user"></div>
    </div>
    <!-- page for editing user profile by user -->
    <div class="banner-div">
        <p class="text">Update user profile</p>
        <form action="/edit" method="post" class="form"
    enctype="multipart/form-data">
            <div class="form-group">
                <label for="name">Nickname*</label><br>
                <input type="text" id="name" name="name"
    value="{{user.username}}" required autofocus />
            </div>
            <div class="form-group">
                <label for="email">Email*</label><br>
                <input type="text" id="email" name="email"
    value="{{user.email}}" required />
                <input type="hidden" id="acctype" name="acctype"
    value="user"/>
            </div>
            <div class="form-group">
                <label for="image">Password*</label><br>
                <input type="file" id="image" name="image" />
            </div>
            <button type="submit">Submit</button>
        </form>
    </div>
</section>
</main>
</body>

</html>

```

5.9 login.html

```

<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="../static/css/style.css" />
    <link rel="stylesheet" href="../static/css/game.css" />
    <link rel="stylesheet" href="../static/css/login.css">
    <title>Number Guessing Game</title>
</head>

```

```

<body>
    <header>
        <details>
            <summary></summary>
            <nav class="menu">
                <a href="/">Home</a>
                <a href="/leaderboard">Leaderboard</a>
                <a href="/contact">Contact</a>
            </nav>
        </details>
    </header>
    <main>
        <section class="start">
            <div class="banner">
                <p class="title-large">Number Guessing Game</p>
                <div class="user"></div>
            </div>
            <div class="banner-div">
                <p class="text">Login</p>
                <form action="/login" method="post" class="form">
                    <!-- error message will be shown here -->
                    <p style="color:#f00;" id="errorMessage">{{message}}</p><br>
                    <div class="form-group">
                        <label for="guess">Email:</label><br>
                        <input type="text" id="email" name="email" required
autofocus />
                    </div>
                    <div class="form-group">
                        <label for="guess">Password:</label><br>
                        <input type="password" id="password" name="password"
required />
                    </div>
                    <button type="submit">Submit</button>
                </form>
            </div>
            <div class="btn-div">
                <div>
                    <a href="/register" class="how-to-play">Don't have an
account?</a>
                </div>
            </div>
        </section>
    </main>

```

```
</body>  
  
</html>
```

5.10 register.html

```
<!DOCTYPE html>  
<html lang="en">  
  
<head>  
    <meta charset="UTF-8" />  
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />  
    <link rel="stylesheet" href="../static/css/style.css" />  
    <link rel="stylesheet" href="../static/css/game.css" />  
    <link rel="stylesheet" href="../static/css/login.css">  
    <title>Number Guessing Game</title>  
</head>  
  
<body>  
    <header>  
        <details>  
            <summary></summary>  
            <nav class="menu">  
                <a href="/">Home</a>  
                <a href="/leaderboard">Leaderboard</a>  
                <a href="/contact">Contact</a>  
            </nav>  
        </details>  
    </header>  
    <main>  
        <section class="start">  
            <div class="banner">  
                <p class="title-large">Number Guessing Game</p>  
                <div class="user"></div>  
            </div>  
            <div class="banner-div">  
                <p class="text">Register</p>  
                <form action="/register" method="post" class="form"  
onsubmit="return validateForm()" enctype="multipart/form-data">  
                    <!-- error message will be shown here -->  
                    <p style="color:#f00;" id="errorMessage">{{message}}</p><br>  
                    <div class="form-group">  
                        <label for="name">Nickname*</label><br>
```

```

        <input type="text" id="name" name="name" required
autofocus />
    </div>
    <div class="form-group">
        <label for="email">Email*</label><br>
        <input type="text" id="email" name="email" required />
        <input type="hidden" id="acctype" name="acctype"
value="user"/>
    </div>
    <div class="form-group">
        <label for="password">Password*</label><br>
        <input type="password" id="password" name="password"
required />
    </div>
    <div class="form-group">
        <label for="valPassword">Re-enter Password*</label><br>
        <input type="password" id="valPassword"
name="valPassword" required />
    </div>
    <div class="form-group">
        <label for="image">Profile Picture*</label><br>
        <input type="file" id="image" name="image"
accept="image/*" required/>
    </div>
    <button type="submit">Submit</button>
</form>
</div>
<div class="btn-div">
    <div>
        <a href="/login" class="how-to-play">Already have an
account?</a>
    </div>
</div>
</section>
</main>

<script src="../static/javascript/form.js"></script>
</body>

</html>

```

5.11 errorpage 400.html

```

<!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">

    <title>400 Number Guessing game</title>
    <script
src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.7.1/jquery.min.js"
integrity="sha512-
v2CJ7UaYy4JwqLDIrZUI/4hqeoQie0mAZNXBeQyjo21dadnwR+8ZaIJVT8EE2iyI610V8e6M8PP2/4hpQ
INQ/g==" crossorigin="anonymous" referrerPolicy="no-referrer"></script>

    <!-- Google font -->
    <link
href="https://fonts.googleapis.com/css?family=Encode+Sans+Semi+Condensed:100,200,
300,400" rel="stylesheet">

    <!-- Custom stlylesheet -->
    <link type="text/css" rel="stylesheet" href="../static/css/404.css" />

</head>

<body class="loading">
    <!-- error page -->
    <h1>400</h1>
    <h2>Bad Upload <a href="/" style="color: black;">Back to home</a><b>
:&#40;</b></h2>
    <div class="gears">
        <div class="gear one">
            <div class="bar"></div>
            <div class="bar"></div>
            <div class="bar"></div>
        </div>
        <div class="gear two">
            <div class="bar"></div>
            <div class="bar"></div>
            <div class="bar"></div>
        </div>
        <div class="gear three">
            <div class="bar"></div>
            <div class="bar"></div>
            <div class="bar"></div>
        </div>
    </div>
```

```

<script src="https://code.jquery.com/jquery-1.10.2.js"></script>
<script src="../static/javascript/404.js" type="text/javascript"></script>
</body>

</html>

```

5.12 contact.html

```

<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="../static/css/style.css" />
    <link rel="stylesheet" href="../static/css/contact.css" />
    <title>Number Guessing Game</title>
</head>

<body>
    <header>
        <details>
            <summary></summary>
            <nav class="menu">
                <a href="/">Home</a>
                <a href="/leaderboard">Leaderboard</a>
                <a href="/contact">Contact</a>
            </nav>
        </details>
    </header>
    <main>
        <section class="start">
            <div class="banner">
                <p class="title-large">Number Guessing Game</p>

                <div class="user">
                    {% if session['user'] == null %}
                    <div class="login-links">
                        <a href="/login" class="game-link">login</a> &ampnbsp
                        <a href="/register" class="game-link">signup</a>
                    </div>
                    {% else %}
                    <div class="forms">
                        <div class="nav">

```

```

<ul class="ul">
    <li>
        <span>{{session['user']}}</span>
        {% if image == null %}
            
        {% else %}
            
        {% endif %}
        <ul>
            <li class="name">{{name}}</li>
            <li class="sub-item">
                <i class="fa fa-edit"></i>
                <p><a href="/profile" style="color:
white;">View Profile</a></p>
            </li>
            <li class="sub-item">
                <i class="fa fa-edit"></i>
                <p><a href="/edit" style="color:
white;">Update Profile</a></p>
            </li>
            <li class="sub-item">
                <i class="fa fa-sign-out"></i>
                <p><a href="/logout" style="color:
white;">Logout</a></p>
            </li>
        </ul>
    </li>
</ul>
</div>
<% endif %>
</div>

</div>
<div class="banner-div">
    <div class="container-form">
        <div class="contact-box">
            <div class="contact-left">
                <h3>Send Your Request</h3>
                <form action="">
                    <div class="input-row">
                        <div class="input-group">
                            <label for="">Name</label>

```

```

        <input type="text" placeholder="Name
Surname">
        </div>
        <div class="input-group">
            <label for="">Phone</label>
            <input type="text" placeholder="+268 766
35 980">
        </div>
    </div>
    <div class="input-row">
        <div class="input-group">
            <label for="">Email</label>
            <input type="email"
placeholder="abc@gmail.com">
        </div>
        <div class="input-group">
            <label for="">Subject</label>
            <input type="text" placeholder="Write
Demo">
        </div>
    </div>

        <label for="">Message</label>
        <textarea rows="5" placeholder="Your
Message..."></textarea>
        <button type="submit">Send</button>
    </form>
</div>
<div class="contact-right">
    <h3>Reach Us</h3>
    <table>
        <tr>
            <td>Email</td>
            <td><a
href="mailto:contactus@example.com">contactus@example.com</a></td>
        </tr>
        <tr>
            <td>Phone</td>
            <td><a href="tel:+26876635980">+268 766 35
980</a></td>
        </tr>
        <tr>
            <td>Address</td>
            <td>P.O. BOX 4239 Mbabane
            </td>
        </tr>
    </table>

```

```

        </tr>

            </table>
        </div>
    </div>
</div>
<div class="container">
    <div class="col">

        <div class="feedback-form-overlay" id="feedbackFormOverlay"
style="display: none;">
            <div class="feedback-form">
                <h2>Feedback Form</h2>
                <form action="/feedback" method="post">
                    <label for="name">Name:</label>
                    <input type="text" id="name" name="name"
required>

                    <label for="number">Number:</label>
                    <input type="text" id="number" name="number"
required>

                    <label for="message">Message:</label>
                    <textarea id="message" name="message"
required></textarea>

                    <button type="submit">Submit</button>
                </form>
                <a href="javascript:void(0)" class="feedback-
close">X</a>
            </div>
        </div>
    </div>
</div>
</section>
</main>
<script src="../static/javascript/script.js"></script>
</body>

</html>

```

Admin pages

5.2.1 admin.html

```
<!DOCTYPE html>
<html>
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" href="/static/css/admin.css">
    <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/5.15.4/css/all.min.css">
</head>
<body>
    <div class="container">
        <div class="sidebar" id="sidebar">
            <button class="toggle-btn" onclick="toggleSidebar()">
                X
            </button>
            <ul>
                <li>
                    <a href="/admin"><i class="fas fa-chart-bar icon"></i>Dashboard</a>
                </li>
                <li>
                    <a href="/admin-users"><i class="fas fa-users icon"></i>Users</a>
                </li>
                <li>
                    <a href="/admin-feedback"><i class="fas fa-shopping-cart icon"></i>Notification</a>
                </li>
                <li>
                    <a href="/logout"><i class="fas fa-shopping-cart icon"></i>Logout</a>
                </li>
            </ul>
        </div>
        <div class="main-content">
            <h1>Admin Dashboard</h1>
            <div class="dashboard">
                <a href="/admin-user" style="color: #000; text-decoration: none;">
                    <div class="card">
                        <h2>Users</h2>
                        {% comment %} this will get the number of users {% endcomment %}
                        <p>Total: {{ users|length }}</p>
                
```

```

        </div>
    </a>
    <a href="/admin-feedback" style="color: #000; text-decoration: none;">
        <div class="card">
            <h2>Feedback</h2>
            {% comment %} this will get the number of messages {% endcomment %}
            <p>Total Messages: {{ feedback|length }}</p>
        </div>
    </a>
    <div class="card">
        <h2>Games</h2>
        {% comment %} this is the total number of games played by all users {% endcomment %}
        <p>Total Played: {{total}}</p>
    </div>
</div>
</div>
</body>
</html>

```

5.1.2 admin-user.html

```

<!DOCTYPE html>
<html>

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" href="/static/css/admin.css">
    <link rel="stylesheet" href="/static/css/admin-users.css">
    <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/5.15.4/css/all.min.css" />
    <style>
        .success{
            color: #029c02;
            list-style-type: none;
        }
    </style>
</head>

<body>
    <div class="container">
        <div class="sidebar" id="sidebar">
            <button class="toggle-btn" onclick="toggleSidebar()">

```

```

        X
    </button>
    <ul>
        <li>
            <a href="/admin"><i class="fas fa-chart-bar icon"></i>Dashboard</a>
        </li>
        <li>
            <a href="/admin-users"><i class="fas fa-users icon"></i>Users</a>
        </li>
        <li>
            <a href="/admin-feedback"><i class="fas fa-shopping-cart icon"></i>Notification</a>
        </li>
        <li>
            <a href="/logout"><i class="fas fa-shopping-cart icon"></i>Logout</a>
        </li>
    </ul>
</div>
<div class="main-content">
    <h1>Admin Dashboard</h1>
    <button class="toggle-btn" onclick="toggleSidebar()">
        <i class="fas fa-bars"></i>
    </button>
    <div class="dashboard">
        <div class="card table-container">
            <h2>Users</h2>
            {% comment %} this will only show when there is message for admin {% endcomment %}
            {% with messages=get_flashed_messages() %}
                {% if messages %}
                    {% for message in messages %}
                        <p class="success">{{ message }}</p>
                    {% endfor %}
                {% endif %}
            {% endwith %}
            <table>
                <thead>
                    <tr>
                        <th>ID</th>
                        <th>Username</th>
                        <th>Email</th>
                        <th>Account Type</th>

```

```

        <th>Games Played</th>
        <th>Games Won</th>
        <th>Score</th>
        <th>Highest Score</th>
        <th>Position</th>
        <th>Actions</th>
    </tr>
</thead>
<tbody>
    {# comment #} start of loop {# endcomment #}
    {# for user in users #}
    <form method="POST" action="/update">
    <tr>
        <td>{{user.id}}<br/>
            {# comment #} used for update and delete
    {# endcomment #}
        <input type="hidden" value="{{user.id}}" name="id" id="id">
        </td>
        <td>
            <input type="text" name="name" id="name" value="{{user.username}}" required>
        </td>
        <td>
            <input type="text" name="email" id="email" value="{{user.email}}" required>
        </td>
        <td>
            <input type="text" name="acctype" id="acctype" value="{{user.acctype}}" required style="width: 50px;">
        </td>
        <td>
            <input type="number" name="played" id="played" value="{{user.games_played}}" required style="width: 40px;">
        </td>
        <td>
            <input type="number" name="won" id="won" value="{{user.games_won}}" required style="width: 40px;">
        </td>
        <td>
            <input type="number" name="score" id="score" value="{{user.games_score}}>
        </td>
    </tr>
</tbody>
</table>

```

```

                    required style="width: 40px;">
                </td>
                <td>
                    <input type="number" name="hscore"
id="hscore" value="{{user.highest_score}}"
                    required style="width: 40px;">
                </td>
                <td><input type="number" name="position"
id="position" value="{{user.position}}"
                    required style="width: 40px;">
                </td>
                <td>
                    {% comment %} buttons {% endcomment %}
                    <button type="submit"
class="btn">Update</button>
                    <a href="/delete/{{ user.id }}">
class="btn delete">Delete</a>
                </td>
            </tr>
        </form>
        {% endfor %}
    </tbody>
</table>

    <div class="button-container">
        <a href="/add-user">Add</a>
    </div>
</div>
</div>

<script>
    function toggleSidebar() {
        var sidebar = document.getElementById("sidebar");
        sidebar.classList.toggle("open");
    }
</script>
</body>

</html>

```

5.1.3 add-user.html

```

<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="../static/css/style.css" />
    <link rel="stylesheet" href="../static/css/game.css" />
    <link rel="stylesheet" href="../static/css/login.css">
    <title>Number Guessing Game</title>
</head>

<body>
    <header>
        <details>
            <summary></summary>
            <nav class="menu">
                <a href="/admin">Dashboard</a>
                <a href="/admin-users">Users</a>
                <a href="/admin-feedback">Feedbacks</a>
            </nav>
        </details>
    </header>
    <main>
        <section class="start">
            <div class="banner">
                <p class="title-large">Number Guessing Game</p>
                <div class="user"></div>
            </div>
            <div class="banner-div">
                <p class="text">Add-User</p>
                {% comment %} form for adding user with enctype {% endcomment %}
                <form action="/add-user" method="post" class="form"
onsubmit="return validateForm()" enctype="multipart/form-data">
                    {% comment %} error message displayed here {% endcomment %}
                    <p style="color:#f00;" id="errorMessage">{{message}}</p><br>

                    <div class="form-group">
                        <label for="name">Nickname*</label><br>
                        <input type="text" id="name" name="name" required
autofocus />
                    </div>
                    <div class="form-group">
                        <label for="email">Email*</label><br>
                        <input type="text" id="email" name="email" required />
                    </div>
                </form>
            </div>
        </section>
    </main>
</body>

```

```

        <input type="hidden" id="acctype" name="acctype"
value="user"/>
    </div>
    <div class="form-group">
        <label for="password">Password*</label><br>
        <input type="password" id="password" name="password"
required />
    </div>
    <div class="form-group">
        <label for="valPassword">Re-enter Password*</label><br>
        <input type="password" id="valPassword"
name="valPassword" required />
    </div>
    <div class="form-group">
        <label for="image">Profile Picture*</label><br>
        <input type="file" id="image" name="image"
accept="image/*" required/>
    </div>
    <button type="submit">Submit</button>
</form>
</div>
<div class="btn-div">
    <div>
        <a href="/login" class="how-to-play">Already have an
account?</a>
    </div>
</div>
</section>
</main>

<script src="../static/javascript/form.js"></script>
</body>

</html>
```

5.1.4 notifications

```

<!DOCTYPE html>
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
        <link rel="stylesheet" href="/static/css/admin.css">
        <link rel="stylesheet" href="/static/css/admin-notification.css">
```

```

<link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/5.15.4/css/all.min.css" />
</head>
<body>
<div class="container">
    <div class="sidebar" id="sidebar">
        <button class="toggle-btn" onclick="toggleSidebar()">
            X
        </button>
        <ul>
            <li>
                <a href="/admin"><i class="fas fa-chart-bar icon"></i>Dashboard</a>
            </li>
            <li>
                <a href="/admin-users"><i class="fas fa-users icon"></i>Users</a>
            </li>
            <li>
                <a href="/admin-feedback"><i class="fas fa-shopping-cart icon"></i>Notification</a>
            </li>
            <li>
                <a href="/logout"><i class="fas fa-shopping-cart icon"></i>Logout</a>
            </li>
        </ul>
    </div>
    <div class="main-content">
        <h1>Notifications</h1>
        <div class="notifications">
            <!-- looping through the feedback table using for loop-->
            {%for feed in feedback%}
            <div class="notification">
                <div class="title">{{feed.username}}</div>
                <div class="timestamp">{{feed.sent_at}}</div>
                <div class="message">{{feed.message}}</div>
            </div>
            {%endfor%}
            <!-- end of for loop -->
        </div>
    </div>
</body>
</html>

```

Source code for javascript

5.2.1 script.js

```
// event listener for showing popup for instructions
document.addEventListener("DOMContentLoaded", function () {
    // variables
    var popupLink = document.querySelector(".popup-link");
    var popupOverlay = document.querySelector(".popup-overlay");
    var closeBtn = document.querySelector(".close-btn");

    popupLink.addEventListener("click", function (e) {
        e.preventDefault();
        popupOverlay.style.display = "flex";
    });

    closeBtn.addEventListener("click", function () {
        popupOverlay.style.display = "none";
    });
});

// event listener for showing popup for feedback form
document.addEventListener("DOMContentLoaded", function () {
    var feedbackForm = document.querySelector("#feedbackForm");
    var feedbackFormOverlay = document.querySelector("#feedbackFormOverlay");
    var feedbackClose = document.querySelector(".feedback-close");

    feedbackForm.addEventListener("click", function (e) {
        e.preventDefault();
        feedbackFormOverlay.style.display = "flex";
    });

    feedbackClose.addEventListener("click", function () {
        feedbackFormOverlay.style.display = "none";
    });
});
```

5.2.2 form.js

```
function validateForm() {
    var email = document.getElementById("email").value;
```

```

var password = document.getElementById("password").value;
var valPassword = document.getElementById("valPassword").value;
var image = document.getElementById("image").value;
var errorMessage = document.getElementById("errorMessage");

errorMessage.innerHTML = ""; // Clear any previous error message

if (email.trim() === "") {
    errorMessage.innerHTML = "Please enter your email.";
    return false; // Prevent form submission
}

if (password.trim() === "") {
    errorMessage.innerHTML = "Please enter your password.";
    return false;
}

if (password.length < 6) {
    errorMessage.innerHTML = "Password should be at least 6 characters long.";
    return false;
}

if (image.trim() === "") {
    errorMessage.innerHTML = "Please select a profile picture.";
    return false;
}

var allowedExtensions = /(\.jpg|\.jpeg|\.png|\.gif)$/i;
if (!allowedExtensions.exec(image)) {
    errorMessage.innerHTML = "Invalid file format. Please select an image file (JPG, JPEG, PNG, GIF).";
    return false;
}

if (password !== valPassword) {
    errorMessage.innerHTML = "Passwords do not match.";
    return false;
}
// Additional validation rules can be added here if needed

return true; // Allow form submission
}

```

5.2.3 404.js

```
$(function() {  
    setTimeout(function(){  
        $('body').removeClass('loading');  
    }, 1000);  
});
```