Quiz App
-PYTHON PROJECT

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Abstract

This project presents a Quiz App developed in Python, designed to test and enhance users' knowledge in an interactive and engaging way. The app is built with a user-friendly interface, making it accessible for users of all ages and skill levels. Key functionalities include a range of quiz categories, multiple question formats (such as multiple choice, true/false, and fill-in-the-blank), and instant feedback to keep users informed of their progress.

INTRODUCTION

Efficiency

To ensure efficient data processing, the quiz app uses optimized data structures such as lists and dictionaries. Questions, options, and answers are stored in well-organized dictionaries, allowing for quick lookups and minimal memory usage. This ensures that the app runs smoothly, even with a large question set.

Automation

The quiz app can include an automated question generation feature, where questions are dynamically pulled from a database or an external API. This ensures that the quiz content is always fresh, varied, and tailored to the user's preferences or knowledge level.

User Friendly

The quiz app is designed with a clean, intuitive interface that makes it easy for users of all ages to navigate. Clear labels, simple button layouts, and organized question displays ensure that users can focus on the quiz without confusion. Every screen is designed to be clutter-free, with only essential information visible, making the experience straightforward and enjoyable.

PYTHON – CODE : app.py

app.py > ...

```python
import tkinter as tk
from tkinter import messagebox
import sq
(variable) conn: Connection
See Real World Examples From GitHub

conn = sq
cursor = conn.cursor()
cursor.execute('''CREATE TABLE IF NOT EXISTS users (
    id INTEGER PRIMARY KEY AUTOINCREMENT,
    username TEXT UNIQUE,
    password TEXT
)''')
conn.commit()

questions = [
    {
        "question": "What is the correct file extension for Python files?",
        "answers": [".pyth", ".pt", ".py", ".pyt"],
        "correct_answer": 2
    },
    {
        "question": "How do you create a variable with the numeric value 5 in Python?",
        "answers": ["x = 5", "int x = 5", "num x = 5", "x : 5"],
        "correct_answer": 0
    },
    {
        "question": "What is the correct syntax to output 'Hello World' in Python?",
        "answers": ["echo 'Hello World'", "p('Hello World')", "print('Hello World')", "printf('Hello World')"],
        "correct_answer": 2
    },
    {
        "question": "Which one of these is a mutable data type in Python?",
        "answers": ["tuple", "string", "list", "list"],
        "correct_answer": 2
    },
```

app.py > ...

```python
    {
        "question": "Which of the following keywords is used for function declaration in Python?",
        "answers": ["function", "def", "func", "declare"],
        "correct_answer": 1
    },
    {
        "question": "What is the output of 3 * 'Python'?",
        "answers": ["Python3", "Python Python Python", "Error", "3Python"],
        "correct_answer": 1
    },
    {
        "question": "What is the output of len(['Python', 'Java', 'C++'])?",
        "answers": ["2", "3", "4", "Error"],
        "correct_answer": 1
    },
    {
        "question": "Which of the following is a Python framework for web development?",
        "answers": ["React", "Django", "Spring", "Laravel"],
        "correct_answer": 1
    },
    {
        "question": "How can you create a comment in Python?",
        "answers": ["# This is a comment", "// This is a comment", "/* This is a comment */", "-- This is a comment"],
        "correct_answer": 0
    },
    {
        "question": "Which Python keyword is used to handle exceptions?",
        "answers": ["except", "try", "catch", "throw"],
        "correct_answer": 1
    }
]
```

app.py > ...

```python
score = 0
current_question = 0
def register_user(username, password):
    try:
        cursor.execute("INSERT INTO users (username, password) VALUES (?, ?)", (username, password))
        conn.commit()
        messagebox.showinfo("Signup Success", "Account created successfully! Please login.")
        show_login_screen()
    except sqlite3.IntegrityError:
        messagebox.showerror("Signup Error", "Username already exists! Please choose another.")

def login_user(username, password):
    cursor.execute("SELECT * FROM users WHERE username=? AND password=?", (username, password))
    result = cursor.fetchone()
    if result:
        messagebox.showinfo("Login Success", f"Welcome, {username}!")
        show_quiz_screen()
    else:
        messagebox.showerror("Login Error", "Invalid username or password!")

def check_answer(selected_answer):
    global score, current_question
    question_data = questions[current_question]

    if selected_answer == question_data["correct_answer"]:
        score += 1
        messagebox.showinfo("Result", "Correct!")
    else:
        correct_answer_text = question_data["answers"][question_data["correct_answer"]]
        messagebox.showinfo("Result", f"Wrong! The correct answer is: {correct_answer_text}")

    current_question += 1
    if current_question < len(questions):
        show_question(current_question)
    else:
        messagebox.showinfo("Quiz Completed", f"Your final score is {score}/{len(questions)}.")
        root.destroy()
```

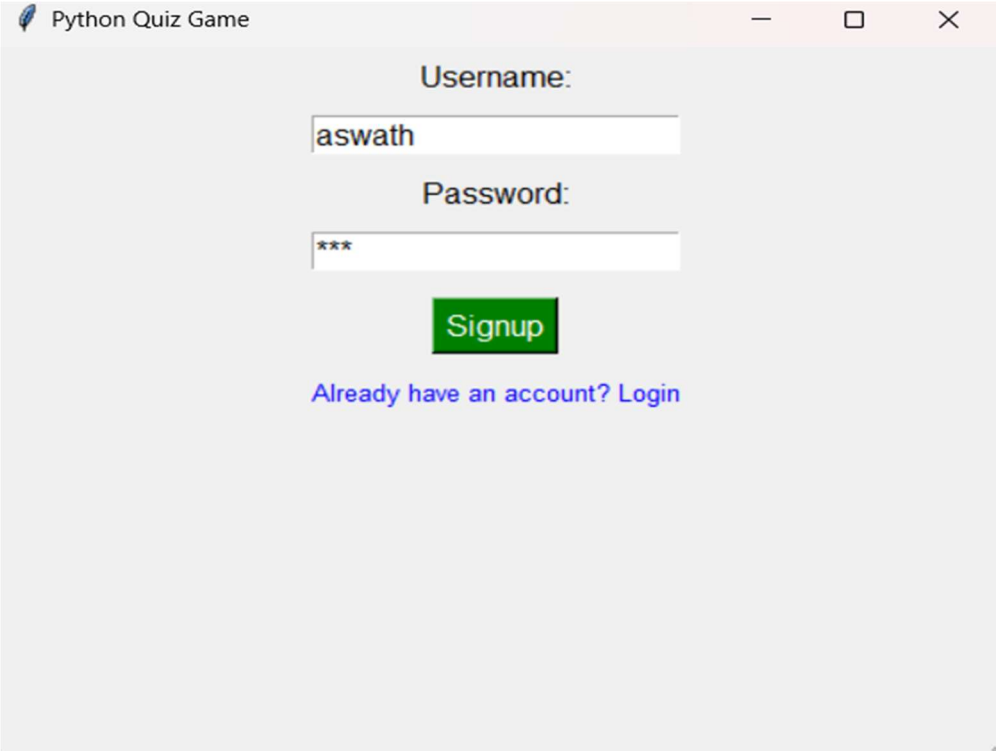
app.py > ...

```python
def show_question(index):
    question_data = questions[index]
    question_label.config(text=f"Question {index + 1}: {question_data['question']}")

    for i, answer in enumerate(question_data["answers"]):
        answer_buttons[i].config(text=answer, command=lambda i=i: check_answer(i))

def show_signup_screen():
    clear_window()
    title_label.config(text="Signup")

    tk.Label(root, text="Username:", font=("Arial", 12)).pack(pady=5)
    username_entry.pack(pady=5)
    tk.Label(root, text="Password:", font=("Arial", 12)).pack(pady=5)
    password_entry.pack(pady=5)

    signup_button = tk.Button(root, text="Signup", command=lambda: register_user(username_entry.get(), password_entry.get()), font=("Arial"
    signup_button.pack(pady=10)
    switch_to_login_button.config(text="Already have an account? Login", command=show_login_screen)
    switch_to_login_button.pack()

def show_login_screen():
    clear_window()
    title_label.config(text="Login")

    tk.Label(root, text="Username:", font=("Arial", 12)).pack(pady=5)
    username_entry.pack(pady=5)
    tk.Label(root, text="Password:", font=("Arial", 12)).pack(pady=5)
    password_entry.pack(pady=5)

    login_button = tk.Button(root, text="Login", command=lambda: login_user(username_entry.get(), password_entry.get()), font=("Arial", 12)
    login_button.pack(pady=10)
    switch_to_login_button.config(text="Don't have an account? Signup", command=show_signup_screen)
    switch_to_login_button.pack()
```

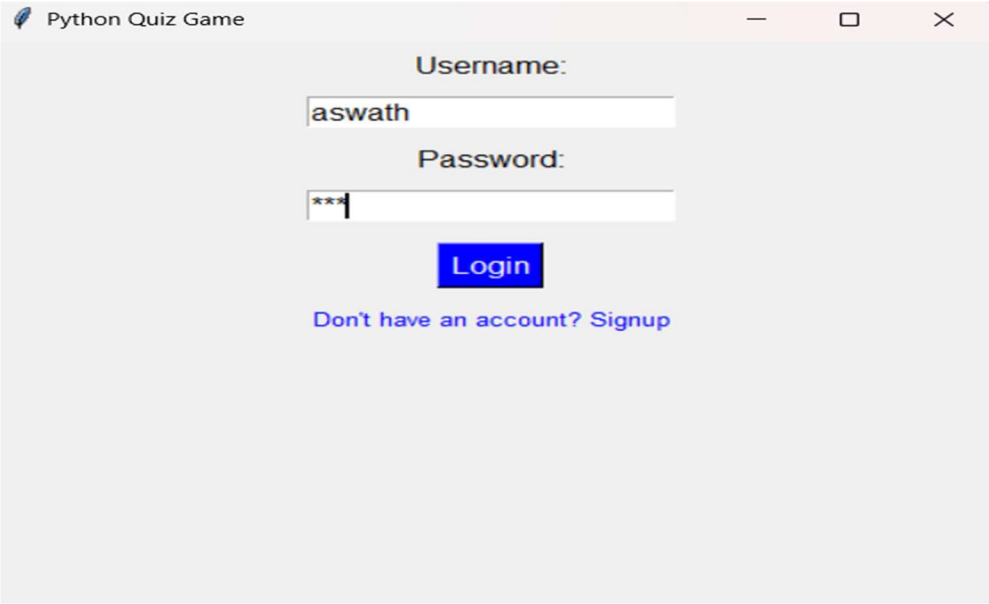
app.py > ...

```python

def show_quiz_screen():
    clear_window()
    title_label.pack_forget()
    question_label.pack(pady=20)

    for btn in answer_buttons:
        btn.pack(pady=5)

    show_question(current_question)

def clear_window():
    for widget in root.winfo_children():
        widget.pack_forget()

root = tk.Tk()
root.title("Python Quiz Game")
root.geometry("500x400")
root.config(bg="#f0f0f0")

title_label = tk.Label(root, text="Python Quiz Game", font=("Arial", 18, "bold"), bg="#f0f0f0", fg="black")
title_label.pack(pady=20)

username_entry = tk.Entry(root, font=("Arial", 12))
password_entry = tk.Entry(root, show="*", font=("Arial", 12))
switch_to_login_button = tk.Button(root, text="", font=("Arial", 10), fg="blue", bg="#f0f0f0", borderwidth=0)

question_label = tk.Label(root, text="", font=("Arial", 14), wraplength=400, justify="center", bg="#f0f0f0")
answer_buttons = [tk.Button(root, text="", font=("Arial", 12), width=20, bg="#e0e0e0") for _ in range(4)]

show_login_screen()

root.mainloop()

conn.close()
```

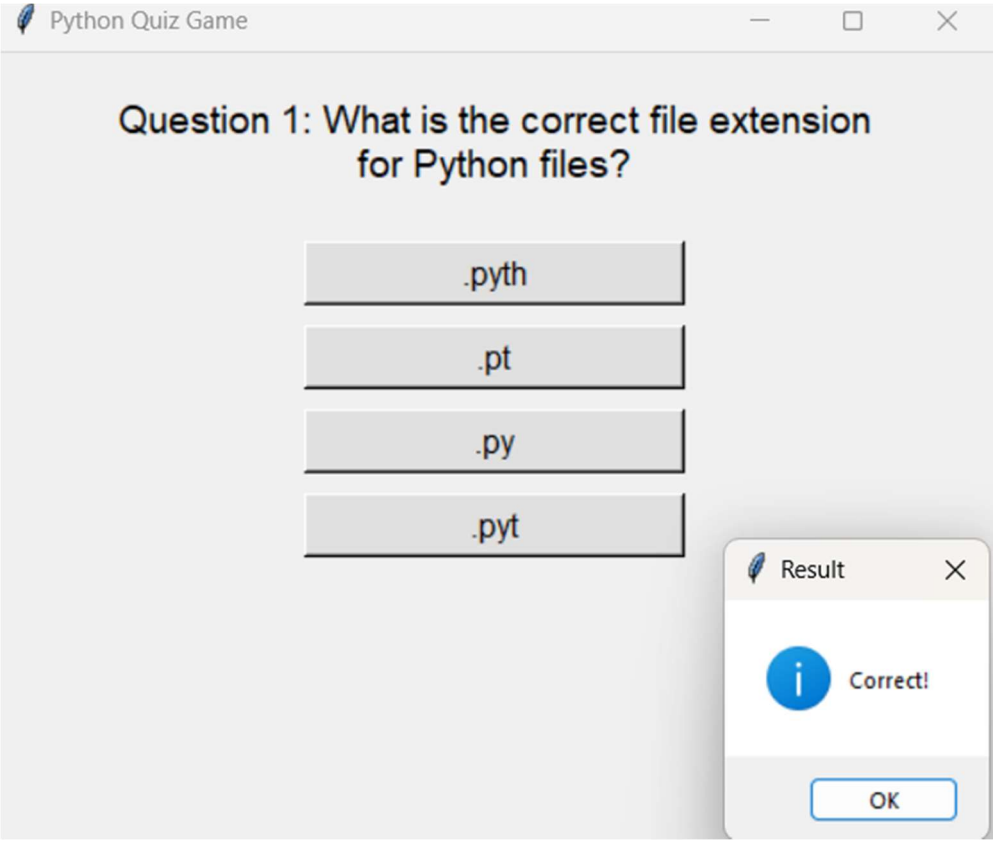
OUTPUT OF THE PROJECT



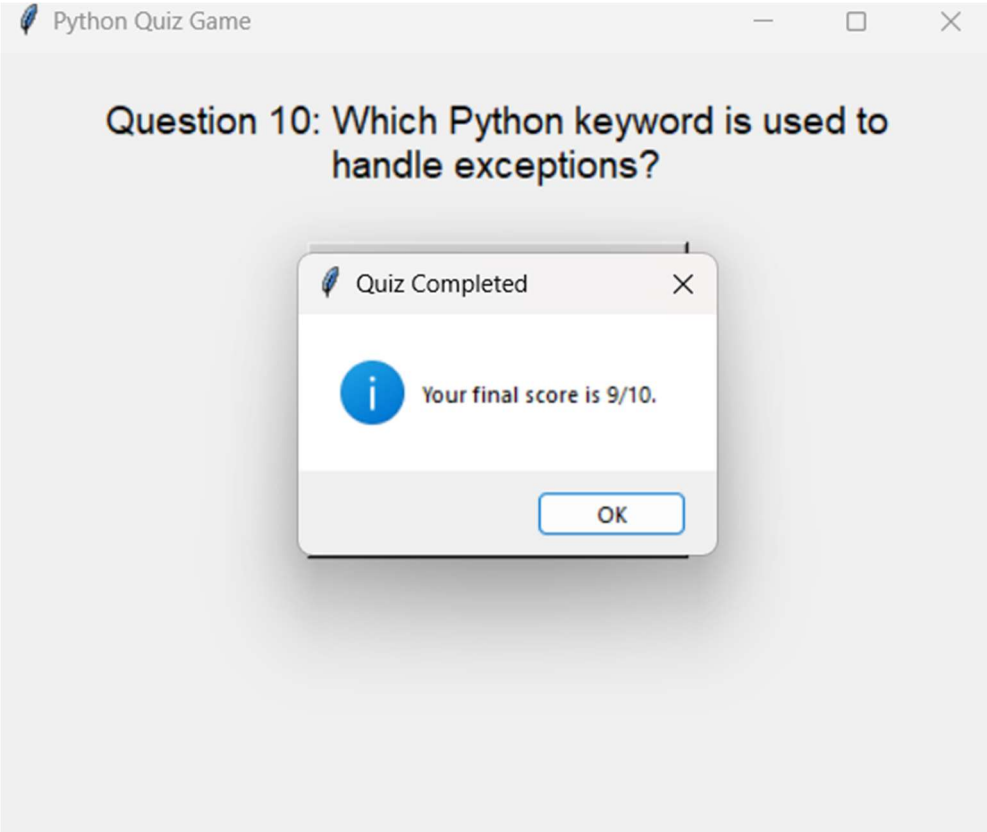
Login:-


Python Quiz Game
Username:
aswath
Password:
***
Login
Don't have an account? Signup

Quiz:-


Python Quiz Game
Question 1: What is the correct file extension for Python files?
.pyth
.pt
.py
.pyt
Result
Correct!
OK

Score:-


Python Quiz Game
Question 10: Which Python keyword is used to handle exceptions?
Quiz Completed
Your final score is 9/10.
OK

CONCLUSION

In summary, this Python-based quiz app is a user-friendly, efficient, and highly customizable platform designed to make learning enjoyable and accessible. By incorporating automation, instant feedback, and adaptive question difficulty, the app not only enhances the user experience but also supports personalized learning. The app's modular design and optimized data handling ensure smooth performance, making it an effective tool for both casual users and those looking to deepen their knowledge.

Overall, this project demonstrates the versatility of Python in creating interactive applications that are both engaging and educational. By combining technical efficiency with a user-centered approach, this quiz app showcases how Python can be used to develop tools that are practical, scalable, and capable of making a meaningful impact in education.

Thank You !