



**Kabul University**  
**Faculty of Information and Communication Technology**  
**Information Science & Engineering Department (ISE)**

**Project Title: Quiz App in Python**

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## 1- 📖 Introduction:

This project is a Python-based quiz application built with Tkinter. It provides an interactive way for students to test their knowledge through multiple-choice questions, timed responses, and instant feedback. The app combines programming fundamentals with user experience design to create a fun and educational tool.

## 2- ✨ Features:

- Multiple-choice questions with scoring system
- Countdown timer with blinking effect for urgency
- Sound feedback for correct, wrong, and timeout answers
- Dark-themed user interface with styled labels and buttons
- Welcome screen and final results summary with wrong answers listed

## 3- ✂ Design & Architecture:

- **Data Structure:** Questions stored in dictionaries (question, options, answer, marks, time limit).
- **Flow:**

Start → Welcome Screen → Question → Timer → Answer → Feedback → Next  
Question → Results

- **Functions:**
  - `start_timer()` and `update_timer()` for precise countdown
  - `select_answer()` and `handle_no_answer()` for scoring and feedback
  - `next_question()` for navigation
  - `show_results()` for final score and wrong answers

## 4- 🛠 Tools & Libraries:

- **Python 3.x**
- **Tkinter:** GUI framework for interface design
- **winsound:** Sound effects (Windows only)
- **time:** Accurate timer control with `perf_counter()`

## 5- ✓ Conclusion:

This quiz app demonstrates how Python can be used to build interactive educational software. It integrates GUI design, event-driven programming, timers, and feedback mechanisms. Future improvements could include randomizing questions, adding a leaderboard, or storing results in a database for long-term tracking.

## Complete Code of Quiz App:

```
import tkinter as tk
import time
import winsound # For sound effects on Windows

# ----- سوالات -----
questions = [
    {
        "question": "است؟ کدام افغانستان کوه بزرگترین",
        "options": ["کوه", "غز سپین کوه", "بابا کوه", "هندوکش های کوه", "پغمان"],
        "answer": 0,
        "marks": 5,
        "time_limit": 20
    },
    {
        "question": "لری؟ تراو پوری وزارت کوم په پوهنتونونه",
        "options": ["وزارت کړو زده لوړو د", "وزارت مالی د", "وزارت پوهنی د", "وزارت چارو کورنیو د"],
        "answer": 2,
        "marks": 5,
        "time_limit": 30
    },
    {
        "question": "است؟ کدام افغانستان شاهراه بزرگترین",
        "options": ["کندز-کابل", "کندهار-کابل", "مزار-کابل", "خوست-کابل"],
        "answer": 2,
        "marks": 5,
        "time_limit": 40
    },
    {
        "question": "دی؟ هیواد ګاونډی افغانستان د کوم کی هیوادونو لاندی په",
        "options": ["دی سم ټول", "تاجیکستان", "ایران", "ازبکستان"],
        "answer": 3,
        "marks": 5,
        "time_limit": 30
    }
]

# ----- اصلی متغیرهای -----
total_score = 0
current_question = -1
time_left = 0
timer_running = False
blink_count = 0
wrong_answers = []
last_tick = 0

# ----- کاربری رابط -----
root = tk.Tk()
root.title("Ultra Smooth Quiz Timer")
root.geometry("1300x900")
root.config(bg="#1a1a1a")

# ----- ویجتها -----
```

```

question_label = tk.Label(root, text="", font=("Arial", 20, "bold"),
fg="white", bg="#1a1a1a", wraplength=650, justify="center")
timer_label = tk.Label(root, text="", font=("DS-Digital", 60), fg="#ff2020",
bg="#1a1a1a")
buttons_frame = tk.Frame(root, bg="#1a1a1a")

# ----- خوش آمدگویی صفحه -----
def show_welcome():
    welcome_frame = tk.Frame(root, bg="#1a1a1a")
    welcome_frame.pack(expand=True)

    tk.Label(welcome_frame, text="👋 Welcome to the Small Quiz of Ahmad Shah
Baba 10th class students", font=("Arial", 24, "bold"), fg="white",
bg="#1a1a1a").pack(pady=40)
    tk.Label(welcome_frame, text="Test your knowledge and beat your
classmates and take the best prize! 🏆", font=("Arial", 16), fg="#cccccc",
bg="#1a1a1a").pack(pady=10)

    start_btn = tk.Button(welcome_frame, text="Start Quiz", font=("Arial",
18), width=20,
                        fg="white", bg="#444444",
activebackground="#ff2020",
                        command=lambda: start_quiz(welcome_frame))
    start_btn.pack(pady=30)

def start_quiz(welcome_frame):
    welcome_frame.destroy()
    question_label.pack(pady=30)
    timer_label.pack(pady=20)
    buttons_frame.pack(pady=10)
    next_question()

# ----- چشمک با دقیق تایمر -----
def start_timer(seconds):
    global time_left, timer_running, blink_count, last_tick
    time_left = seconds
    blink_count = 0
    timer_running = True
    last_tick = time.perf_counter()
    update_timer()

def update_timer():
    global time_left, blink_count, timer_running, last_tick

    if not timer_running:
        return

    now = time.perf_counter()
    if now - last_tick >= 1:
        last_tick = now
        if time_left > 0:
            time_left -= 1
        else:
            timer_running = False
            winsound.Beep(600, 300) # 📢 Time expired
            handle_no_answer()

```

```

        return

    colon_visible = (blink_count % 2 == 0)
    mins = time_left // 60
    secs = time_left % 60
    time_str = f"{mins:02d}:{secs:02d}" if colon_visible else f"{mins:02d}{secs:02d}"
    timer_label.config(text=time_str)

    blink_count = (blink_count + 1) % 6
    root.after(1000 // 6, update_timer)

# ----- پاسخ مدیریت -----
def select_answer(idx):
    global total_score, timer_running
    timer_running = False
    q = questions[current_question]
    correct = idx == q["answer"]
    if correct:
        total_score += q["marks"]
        winsound.Beep(800, 200) # ✓ Correct
    else:
        winsound.Beep(300, 300) # ✗ Wrong
        wrong_answers.append({
            "question": q["question"],
            "your_answer": q["options"][idx],
            "correct_answer": q["options"][q["answer"]]
        })
    show_feedback(correct)
    root.after(1000, next_question)

def handle_no_answer():
    q = questions[current_question]
    wrong_answers.append({
        "question": q["question"],
        "your_answer": "No Answer",
        "correct_answer": q["options"][q["answer"]]
    })
    show_feedback(False)
    root.after(1000, next_question)

def show_feedback(correct):
    for widget in buttons_frame.wininfo_children():
        widget.config(bg="#228B22" if correct else "#8B0000")

# ----- بعدی سوال -----
def next_question():
    global current_question
    for widget in buttons_frame.wininfo_children():
        widget.destroy()

    current_question += 1
    if current_question >= len(questions):
        show_results()
        return

```

```

q = questions[current_question]
question_label.config(text=q["question"])
for i, opt in enumerate(q["options"]):
    btn = tk.Button(buttons_frame, text=opt, font=("Arial", 16),
width=30,
                                fg="white", bg="#333333", activebackground="#ff2020",
                                activeforeground="white", command=lambda i=i:
select_answer(i))
    btn.pack(pady=5)
    start_timer(q["time_limit"])

# ----- نتایج نمایش -----
def show_results():
    emoji = "🏆" if total_score >= 15 else "👍" if total_score >= 10 else "😊"
    question_label.config(text=f"{emoji} Quiz Finished! Total Score =
{total_score}")
    timer_label.config(text="")
    for widget in buttons_frame.winfo_children():
        widget.destroy()

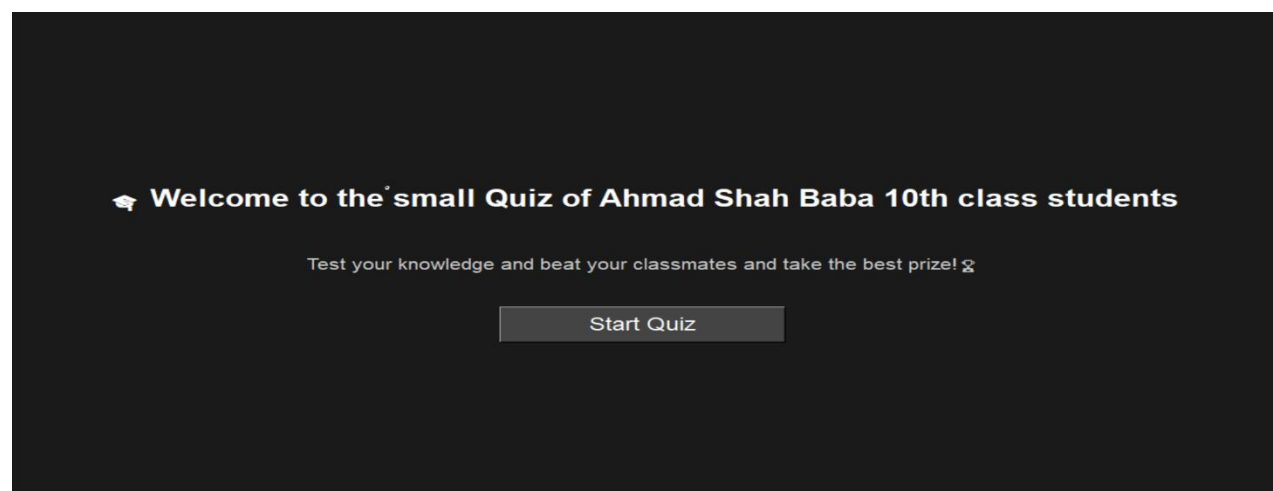
    if wrong_answers:
        result_frame = tk.Frame(root, bg="#1a1a1a")
        result_frame.pack(pady=20)
        tk.Label(result_frame, text="❌ Wrong Answers:", font=("Arial", 16,
"bold"), fg="#ff5555", bg="#1a1a1a").pack()
        for wa in wrong_answers:
            text = f"Q: {wa['question']}\nYour Answer: {wa['your answer']} |
Correct: {wa['correct_answer']}\n"
            tk.Label(result_frame, text=text, font=("Arial", 14), fg="white",
bg="#1a1a1a", justify="left").pack(pady=5)

# ----- شروع -----
show_welcome()
root.mainloop()

```

## Out Put:

### 1- Welcome screen:



## 2-Question Part:

بزرگترین کوه افغانستان کدام است؟

00:16

کوه های هندوکش

کوه بابا

کوه سپین غر

کوه پغمان

پوهنتونونه په کوم وزارت پوری تړاو لری؟

00 25

د پوهنی وزارت

د مالی وزارت

د لویو زده کړو وزارت

د کورنیو چارو وزارت

### 3- Final results with wrong answers listed:

🏆 Quiz Finished! Total Score = 15

#### ❌ Wrong Answers:

Q: بزرگترین کوه افغانستان کدام است؟  
Your Answer: No Answer | Correct: کوه های هندوکش