PERSONA: The BTS Online Quiz

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ABSTRACT:

The project "PERSONA: The BTS Online Quiz" is an interactive console based program made by C language that tests how much a fan knows about their favourite Kpop band BTS. The quiz includes multiple-choice questions (MCqs) about the members, their songs, achievements and many more things a fan should know. Then it gives a fun result at the end, showing what kind of ARMY the player is based on their score. I chose this topic because it combines C programming with something I genuinely like and enjoy which is KPOP for sure. It made the process more creative which helped me learn and understand more about C programming and it's concepts like loops, conditionals, switch-case, and functions in a more engaging way. The expected output is a short BTS- themed quiz that displays the final score and then classifies the player as a Baby ARMY (newbie), Dynamite ARMY (middie) and OG ARMY (experto) depending on their performance.

Contents:

1. PROBLEM DEFINITION

1.1 Overview

PERSONA: The BTS Online Quiz is a C-based interactive console application designed to test a user's knowledge about the world-famous K-Pop group BTS. The quiz presents 20 multiple-choice questions about the members, songs, albums, nicknames, achievements, and fandom culture. The program evaluates each answer, keeps track of the total score, and displays a personalized result at the end, classifying the player as Baby ARMY, Dynamite ARMY, or OG ARMY based on performance.

This project combines programming logic with entertainment, making it easier to understand C concepts such as functions, loops, conditional statements, user input, and return values.

1.2 Objectives

The main objectives of this project are:

1. To develop an interactive BTS-themed quiz using the C language.

2. To utilize key programming concepts: **variables, loops, functions, and conditional logic**.

3. To implement a **scoring system** where each correct answer awards **0.5 marks**.

4. To categorize players into ARMY levels depending on their score.

5. To create a user-friendly console interface that engages K-pop fans.

6. To strengthen logical thinking and structured programming skills.

2. SYSTEM DESIGN

2.1 System Architecture

The system is divided into three functional modules:

a) User Interaction

- Displays quiz title and questions
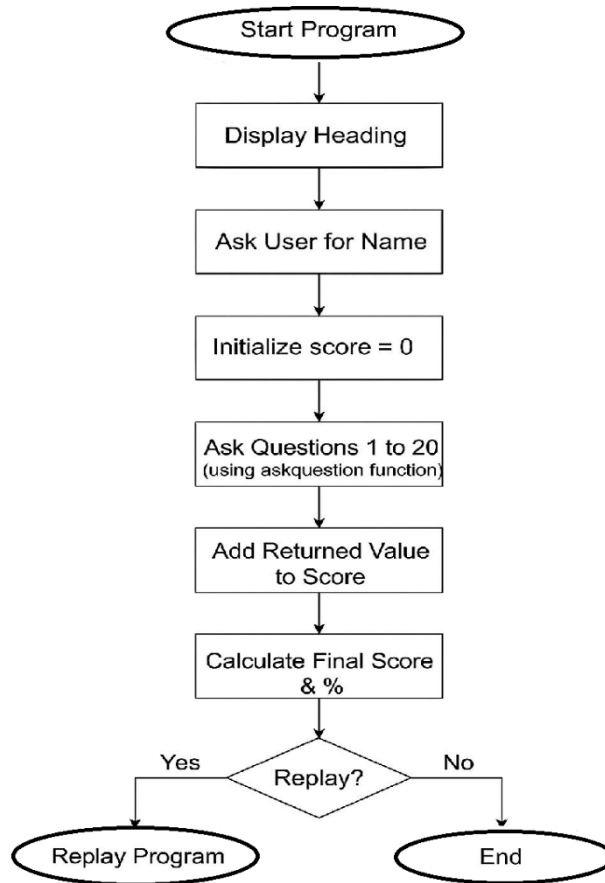- Takes user name and responses • Shows final score and ARMY type

b) Quiz Logic

- Runs 20 MCQs using the askquestion() function
- Checks answers and adds score
- Allows quiz replay using a do-while loop

c) Result Module

- Calculates percentage
- Classifies ARMY category based on marks
- Prints motivational final message

2.2 Flowchart

```
        ┌─────────────────────┐
        (    Start Program    )
        └─────────────────────┘
                   │
                   ▼
        ┌─────────────────────┐
        │   Display Heading   │
        └─────────────────────┘
                   │
                   ▼
        ┌─────────────────────┐
        │  Ask User for Name  │
        └─────────────────────┘
                   │
                   ▼
        ┌─────────────────────┐
        │  Initialize score = 0 │
        └─────────────────────┘
                   │
                   ▼
        ┌─────────────────────┐
        │  Ask Questions 1 to 20 │
        │ (using askquestion function) │
        └─────────────────────┘
                   │
                   ▼
        ┌─────────────────────┐
        │  Add Returned Value │
        │      to Score       │
        └─────────────────────┘
                   │
                   ▼
        ┌─────────────────────┐
        │ Calculate Final Score │
        │         & %         │
        └─────────────────────┘
                   │
                   ▼
   Yes    ◇ Replay? ◇    No
    │                     │
    ▼                     ▼
( Replay Program )      (  End  )
```

2.3 Data Structures Used

The **main data structures actually used** are:

- **Structs** → to encapsulate questions (if implemented)

- **Arrays** → to store questions and options

- **Primitives** → to store scores, player names, and answers

3. IMPLEMENTATION DETAILS

3.1 Key Features

20 Multiple-Choice Questions

0.5 marks per question → Total = 10 marks

Accepts both uppercase or lowercase answers

Personalized messages based on score

Replay option without restarting the program Clean

and readable code with modular design

3.2 Code Snippets

3.2.1 Function for asking questions

```c
float askquestion(char question[], char option1[], char option2[], char option3[],
char option4[], char correctoption) {    char answer;    printf("\n%s\n",
question);    printf("A) %s\n", option1);    printf("B) %s\n", option2);
printf("C) %s\n", option3);
   printf("D) %s\n", option4);

   printf("Enter your answer ami (A/B/C/D): ");
scanf(" %c", &answer);

   if(answer == correctoption || answer == correctoption + 32)
return 0.5;        else        return 0.0;
}
```

3.2.2 Scoring Mechanism

```c
float score = 0;   score += askquestion("1. Who is

the leader of BTS?",

                    "Jin", "RM", "Suga", "Jungkook", 'B');
score += askquestion("2. BTS debuted under which company?",

                      "YG", "BigHit", "SM", "JYP", 'B');
```

3.2.3 Replay Logic

```c
int playagain; do {    score = 0;    printf("\nDo you want
to play again ami?\n1. Yes\n2.      No\nEnter choice: ");
scanf("%d", &playagain);
} while(playagain == 1);
```

3.2.4 Result Classification

```c
void showresult(float score) {    float percentage = (score *
10);         printf("Your  Score:  %.1f  /  10\n",  score);
printf("Percentage: %.2f%%\n", percentage);    if(score <=
3)       printf("\n You are a BABY ARMY aww. Welcome
to
        BTS      world!\n");
else if(score <= 7)
    printf("\n You are a DYNAMITE ARMY damnn.You're glowing,
        keep going!\n")
  else
    printf("\n You  are  an  OG  ARMY  I  see.  BTS  runs  in  your
        veins!\n");
}
```

4. TESTING & RESULTS

4.1 Test Cases

Test Case 1: Perfect ARMY

| Input | User answers 18–20 correct | |
Output | Score between **9–10** → OG ARMY |
| Result | Passed |

Test Case 2: Mid-Level ARMY

Input	8 correct answers
Output	Score = 4.0 → Dynamite ARMY
Result	Passed

Test Case 3: Beginner ARMY

Input	4 correct answers
Output	Score = 2.0 → Baby ARMY
Result	Passed

5. CONCLUSION & FUTURE WORK

5.1 Conclusion

The project *"PERSONA: The BTS Online Quiz"* allowed me to explore the practical side of the C programming language while combining it with something I genuinely enjoy—BTS and their music. Through this project, I understood how to structure a C program using functions, loops, conditional statements, and user input. The quiz successfully evaluates the user's knowledge and provides personalized feedback based on their performance, making it both informative and fun.
Working on this project helped me learn how logical thinking plays an important role in coding. Concepts that once felt theoretical such as return values, function calls, and decision-making statements became much clearer when I applied them to real problems like scoring and checking answers. I also understood how to make programs interactive and user-friendly, which is an essential skill in software development.

Overall, this quiz has not only strengthened my understanding of C language fundamentals but also boosted my confidence in building small applications from scratch. In the future, I hope to expand this quiz by adding more questions, difficulty levels, a scoring history, or even a graphical interface to make it more engaging. This project proved to me that programming becomes far more enjoyable when we merge logic with creativity and personal interest.

5.2 Future Work

Add more questions or randomize question order
Introduce difficulty levels
Store scores using file handling
Add timer for each question
Create GUI version using Python or Java
Include sound effects or BTS music themes

6. REFERENCES

1. *Let Us C* – Yashavant Kanetkar

2. Official BTS website and BigHit Music announcements

3. Online C programming documentation (e.g., GeeksforGeeks)

4. BTS ARMY fanbase knowledge sources