



CIA III - PROBLEM SOLVING USING C

“QUIZ APPLICATION”

Submitted by:

Anurag Parashar Sarmah (2347213)

Nitish Kumar Mahto (2347242)

Shubham Mishra (2347256)

Submitted to:

Dr. B. J. Hubert Shanthan

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INTRODUCTION

Problem Statement: “To create a menu-driven interactive quiz-application, utilizing various C components, that could have a real world implementation.”

In an era where knowledge is paramount, educational tools that engage and entertain individuals are in high demand. We present to you "Quizard," an interactive quiz game designed to test and expand your knowledge while providing an enjoyable and informative experience.

The provided C code implements a console-based quiz game where users can choose from three categories (Sports, Trivia, and Politics). There is a ‘Main Menu’, wherein a user can proceed to play the quiz or view previous scores. The ‘View Score’ page lists all the previous scores of different users, which can also be deleted. The program initializes and shuffles quiz questions for each category and allows users to answer these questions interactively. The code uses components like ‘structures’, ‘pointers’, ‘custom headers’, ‘arrays’. Also it provides options to view scores, clear results, and return to the main menu. Quiz results are stored in a "quiz_results.txt" file. The code employs ANSI escape codes for text formatting, structures to represent quiz questions, and functions to clear the screen and display questions. Users can play the quiz, receive a score, and view their results, making it a text-based quiz application with category-based question sets and result tracking.

As we delve into the intricacies of "Quizard," we'll find a compelling fusion of educational principles and coding expertise, emphasizing the immense value of technology as a tool for both learning and enjoyment.

FUNCTIONALITIES AND MODULES

- **Header Inclusions:**

The code includes necessary C standard libraries for input and output, string manipulation, and character handling (stdio.h, stdlib.h, ctype.h, string.h).

It defines ANSI escape codes to apply text colors for better visual representation.

- **Quiz Question Structure:**

A structure named QuizQuestion is defined to represent quiz questions. It includes fields for the question, answer options, and the correct answer. This structure is used to encapsulate all the information related to a single quiz question.

- **Arrays for Quiz Questions:**

Three global arrays (sportsQuestions, triviaQuestions, and politicsQuestions) are declared to store quiz questions in different categories. Each array can hold a fixed number of questions, making it easy to manage questions for each category.

- **initializeQuizQuestions Function:**

The initializeQuizQuestions function populates the global quiz question arrays with questions and answers for the different categories.

It initializes questions for categories such as sports, trivia, and politics.

The function copies pre-initialized questions from local arrays (sportsQuestionsInit, triviaQuestionsInit, politicsQuestionsInit) to the global arrays.

- **displayQuestion Function:**

The displayQuestion function is responsible for presenting a quiz question to the user with appropriate styling.

It uses ANSI escape codes to colorize the category title, question number, and answer options.

The question content and answer options are displayed on the console.

- **Screen Clearing Functions:**

clearScreen and clearScreenMenu functions are used for managing the console display.

clearScreen: Clears the screen, displaying a message to prompt the user to press Enter to continue.

clearScreenMenu: Simply waits for the Enter key press without clearing the screen.

- **viewScores Function:**

The viewScores function reads and displays quiz results from a file (quiz_results.txt).

It provides a simple interface for viewing quiz results, including player names and scores.

Users have the option to clear results or return to the main menu.

- **shuffleQuestions Function:**

The shuffleQuestions function is used to randomize the order of quiz questions within a category.

It shuffles the questions randomly by swapping question entries in the array, making the quiz more dynamic with different question orders.

- **Main Function:**

The main function is the core of the program and acts as the entry point.

It presents a text-based menu for users to interact with the program.

It offers options to play quizzes, view scores, and exit the program.

- **User Interaction:**

The code handles user input for selecting quiz categories and answering questions.

It displays feedback based on user answers, indicating whether answers are correct or incorrect.

- **File I/O:**

The code uses file input/output to read and write quiz results to a file named `quiz_results.txt`. It appends new results to the file when a user completes a quiz.

Users are provided with the ability to clear quiz results, which involves writing an empty file.

- **Dynamic Content:**

The program allows users to enter their names before taking the quiz, and it personalizes the quiz results by including the player's name in the saved results.

- **Randomization:**

The `shuffleQuestions` function adds a level of randomness to the quiz experience by randomly shuffling the order of quiz questions in each category.

SOURCE CODE

“Quizard.c”

```
#include <stdio.h>

#include <stdlib.h>

#include <ctype.h>

#include <string.h>

#include "submission_info.h"

// ANSI escape codes for text colors

#define COLOR_RED "\x1b[31m"

#define COLOR_GREEN "\x1b[32m"

#define COLOR_YELLOW "\x1b[33m"

#define COLOR_BLUE "\x1b[34m"

#define COLOR_CYAN "\x1b[36m"

#define COLOR_RESET "\x1b[0m"

// Structure to represent a quiz question.

struct QuizQuestion

{

    char question[256];

    char options[4][64];

    char correctOption;

};
```



```

// Arrays to store quiz questions for each category.
struct QuizQuestion sportsQuestions[20];
struct QuizQuestion triviaQuestions[20];
struct QuizQuestion politicsQuestions[20];

// Function to initialize quiz questions for all categories.
void initializeQuizQuestions()
{
    // Initialize sports questions and answers.
    struct QuizQuestion sportsQuestionsInit[20] = {
        {"Which country won the FIFA World Cup in 2022?",
         {"A. Brazil", "B. Germany", "C. Argentina", "D. France"},
         'C'},
        {"Who holds the record for the most centuries in Cricket?",
         {"A. Virat Kohli", "B. Sachin Tendulkar", "C. Ricky Ponting",
          "D. Don Bradman"},
         'B'},
        {"In which city were the 2010 Commonwealth Games held?",
         {"A. New Delhi", "B. London", "C. Sydney", "D. Toronto"},
         'A'},
        {"What is the most-watched sport in the world?",
         {"A. Basketball", "B. Cricket", "C. Football", "D. Baseball"},
         'C'},
        {"Who is considered the greatest boxer of all time?",
         {"A. Mike Tyson", "B. Floyd Mayweather", "C. Muhammad Ali",
          "D. Manny Pacquiao"},
         'C'},
        {"Which country is famous for inventing the sport of golf?",

```

```

        {"A. France", "B. Scotland", "C. Germany", "D. England"},
        'B'},

        {"Who is the fastest man in the world?",

        {"A. Usain Bolt", "B. Carl Lewis", "C. Michael Johnson", "D.
Justin Gatlin"},

        'A'},

        {"Which country has won the most Olympic gold medals?",

        {"A. China", "B. Russia", "C. United States", "D. Germany"},

        'C'},

        {"Which Indian field hockey player, is often referred to as
'The Wizard'?",

        {"A. Dhanraj Pillay", "B. Sandeep Singh", "C. Dhyan Chand",
"D. Sardar Singh"},

        'C'},

        {"Who is the most decorated Olympian of all time?",

        {"A. Michael Phelps", "B. Usain Bolt", "C. Simone Biles", "D.
Jesse Owens"},

        'A'},

    };

    // Initialize trivia questions and answers.

    struct QuizQuestion triviaQuestionsInit[20] = {

        {"What is the largest planet in our solar system?",

        {"A. Earth", "B. Mars", "C. Jupiter", "D. Saturn"},

        'C'},

        {"Who wrote the play 'Romeo and Juliet'?",

        {"A. William Shakespeare", "B. Charles Dickens", "C. Jane
Austen", "D. Mark Twain"},

        'A'},

        {"Who painted the Mona Lisa?",

```

```

        {"A. Leonardo da Vinci", "B. Vincent van Gogh", "C. Pablo
Picasso", "D. Michelangelo"},

        'A'},

        {"What is the chemical symbol for gold?",

        {"A. Go", "B. Gl", "C. Au", "D. Ag"},

        'C'},

        {"What is the largest mammal in the world?",

        {"A. Elephant", "B. Blue Whale", "C. Giraffe", "D.
Rhinoceros"},

        'B'},

        {"Which planet is known as the Red Planet?",

        {"A. Venus", "B. Mars", "C. Jupiter", "D. Saturn"},

        'B'},

        {"What is the tallest mountain in the world?",

        {"A. Mount St. Helens", "B. Mount Kilimanjaro", "C. Mount
Everest", "D. Mount Rushmore"},

        'C'},

        {"How many continents are there on Earth?",

        {"A. 4", "B. 6", "C. 7", "D. 5"},

        'C'},

        {"Who is the author of 'To Kill a Mockingbird'?",

        {"A. F. Scott Fitzgerald", "B. Harper Lee", "C. Ernest
Hemingway", "D. George Orwell"},

        'B'},

        {"What is the largest ocean in the world?",

        {"A. Atlantic Ocean", "B. Indian Ocean", "C. Arctic Ocean",
"D. Pacific Ocean"},

        'D'},

};

```

```

// Initialize politics questions and answers.

struct QuizQuestion politicsQuestionsInit[20] = {

    {"Who is the current President of the United States?",
     {"A. Barack Obama", "B. Joe Biden", "C. Donald Trump", "D.
George W. Bush"},
     'B'},

    {"Which political ideology supports smaller government and more
personal freedom?",
     {"A. Liberalism", "B. Conservatism", "C. Libertarianism", "D.
Socialism"},
     'C'},

    {"Who is the Prime Minister of the United Kingdom?",
     {"A. Boris Johnson", "B. Rishi Sunak", "C. Emmanuel Macron",
"D. Theresa May"},
     'B'},

    {"In which year was the United Nations founded?",
     {"A. 1945", "B. 1956", "C. 1962", "D. 1931"},
     'A'},

    {"Who was the principal architect of the Indian Constitution?",
     {"A. Mahatma Gandhi", "B. Jawaharlal Nehru", "C. B.R.
Ambedkar", "D. Sardar Vallabhbhai Patel"},
     'C'},

    {"Who is the Chancellor of Germany?",
     {"A. Angela Merkel", "B. Xi Jinping", "C. Olaf Scholz", "D.
Tony Blair"},
     'C'},

    {"Which treaty established the European Union (EU)?",
     {"A. Treaty of Versailles", "B. Maastricht Treaty", "C. NATO
Agreement", "D. Kyoto Protocol"},
     'B'},

    {"Who was the first President of India?",

```

```

        {"A. Jawaharlal Nehru", "B. Dr. Sarvepalli Radhakrishnan", "C.
Sardar Vallabhbhai Patel", "D. Dr. Rajendra Prasad"},

        'D'},

        {"Which country is known as the 'Land of the Rising Sun'?",

        {"A. China", "B. South Korea", "C. Japan", "D. Vietnam"},

        'C'},

        {"Who is the current President of Russia?",

        {"A. Dmitry Medvedev", "B. Boris Yeltsin", "C. Vladimir
Putin", "D. Mikhail Gorbachev"},

        'C'},

};

// Copy the initialized questions to the main array using pointers.
for (int i = 0; i < 20; i++)
{
    sportsQuestions[i] = sportsQuestionsInit[i];
    triviaQuestions[i] = triviaQuestionsInit[i];
    politicsQuestions[i] = politicsQuestionsInit[i];
}
}

// Function to display a question with styling.
void displayQuestion(struct QuizQuestion *question, int questionNumber)
{
    system("cls");

    printf("Category: ");

    if (question >= sportsQuestions && question < sportsQuestions + 10)
    {

```

```

        printf("%s* * * Sports * * *%s\n", COLOR_YELLOW, COLOR_RESET);
    }

    else if (question >= triviaQuestions && question < triviaQuestions
+ 10)
    {
        printf("%s* * * Trivia * * *%s\n", COLOR_CYAN, COLOR_RESET);
    }

    else
    {
        printf("%s* * * Politics * * *%s\n", COLOR_RED, COLOR_RESET);
    }

    printf("*****\n\n");

    printf("%sQuestion %d: %s%s\n\n", COLOR_CYAN, questionNumber + 1,
question->question, COLOR_RESET);

    for (int i = 0; i < 4; i++)
    {
        printf("%s%s%s\n\n", COLOR_GREEN, question->options[i],
COLOR_RESET);
    }
}

// Function to clear the screen.
void clearScreen()
{
    printf("\nPress Enter to continue...");

    while (getchar() != '\n')
        ;

    getchar();
}

```

```

        system("cls");
    }

void clearScreenMenu()
{
    while (getchar() != '\n')
        ;

    getchar();
}

void clearScreenMenuForQuiz()
{
    while (getchar() != '\n')
        ;

    system("cls");
}

// Function to display scores from the results file.
void viewScores()
{
    FILE *resultsFile = fopen("quiz_results.txt", "r");

    printf("\ns***** Quiz Results *****s\n\n",
COLOR_YELLOW, COLOR_RESET);

    char line[256];

    while (fgets(line, sizeof(line), resultsFile))
    {
        printf("%s", line);
    }
}

```

```

}

printf("\ns*****\ns\n", COLOR_YELLOW,
COLOR_RESET);

fclose(resultsFile);

int viewScoresChoice;

do
{
    printf("\nOptions:\n");

    printf("\n1. Clear Results\n\n");

    printf("2. Return to Main Menu\n");

    printf("\nEnter the number of your choice: ");

    scanf("%d", &viewScoresChoice);

    switch (viewScoresChoice)
    {
        case 1:

            FILE *clearFile = fopen("quiz_results.txt", "w");

            if (clearFile != NULL)
            {

                system("cls");

                fclose(clearFile);

                printf("\ns***** Results Cleared
*****\ns\n\n", COLOR_GREEN, COLOR_RESET);

                printf("\nPress Enter to go to Main Menu");

                getch();

```



```

        return;

    }

    else

    {

        printf("%sError clearing results.%s\n", COLOR_RED,
COLOR_RESET);

        printf("\nPress Enter to go to Main Menu");

        getch();

        return;

    }

    case 2:

        return;

    default:

        printf("\n%sInvalid choice. Please try again.%s\n",
COLOR_RED, COLOR_RESET);

        break;

    }

} while (1);
}

void shuffleQuestions(struct QuizQuestion *questions, int poolSize)
{

    srand(time(NULL));

    for (int i = 0; i < poolSize - 1; i++)

    {

        int j = i + rand() % (poolSize - i);

        struct QuizQuestion temp = questions[i];

        questions[i] = questions[j];

        questions[j] = temp;

    }

}

```

```

    }
}

int main()
{
    printf("%s\n", SUBMISSION_INFO);

    sleep(3);

    int categoryChoice;

    char playerName[64];

    initializeQuizQuestions();

    int mainMenuChoice;

    shuffleQuestions(sportsQuestions, 10);
    shuffleQuestions(triviaQuestions, 10);
    shuffleQuestions(politicsQuestions, 10);

    do
    {
        start:

        system("cls");

        shuffleQuestions(sportsQuestions, 10);
        shuffleQuestions(triviaQuestions, 10);
        shuffleQuestions(politicsQuestions, 10);

        printf("*****\n");
    }
}

```

```

printf("*                                     *\n");

printf(" *          WELCOME TO QUIZARD!          *\n");

printf("*                                     *\n");

printf("*****\n\n");

printf("Main Menu:\n");

printf("\n%s1. Play Quizard!\n\n", COLOR_GREEN);

printf("%s2. View Scores\n\n", COLOR_YELLOW);

printf("%s0. Exit\n", COLOR_RED);

printf("%s\nEnter the number of your choice: ", COLOR_RESET);

scanf("%d", &mainMenuChoice);

switch (mainMenuChoice)
{
case 0:

    return 0;

case 1:

    do
    {

        system("cls");

        int correctAnswers = 0;

printf("^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^\n");

        printf("|          Got what it takes to be a QUIZARD?!

|\n");

printf("^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^\n");

```

```

printf("\n\nPlease enter your name: ");

scanf("%s", playerName);

printf("\nSelect a quiz category:\n\n");

printf("%s1. Sports\n\n", COLOR_BLUE);

printf("%s2. Trivia\n\n", COLOR_CYAN);

printf("%s3. Politics\n", COLOR_YELLOW);


printf("%s\nEnter the number of the category you want
to play (or 0 to go to the main menu): ", COLOR_RESET);

scanf("%d", &categoryChoice);


if (categoryChoice == 0)
{
    break;
}

if (categoryChoice < 1 || categoryChoice > 3)
{
    printf("\nInvalid category choice. Please try
again.%s\n", COLOR_RED, COLOR_RESET);

    clearScreen();
}

else
{
    system("cls");

    struct QuizQuestion *categoryQuestions;

    int categorySize;


    if (categoryChoice == 1)

```

```

        {

            categoryQuestions = sportsQuestions;

            categorySize = 10;

        }

        else if (categoryChoice == 2)

        {

            categoryQuestions = triviaQuestions;

            categorySize = 10;

        }

        else if (categoryChoice == 3)

        {

            categoryQuestions = politicsQuestions;

            categorySize = 10;

        }

        FILE *resultsFile = fopen("quiz_results.txt", "a");

        if (resultsFile == NULL)

        {

            printf("%sError opening results file.%s\n",
COLOR_RED, COLOR_RESET);

            return 1;

        }

        for (int i = 0; i < categorySize; i++)

        {

            char answer;

            displayQuestion(&categoryQuestions[i], i);

            printf("%s\nEnter your answer (A/B/C/D):",
COLOR_RESET);

```

```

        scanf(" %c", &answer);

        char correctAnswer =
categoryQuestions[i].correctOption;

        if (toupper(answer) == correctAnswer)
        {
            printf("\n%sYou chose the correct
option.%s\n", COLOR_GREEN, COLOR_RESET);

            correctAnswers++;
        }
        else
        {
            printf("\n%sSorry. The correct option is
%c.%s\n", COLOR_RED, correctAnswer, COLOR_RESET);
        }

        clearScreen();
    }

    if (categoryChoice == 1)
        fprintf(resultsFile, "Name: %s, Category:
Sports, Score: %d\n", playerName, correctAnswers);
    else if (categoryChoice == 2)
        fprintf(resultsFile, "Name: %s, Category:
Trivia, Score: %d\n", playerName, correctAnswers);
    else if (categoryChoice == 3)
        fprintf(resultsFile, "Name: %s, Category:
Politics, Score: %d\n", playerName, correctAnswers);

    fclose(resultsFile);

```

```

        printf("\n%s%s, you got %d out of 10 questions
correct.%s\n", COLOR_CYAN, playerName, correctAnswers, COLOR_RESET);

        if (correctAnswers >= 8)
        {
            printf("\n%sCongratulations! You are a
QUIZARD!%s\n", COLOR_GREEN, COLOR_RESET);
        }
        else
        {
            printf("\n%sSorry, you didn't win. Try
again!%s\n", COLOR_RED, COLOR_RESET);
        }

        printf("%s\nPress Enter to go to the Main Menu...",
COLOR_RESET);

        clearScreenMenuForQuiz();

        goto start;
    }

} while (categoryChoice != 0);

break;

case 2:

    system("cls");

    viewScores();

    goto start;

    break;

default:

```

```

        printf("\n%sInvalid choice. Please try again.%s\n",
COLOR_RED, COLOR_RESET);

        clearScreenMenu();

        break;
    }

} while (mainMenuChoice != 0);

return 0;
}

```

“submission_info.h”

```

#ifndef SUBMISSION_INFO_H
#define SUBMISSION_INFO_H

#define SUBMISSION_INFO "Submitted by - \n\nAnurag Parashar Sarmah
(2347213)\nNitish Kumar Mahto (2347242)\nShubham Mishra (2347256)"

#endif

```


SCREEN SHOTS

1. Submission information from custom header:

```
Submitted by -  
  
Anurag Parashar Sarmah (2347213)  
Nitish Kumar Mahto (2347242)  
Shubham Mishra (2347256)  
|
```

2. Main Menu:

```
*****  
*                                     *  
*      WELCOME TO QUIZARD!          *  
*                                     *  
*****  
  
Main Menu:  
  
1. Play Quizard!  
2. View Scores  
0. Exit  
  
Enter the number of your choice:
```

3. Option 1, “Play Quiz”:

| Got what it takes to be a QUIZARD?! |

Please enter your name: Anurag

| Got what it takes to be a QUIZARD?! |

```
Please enter your name: Anurag
```

Select a quiz category:

1. Sports
2. Trivia
3. Politics

```
Enter the number of the category you want to play (or 0 to go to the main menu): |
```

4. Category 1, Sports (Questions):

```
Category: * * * Sports * * *
*****

Question 1: Which country won the FIFA World Cup in 2022?

A. Brazil
B. Germany
C. Argentina
D. France

Enter your answer (A/B/C/D):|
```

```
Category: * * * Sports * * *
*****

Question 1: Which country won the FIFA World Cup in 2022?

A. Brazil
B. Germany
C. Argentina
D. France

Enter your answer (A/B/C/D):a

Sorry. The correct option is C.

Press Enter to continue...|
```

```
Category: * * * Sports * * *
*****

Question 2: Who holds the record for the most centuries in Cricket?

A. Virat Kohli
B. Sachin Tendulkar
C. Ricky Ponting
D. Don Bradman

Enter your answer (A/B/C/D):b

You chose the correct option.

Press Enter to continue...|
```

5. Category 2, Trivia (Questions):

```
Category: * * * Trivia * * *
*****

Question 1: What is the largest mammal in the world?

A. Elephant
B. Blue Whale
C. Giraffe
D. Rhinoceros

Enter your answer (A/B/C/D):|
```

Category: * * * Trivia * * *

Question 1: What is the largest mammal in the world?

- A. Elephant
- B. Blue Whale
- C. Giraffe
- D. Rhinoceros

Enter your answer (A/B/C/D):

a

Sorry. The correct option is B.

Press Enter to continue...|

Category: * * * Trivia * * *

Question 2: Who is the author of 'To Kill a Mockingbird'?

- A. F. Scott Fitzgerald
- B. Harper Lee
- C. Ernest Hemingway
- D. George Orwell

Enter your answer (A/B/C/D):b

You chose the correct option.

Press Enter to continue...|

6. Category 3, Politics (Questions):

```
Category: * * * Politics * * *
*****

Question 1: Who is the current President of the United States?

A. Barack Obama
B. Joe Biden
C. Donald Trump
D. George W. Bush

Enter your answer (A/B/C/D):|
```

```
Category: * * * Politics * * *
*****

Question 1: Who is the current President of the United States?

A. Barack Obama
B. Joe Biden
C. Donald Trump
D. George W. Bush

Enter your answer (A/B/C/D):c

Sorry. The correct option is B.

Press Enter to continue...
```

```
Category: * * * Politics * * *
*****

Question 2: In which year was the United Nations founded?

A. 1945
B. 1956
C. 1962
D. 1931

Enter your answer (A/B/C/D):a

You chose the correct option.

Press Enter to continue...|
```

7. Quiz Results:

```
Rohit, you got 2 out of 10 questions correct.

Sorry, you didn't win. Try again!

Press Enter to go to the Main Menu...|
```

```
Sagar, you got 10 out of 10 questions correct.

Congratulations! You are a QUIZARD!

Press Enter to go to the Main Menu...
```

8. View Scores (Main Menu):

***** Quiz Results *****

Name: Rahul, Category: Sports, Score: 2
Name: Rohit, Category: Sports, Score: 2
Name: Rahul, Category: Sports, Score: 3
Name: Arjun, Category: Sports, Score: 3
Name: Anurag, Category: Sports, Score: 9
Name: Rahul, Category: Sports, Score: 4
Name: Akash, Category: Sports, Score: 4
Name: Nitish, Category: Politics, Score: 9
Name: Raghav, Category: Sports, Score: 10
Name: Deepak, Category: Trivia, Score: 10
Name: Suresh, Category: Politics, Score: 10
Name: Sanjay, Category: Sports, Score: 10
Name: Alok, Category: Sports, Score: 3
Name: Ashok, Category: Sports, Score: 3
Name: Aditya, Category: Sports, Score: 3
Name: Ajay, Category: Sports, Score: 3
Name: Ankit, Category: Sports, Score: 3
Name: Anurag, Category: Sports, Score: 4
Name: Sagar, Category: Trivia, Score: 10

Options:

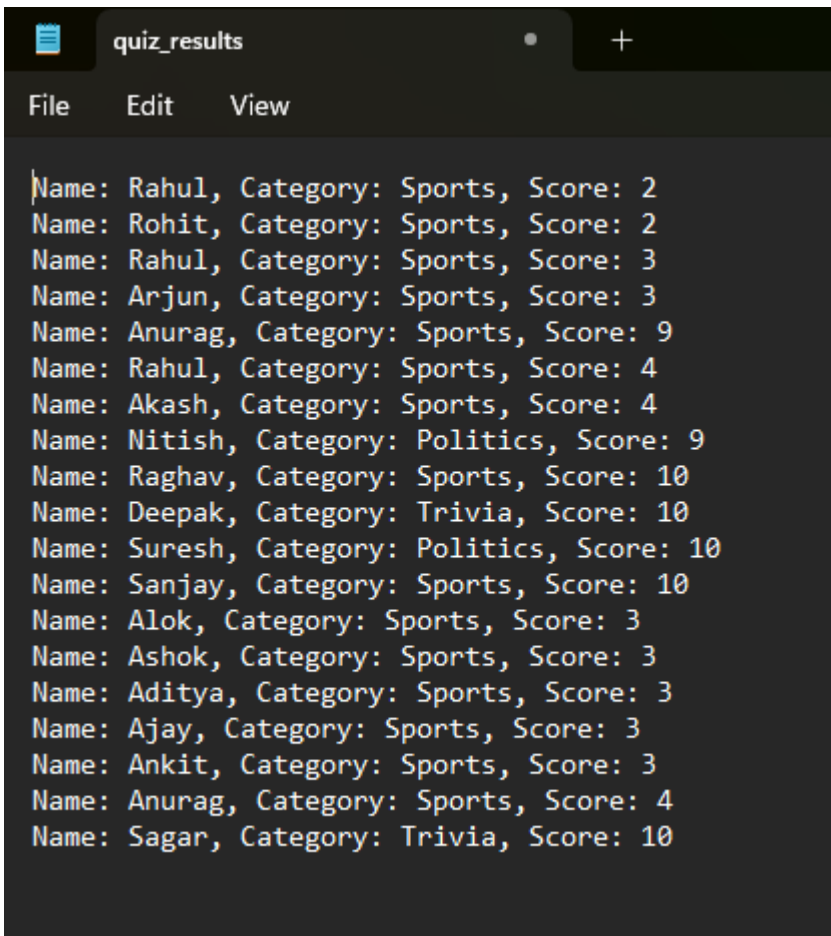
1. Clear Results
2. Return to Main Menu

Enter the number of your choice: |

9. Clear Results:

```
***** Results Cleared *****  
  
Press Enter to go to Main Menu|
```

10. Scores, quiz_results.txt (Notepad):



```
File Edit View  
Name: Rahul, Category: Sports, Score: 2  
Name: Rohit, Category: Sports, Score: 2  
Name: Rahul, Category: Sports, Score: 3  
Name: Arjun, Category: Sports, Score: 3  
Name: Anurag, Category: Sports, Score: 9  
Name: Rahul, Category: Sports, Score: 4  
Name: Akash, Category: Sports, Score: 4  
Name: Nitish, Category: Politics, Score: 9  
Name: Raghav, Category: Sports, Score: 10  
Name: Deepak, Category: Trivia, Score: 10  
Name: Suresh, Category: Politics, Score: 10  
Name: Sanjay, Category: Sports, Score: 10  
Name: Alok, Category: Sports, Score: 3  
Name: Ashok, Category: Sports, Score: 3  
Name: Aditya, Category: Sports, Score: 3  
Name: Ajay, Category: Sports, Score: 3  
Name: Ankit, Category: Sports, Score: 3  
Name: Anurag, Category: Sports, Score: 4  
Name: Sagar, Category: Trivia, Score: 10
```

CONCLUSION

The "Quizard" quiz program demonstrates the application of fundamental C programming concepts to create an interactive and engaging educational tool. This console-based application offers users a dynamic quiz experience in three diverse categories: Sports, Trivia, and Politics. The project encompasses a wide array of features and functionalities, making it a versatile and entertaining platform for both learning and leisure.

Key components of this project include the use of C standard libraries for input/output and string manipulation, as well as the implementation of ANSI escape codes to enhance text formatting for an appealing visual presentation. The program leverages a structured data format, QuizQuestion, to encapsulate information related to each quiz question. These questions are stored and organized in global arrays dedicated to each category, providing a scalable and efficient means of managing quiz content.

The initializeQuizQuestions function populates these arrays with predefined questions, ensuring a diverse range of content for users to explore. The displayQuestion function offers a visually pleasing presentation of questions, utilizing ANSI escape codes to highlight category titles and providing clear, user-friendly displays.

User interaction is a central focus, as the program guides users through category selection, question answering, and feedback. The use of file input/output enables the storage and retrieval of quiz results, fostering a practical approach to data management and record-keeping.