1001L

Programming Fundamentals Lab

<<DSU QUIZ GAME>>

Project Report By

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Group Members:

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INTRODUCTION: Our DSU Quiz Game in C with Enhanced Functionality is a user-friendly application designed to deliver an engaging quiz experience. Developed in the C programming language, this project focuses on features such as file handling, error handling, score tracking, Character Animation, History recorded file and a streamlined user interface.

Scope:

The DSU Quiz Game project aims to create a simple and fun quiz application where users can answer multiple-choice questions on various topics. The main features include:

Question Presentation: Display multiple-choice questions on the console.

User Interaction: Allow users to input their answers.

Simple Animation: Character by Character Animation in Welcome message.

Scoring System: Calculate users' scores based on their answers.

Record-Keeping: Give users the option to save their scores and History in File.

Restart Functionality: Allow users to retake the quiz if desired.

Out of Scope:

Fancy Graphics: The project will focus on a simple text-based interface.

Advanced Features: Features like multiplayer mode or extensive question databases are not included.

Complexity: The quiz will be straightforward and easy to understand.

Features:

1. Question Database with File Handling.
2. User-Friendly Console Interface.
3. Character Animation
4. Error Handling.
5. Score Tracking System.
6. History recorded in file.
7. Decision-Making for Quiz Continuation.

Requirements:

1:Functional Requirements

1: Display Questions:

- Show questions one at a time.

2.User Input:

- Let users type their answers.

3.Scoring:

- Keep track of users' scores.

4.Record Keeping:

- Allow users to save their names, registration numbers, and scores.

5.Restart Feature:

- Let users start the quiz over if they want.

2:Non-Functional Requirements

1.User-Friendly Interface:

- Make the quiz easy to understand.

2.Performance:

- Ensure the quiz runs smoothly.

3.Accuracy:

- Calculate scores correctly.

4.Reliability:

- Make sure the quiz works without crashing.

3:Hardware Requirements

1.Input Device:

- Users need a keyboard to type their answers.

2.Display Device:

- Display the quiz on a computer screen.

4:Software Requirements

1.Operating System:

- Make the quiz compatible with Windows, macOS, or Linux.

2.Programming Language:

- Develop the quiz using C, C++, or Python.

SCREENSHOTS:

Quiz_Game.c

D: > (CS231094)-1B LAB 02 ASSIGNMENT > PF Final Project > Quiz_Game.c > ...

```c
#include<stdio.h>
#include<conio.h>
#include<ctype.h>
#include<stdlib.h>
#include<string.h>
#include<windows.h>
#include<io.h>
#define MAX_QUESTION_LENGTH 200

// Function to display the question;
void displayQuestion(char Qustions[], char options[MAX_QUESTION_LENGTH]){
    puts(Qustions);
    puts(options);
}

// Function to set record;
void save_record(char username[], char user_reg[], int score){
    FILE* pr;
    pr = fopen("record.text", "a");
    if (pr == NULL){
        printf("error!");
    }

    fprintf(pr, "\n");
    fprintf(pr, "Username:");
    fputs(username, pr);
    fprintf(pr, "Reg no:");
    fputs(user_reg, pr);
    fprintf(pr, "Total Score:");
    fprintf(pr, "%d", score);
    fprintf(pr, "\n");
    fclose(pr);
}

int main(){
    // Display Welcome Message
    printf("--------------------------------------------------------------------------------\n");
    char welcome[] = "Welcome to DSU Quiz Game";
    for(int i=0; i<strlen(welcome); i++){
        printf("  %c", welcome[i]);
        fflush(stdout);
        Sleep(100);
    }
    printf("\n--------------------------------------------------------------------------------\n");

    FILE* ptr;
    char filename[] = "Qustion.text";
    char Questions[MAX_QUESTION_LENGTH];
    char option[MAX_QUESTION_LENGTH];
    char originalAnswer[MAX_QUESTION_LENGTH/2];
    char username[MAX_QUESTION_LENGTH];
    char user_reg[MAX_QUESTION_LENGTH];
    char userAnswer, confirm;
    int repty = 0;
    int score = 0;

    ptr = fopen(filename, "r");
    if (ptr == NULL){
        printf("Error!\nI have not questions");
        printf("\nfile %s is not found", filename);
        return 1;
    }
```

```c
    // Taking user information
    printf("Enter your name:");
    fgets(username, MAX_QUESTION_LENGTH/2, stdin);
    printf("Enter your reg number:");
    fgets(user_reg, MAX_QUESTION_LENGTH/2, stdin);

    // Confirmation
    printf("\n");
    printf("Press S for start:");
    scanf("%c", &confirm);
    printf("\n");

    // Game start
    if(confirm == 's' || confirm == 'S'){
        do {
            // Display Welcome Message again when he/she wants to play again
            if (repty == 1){
                printf("-----------------------------------------------------------------------------------------------\n");
                char welcome[] = "Welcome Back to DSU Quiz Game";
                for(int i=0; i<strlen(welcome); i++){
                    printf("  %c", welcome[i]);
                    fflush(stdout);
                    Sleep(100);
                }
                printf("\n-----------------------------------------------------------------------------------------------\n");
            }
            rewind(ptr);
            ptr = fopen(filename, "r");

            if (ptr == NULL) {
                printf("Error!\nI have not questions");
                printf("\nfile %s is not found", filename);
            }

            while (fgets(Questions, MAX_QUESTION_LENGTH, ptr) != NULL) { // Qustion reading from file
                fgets(option, MAX_QUESTION_LENGTH, ptr);// Option reading from file
                fgets(originalAnswer, MAX_QUESTION_LENGTH / 2, ptr);// Right Answer reading from file
                printf("\n");

                displayQuestion(Questions, option);// Display the qustion and option

                printf("Enter your Answer(A-D):");
                scanf(" %c", &userAnswer);// Taking answer from user

                userAnswer = toupper(userAnswer);// If user put a small alphabet, this function changes it to upper

                if (userAnswer == 'A' || userAnswer == 'B' || userAnswer == 'C' || userAnswer == 'D') {
                    if (userAnswer == originalAnswer[0]) {
                        printf("RIGHT Answer!\n");
                        score++;
                    } else {
                        printf("WRONG Answer\nThe right answer is %s\n", originalAnswer);
                    }
                } else {
                    printf("Invalid option Enter A-D\n");
                    fseek(ptr, -(strlen(Questions) + strlen(option) + strlen(originalAnswer)), SEEK_CUR);
                }
            }
            fclose(ptr);

            save_record(username, user_reg, score);

            printf("Congratulations! You have passed the test. Your total score is %d\n", score);

            printf("Do you want to play again? Type '1' for Yes and '0' for No: ");
            scanf("%d", &repty);
```

```
            printf("Do you want to play again? Type '1' for Yes and '0' for No: ");
            scanf("%d", &repty);
            score = 0;
            system("cls");
        } while (repty == 1);
    } else {
        printf("Start Again\n");
    }
    printf("Thank you");

    getche();
    return 0;
}

```

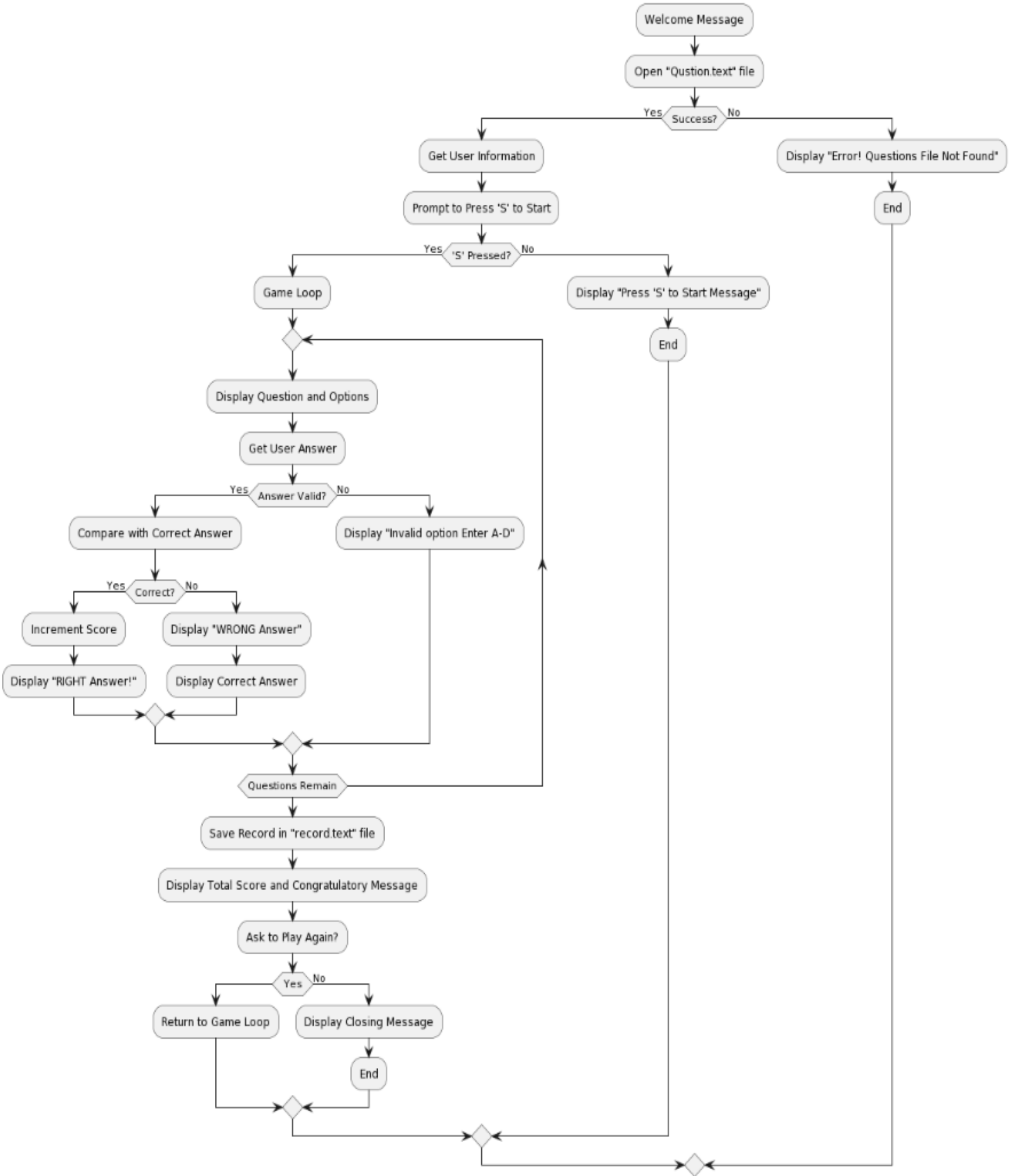
OUTPUT:

```
--------------------------------------------------------------------------
  W e l c o m e    t o    D S U    Q u i z    G a m e
--------------------------------------------------------------------------
Enter your name:Gurmeet
Enter your reg number:cs231094

Press S for start:s


1. The oldest programming langauge is?

A. C   B. C++   C. Java    D. Python

Enter your Answer(A-D):a
RIGHT Answer!

2. What is the function used to open a file in C?

A. fopen    B. openfile     C. readfile     D. createfile

Enter your Answer(A-D):a
RIGHT Answer!

3. Which of the following is not a valid variable name?

A. int number   B. float rate   C.int variable_count    D.int..main

Enter your Answer(A-D):d
RIGHT Answer!
```

```
4. Which data type would you use to store whole numbers in C?

A.char  B.float    C.int   D.string

Enter your Answer(A-D):c
RIGHT Answer!

5. What's the purpose of a variable in programming?

A.To store multiple values  B.To execute loops  C.To store single data  D.Print┬áOutput

Enter your Answer(A-D):d
WRONG Answer
The right answer is C.To store single data
Congratulations! You have passed the test. Your total score is 4
Do you want to play again? Type '1' for Yes and '0' for No: 0
```

```
Thank you
```

Flowchart:


Welcome Message
Open "Qustion.text" file
Success?
Yes
No
Get User Information
Display "Error! Questions File Not Found"
End
Prompt to Press 'S' to Start
'S' Pressed?
Yes
No
Game Loop
Display "Press 'S' to Start Message"
End
Display Question and Options
Get User Answer
Answer Valid?
Yes
No
Compare with Correct Answer
Display "Invalid option Enter A-D"
Correct?
Yes
No
Increment Score
Display "WRONG Answer"
Display "RIGHT Answer!"
Display Correct Answer
Questions Remain
Save Record in "record.text" file
Display Total Score and Congratulatory Message
Ask to Play Again?
Yes
No
Return to Game Loop
Display Closing Message
End

Code:

```
#include<stdio.h>
#include<conio.h>
#include<ctype.h>
#include<stdlib.h>
#include<string.h>
#include<windows.h>
#include<io.h>
#define MAX_QUESTION_LENGTH 200

// Function to display the question;
void displayQuestion(char Qustions[], char options[MAX_QUESTION_LENGTH]){
   puts(Qustions);
   puts(options);
}

// Function to set record;
void save_record(char username[], char user_reg[], int score){
   FILE* pr;
   pr = fopen("record.text", "a");
   if (pr == NULL){
      printf("error!");
   }

   fprintf(pr, "\n");
   fprintf(pr, "Username:");
   fputs(username, pr);
```

```
    fprintf(pr, "Reg no:");
    fputs(user_reg, pr);
    fprintf(pr, "Total Score:");
    fprintf(pr, "%d", score);
    fprintf(pr, "\n");
    fclose(pr);
}

int main(){
    // Display Welcome Message
    printf("--------------------------------------------------------------------------------\n");
    char welcome[] = "Welcome to DSU Quiz Game";
    for(int i=0; i<strlen(welcome); i++){
        printf("  %c", welcome[i]);
        fflush(stdout);
        Sleep(100);
    }
    printf("\n--------------------------------------------------------------------------------\n");

    FILE* ptr;
    char filename[] = "Qustion.text";
    char Questions[MAX_QUESTION_LENGTH];
    char option[MAX_QUESTION_LENGTH];
    char originalAnswer[MAX_QUESTION_LENGTH/2];
    char username[MAX_QUESTION_LENGTH];
    char user_reg[MAX_QUESTION_LENGTH];
    char userAnswer, confirm;
    int repty = 0;
```

```
int score = 0;


ptr = fopen(filename, "r");
if (ptr == NULL){
   printf("Error!\nI have not questions");
   printf("\nfile %s is not found", filename);
   return 1;
}


// Taking user information
printf("Enter your name:");
fgets(username, MAX_QUESTION_LENGTH/2, stdin);
printf("Enter your reg number:");
fgets(user_reg, MAX_QUESTION_LENGTH/2, stdin);


// Confirmation
printf("\n");
printf("Press S for start:");
scanf("%c", &confirm);
printf("\n");


// Game start
if(confirm == 's' || confirm == 'S'){
   do {
      // Display Welcome Message again when he/she wants to play again
      if (repty == 1){
         printf("--------------------------------------------------------------------------------\n");
         char welcome[] = "Welcome Back to DSU Quiz Game";
```

```
    for(int i=0; i<strlen(welcome); i++){
        printf("  %c", welcome[i]);
        fflush(stdout);
        Sleep(100);
    }
    printf("\n--------------------------------------------------------------------------------\n");
}
rewind(ptr);
ptr = fopen(filename, "r");

if (ptr == NULL) {
    printf("Error!\nI have not questions");
    printf("\nfile %s is not found", filename);
}

while (fgets(Questions, MAX_QUESTION_LENGTH, ptr) != NULL) { // Qustion reading from file
    fgets(option, MAX_QUESTION_LENGTH, ptr);// Option reading from file
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    printf("\n");

    displayQuestion(Questions, option);// Display the qustion and option

    printf("Enter your Answer(A-D):");
    scanf(" %c", &userAnswer);// Taking answer from user

    userAnswer = toupper(userAnswer);// If user put a small alphabet, this function changes it to
upper
```

```
        if (userAnswer == 'A' || userAnswer == 'B' || userAnswer == 'C' || userAnswer == 'D') {
          if (userAnswer == originalAnswer[0]) {
            printf("RIGHT Answer!\n");
            score++;
          } else {
            printf("WRONG Answer\nThe right answer is %s\n", originalAnswer);
          }
        } else {
          printf("Invalid option Enter A-D\n");
          fseek(ptr, -(strlen(Questions) + strlen(option) + strlen(originalAnswer)), SEEK_CUR);
        }
      }
      fclose(ptr);

      save_record(username, user_reg, score);

      printf("Congratulations! You have passed the test. Your total score is %d\n", score);

      printf("Do you want to play again? Type '1' for Yes and '0' for No: ");
      scanf("%d", &repty);
      score = 0;
      system("cls");
    } while (repty == 1);
  } else {
    printf("Start Again");
  }
  printf("Thank you");
```

```
    getche();
    return 0;
}
```

Project breakdown table

S #	Reg. #	Name	Tasks
1.	CS-231097-1B	**SANDESH KUMAR**	Project Management and Character Animation. Coordinate Project Tasks and Create Character by Character Animation.
2.	CS-231094-1B	**GURMEET.**	File Handling. Manage Quiz Questions and Answers Storage And History In Text File.
3	CS-231093-1B	**PUSHIP KUMAR**	Error Handling. Implement Error Handling for Input Validation.
4.	CS-231074-1B	**Seema Batra**	User Interface and Task Continuation. Simple Console-Base Interface with Prompts for Input Continuation.
5.	CS-231180-1B	**Kashish.**	Score Tracking. Develop Score System for The Quiz Game.