UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

Course Code: CSEG1032

UPES ADMISSION MANAGEMENT SYSTEM

Major Project

C programming

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ABSTRACT

The UPES Admission Management System is a console-based C program that helps automate a simple admission workflow.

The system records student details such as name, mobile number, address, marks, selected school, and selected course.

It verifies the eligibility criteria, conducts a 10-question quiz for the chosen school, evaluates the score, and generates an admission letter if the student passes.

The project uses basic C concepts such as arrays, structures, functions, switch-case menus, and file handling to store successful admissions in a text file (“students.txt”).

This project can be extended in the future with features like online registration, admin login, a GUI interface, and real-time result processing.

Problem Definition

In many small institutions, admissions are still handled manually.
This results in multiple problems:

- Human errors
- Missing records
- Difficulty verifying eligibility
- No stored digital data
- No automated testing or evaluation
- Time-consuming and inefficient process

Therefore, there is a need for a simple digital admission system that can:

✔ Store student details
✔ Check eligibility criteria
✔ Allow course selection
✔ Conduct a quiz
✔ Evaluate pass/fail
✔ Save passed student records
✔ Display saved applicants

Thus, the objective of this project is to create a simple, user-friendly admission management system using C

Scope of Project

1. Covers basic admission workflow

2. Limited to console-based interface

3. Stores only basic student data

4. Useful for small institutions

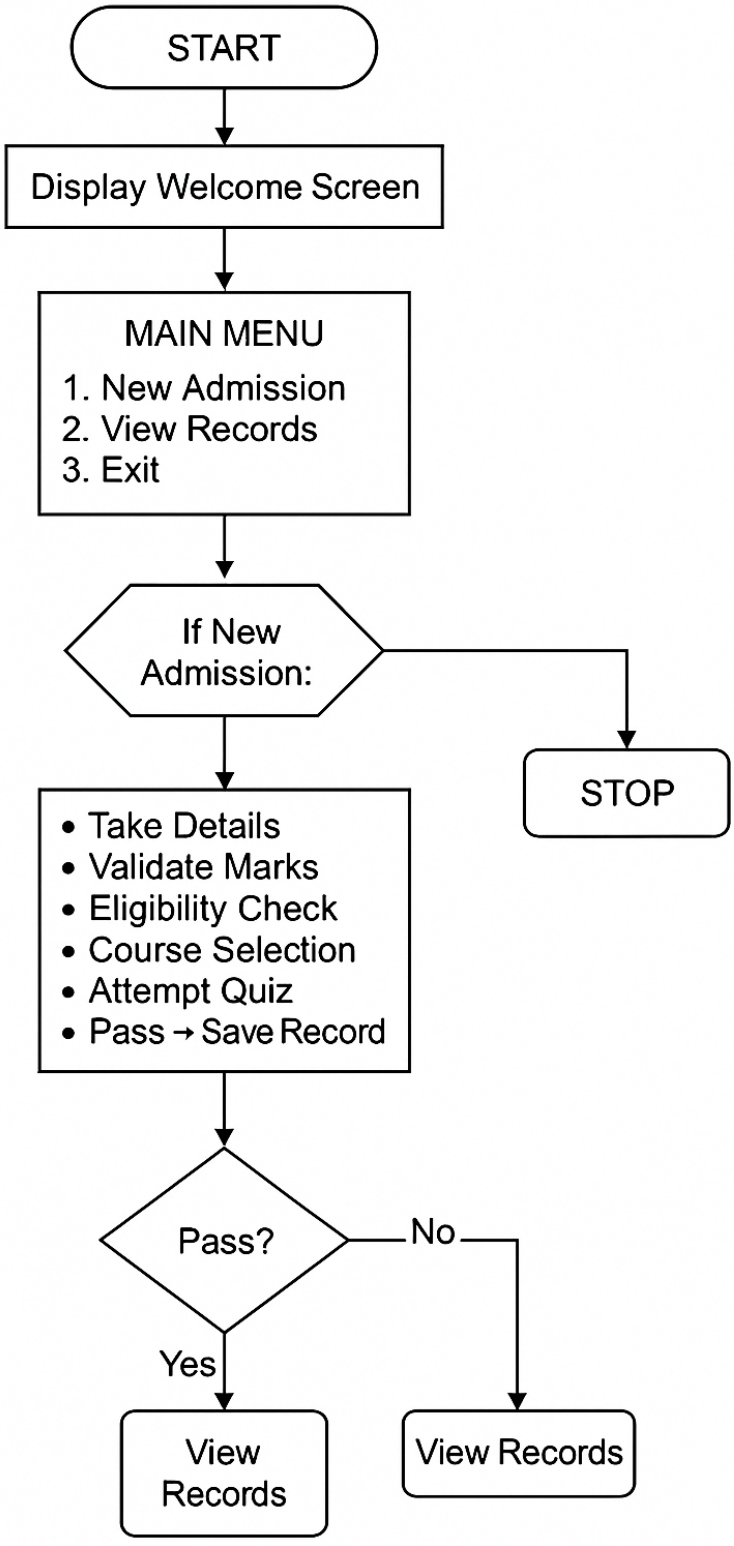
5. Easily extendable

System Design

Modules in the System:

1. Welcome Screen
2. Main Menu
3. Student Data Input
4. Eligibility Checking
5. School & Course Selection
6. Quiz Module (10 Questions)
7. Result Evaluation
8. File Saving Module
9. View Records Module

Flowchart



Caption

Explanation of Flowchart

The flowchart visually represents the complete working of the UPES Admission Management System in a step-by-step manner.

It shows how the program begins, takes student input, validates eligibility, conducts the quiz, and finally decides whether the student passes or fails.

It clearly highlights all possible paths a user can take (New Admission, View Records, or Exit), making the overall program flow easy to understand.

Algorithm for Main Menu

1. Start

2. Display Welcome Screen

3. Loop until user chooses Exit

    a. Show Menu Choices
    b. Read user choice
    c. If choice = 1 →run admission process
    d. If choice = 2 → view saved records
    e. If choice = 3 → exit

4. End

Algorithm for Admission Process

1. Start
2. Input name, parents' names, address, mobile
3. Validate mobile (must be 10 digits)
4. Input 10th & 12th marks
5. If marks < 70 → Not eligible, stop
6. Display schools
7. Select school
8. Display courses
9. Select course
10. Start quiz
11. Count score
12. If score < 8 → Fail
13. Else → Pass
14. Generate admission letter
15. Save record to "students.txt"
16. End

Algorithm for Viewing Records

1. Start
2. Open "students.txt"
3. If file empty → print "No records"
4. Read each saved entry
5. Display name, mobile, school, course
6. End

Algorithm — Mobile Number Validation

1. Start.
2. Read mobile string input from user.
3. If length of string ≠ 10 → return invalid.
4. For i = 0 to 9:
   - If character at position i is not a digit → return invalid.
5. If loop completes → return valid.
6. End.

Algorithm — Quiz Module

1. Start.
2. For question index i from 0 to quiz_count - 1:
   a. Display Q(i+1) and question text.
   b. Display options A, B, C, D.
   c. Read user input (single character).
   d. Convert input to uppercase and validate (must be A/B/C/D).
   - If invalid → prompt again.
   e. If user's answer == quiz[i].correct → increment score.
3. After loop ends → return score.
4. End.

Algorithm — Main Program Loop with Error Handling

1.Start.
2.Display fancy welcome screen and loading message.
3.Repeat until exit chosen:

a. Display main menu (New Admission / View Records / Exit).

b. Read user choice as string, parse to integer.

- If parse fails → print "Invalid input" and continue loop

C. switch(choice)
. case 1: call Admission Process algorithm
. case 2: call Load/View Saved Records algorithm
. case 3:print goodbye and break loop.
. default: print "Invalid choice"
4. End.

Algorithm — Input Safe Read (safe_get)

1. Start.
2. Call fgets to read a line into buffer.
3. If fgets returns NULL → set buffer[0] = '\0' and return.
4. Remove trailing newline using strcspn or manual trimming.
5. Return the cleaned string.
6. End.

Code Snippets

***Structure Definition:**

```
typedef struct {
    char name[60];
    char courses[10][50];
    int course_count;
    QuizQ *quiz;
    int quiz_count;
} School;
```

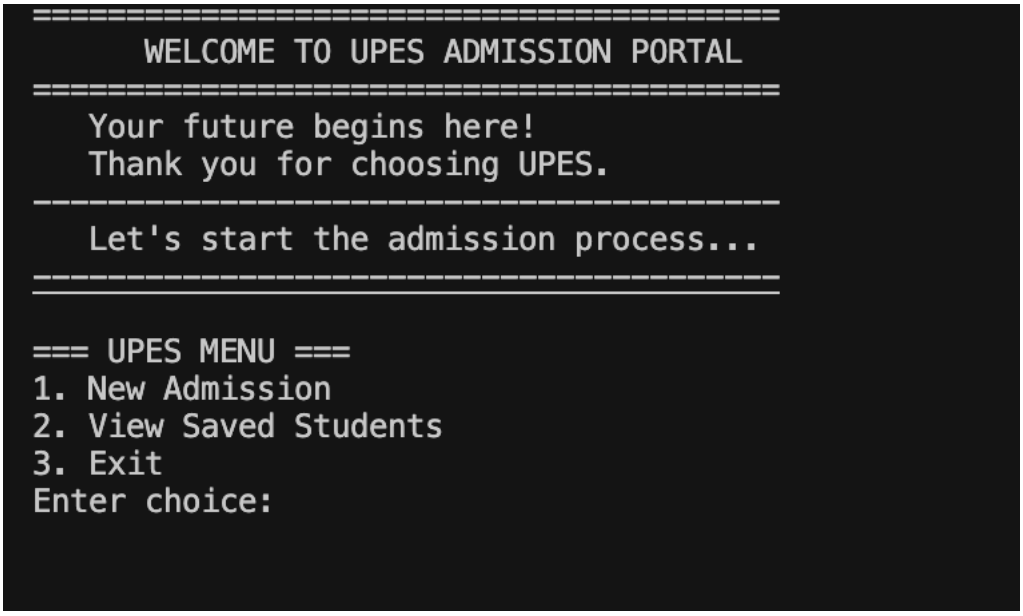
****Quiz Question Structure:***

```
typedef struct {
    char question[200];
    char options[4][150];
    char correct;
} QuizQ;
```

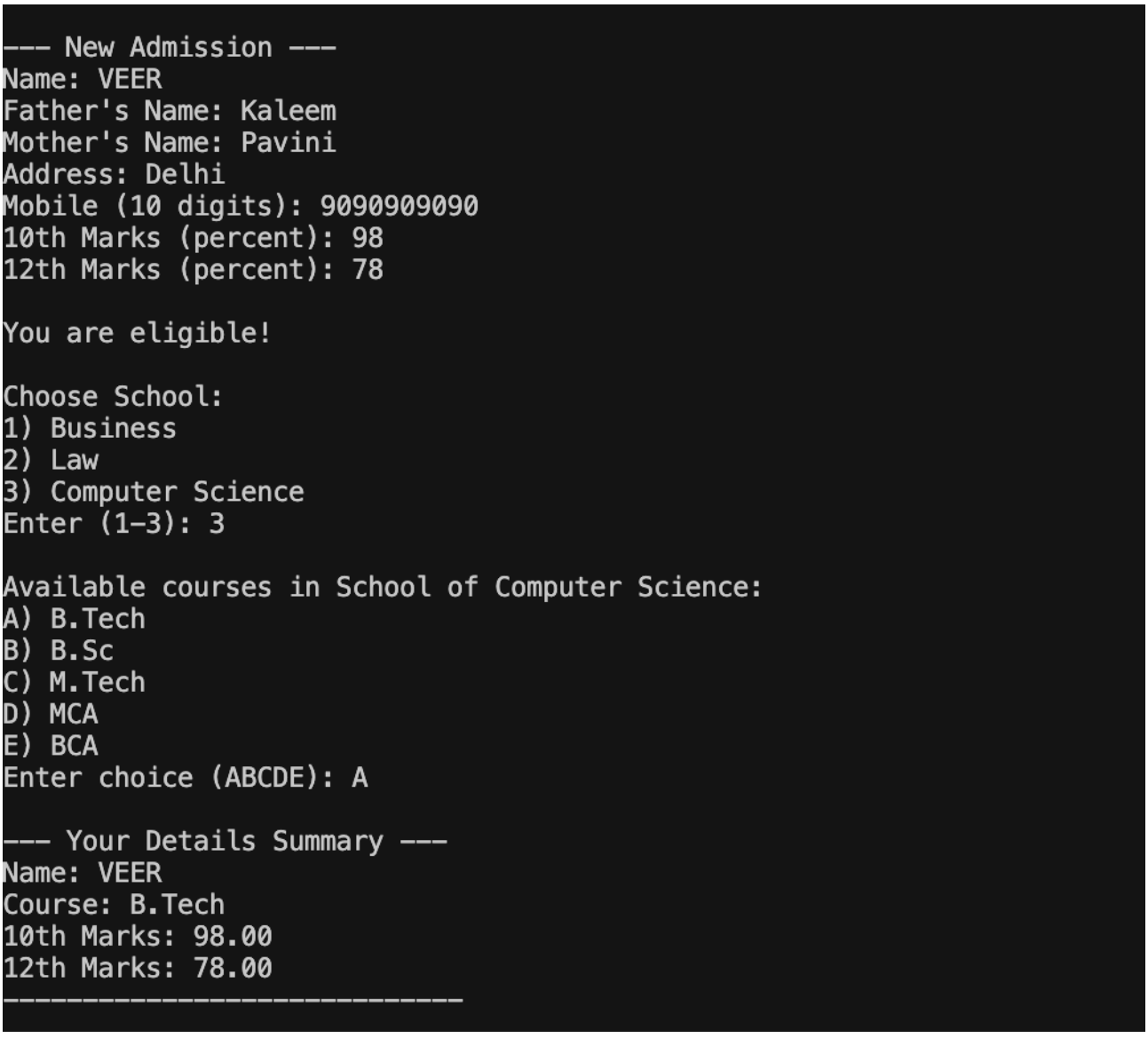
Saving to File:

```
void save_record_to_file(
    const char *filename,
    const char *name,
    const char *mobile,
    const char *school,
    const char *course)
{

    FILE *fp = fopen(filename, "a");
    fprintf(fp, "Name: %s\nMobile:
%s\nSchool: %s\nCourse: %s\n",
            name, mobile, school, course);
    fprintf(fp,
"-----------------------------\n");
    fclose(fp);

}
```

Testing & Result



```
  ========================================
        WELCOME TO UPES ADMISSION PORTAL
  ========================================
     Your future begins here!
     Thank you for choosing UPES.
  ----------------------------------------
     Let's start the admission process...
  ----------------------------------------

  === UPES MENU ===
  1. New Admission
  2. View Saved Students
  3. Exit
  Enter choice:
```



```
--- New Admission ---
Name: VEER
Father's Name: Kaleem
Mother's Name: Pavini
Address: Delhi
Mobile (10 digits): 9090909090
10th Marks (percent): 98
12th Marks (percent): 78

You are eligible!

Choose School:
1) Business
2) Law
3) Computer Science
Enter (1-3): 3

Available courses in School of Computer Science:
A) B.Tech
B) B.Sc
C) M.Tech
D) MCA
E) BCA
Enter choice (ABCDE): A

--- Your Details Summary ---
Name: VEER
Course: B.Tech
10th Marks: 98.00
12th Marks: 78.00
----------------------------
```

```
Congratulations! You passed the quiz.

--- Admission Letter ---
Name: VEER
Mobile: 9090909090
School: School of Computer Science
Course: B.Tech

----------------------------------------
 Thank you for coming to UPES.
 We are excited to welcome you on campus soon!
 Wishing you success and a bright journey ahead.
----------------------------------------
```

```
--- Saved Student Records ---

Name: ESHAN
Mobile: 9090909090
School: School of Computer Science
Course: B.Tech
------------------------------
Name: VEER
Mobile: 9090909090
School: School of Computer Science
Course: B.Tech
------------------------------

--- End of Records ---
=== UPES MENU ===
1. New Admission
2. View Saved Students
3. Exit
Enter choice:
```

Conclusion & Future Work

This project successfully implements a functional admission system using C programming.

It fullfills the objectives of collecting student information, verifying eligibility, conducting a quiz, generating results, and saving admission records.

Future Enhancements:

- Online registration portal
- Admin login system
- CSV/Excel export
- GUI-based interface
- Online quiz integration
- OTP verification
- PDF admission letter

References

: Lecture Notes by Dr. Tanu Singh, School of Computer Science UPES

: TutorialsPoint – C Programming Reference

: Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language

: W3Schools – C Programming Basics