NED University of Engineering & Technology
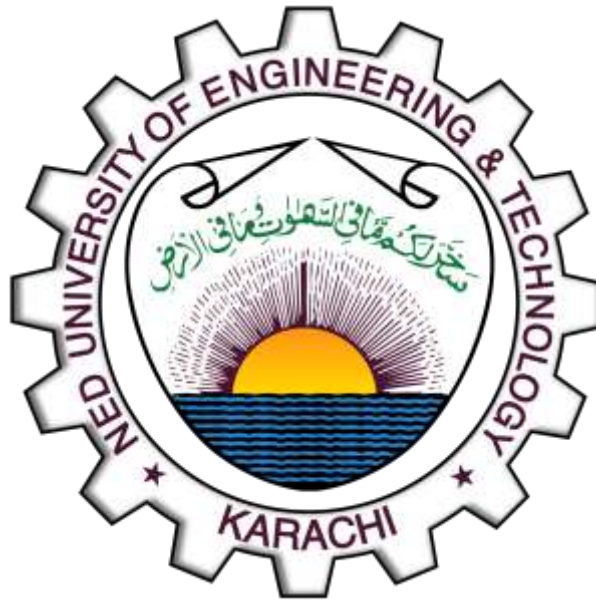# Department of Computer Science and Information Technology

COMPLEX COMPUTING PROBLEM PROJECT PROPOSAL

MULTI-SUBJECT MCQ QUIZ SYSTEM

Submitted to:
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Course Title:
Programming Fundamentals (CT-175)

Submitted by:
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1. Project Title:

An Interactive Multi-Subject Quiz Game

2. Project Description:

This project is an interactive quiz game developed using the C programming language. The system allows users to choose a subject and answer multiple-choice questions (MCQs). Each quiz session records the user's name, chosen subject, score, time taken, and date of attempt. The results are stored in a leaderboard and displayed in sorted order based on performance.

The question bank for each subject is stored in external text files, making it easy to update or add more subjects without changing the program's logic. A hint feature is provided, allowing users to request helpful clues during the quiz. This enhances engagement while still testing knowledge. The program is menu-driven and runs in a console environment.

3. Project Methodology:

3.1 Data Source:

Each subject has its own .txt file containing:

- Question text
- Four answer options (A, B, C, D)
- Correct answer key
- Hint for the question
- Separator line

This structured format allows easy expansion.

3.2 Tools and Technologies:

- **Programming Language:** C Language
- **Environment:** DevC++
- **Data Storage:** Notepad
- **Libraries**: stdio.h, string.h, stdlib.h, time.h, ctype.h, windows.h

3.3 Algorithm:

1. Display main menu.
2. User enters name and selects a subject.
3. Corresponding question file is loaded into memory.
4. Questions are displayed one by one with four answer choices.
5. User may optionally request a **hint** (limited to 3 total).
6. Each correct answer adds to the score.
7. End of quiz summary is displayed.
8. Result is saved in leaderboard.dat.
9. Leaderboard can be viewed from the main menu.

3.4 Key Features:

Feature	Description
Multi-Subject Quiz	English, Mathematics, General Knowledge, Geography
Scoring System	1 point per correct answer
Hints	Limited to 3 hints per quiz
Leaderboard	Stores name, score, time taken, subject, and date
Sorting	Leaderboard sorted by score percentage and time taken
Console UI	Smooth, color-enhanced terminal interface

3.5 Objectives:

- To provide an interactive learning environment through subject-based quizzes.
- To implement structured programming principles using the C language.
- To apply file handling for loading questions and saving leaderboard scores.
- To allow users to receive hints to support learning while maintaining challenge.
- To maintain a persistent leaderboard that stores performance history.
- To promote knowledge enhancement in multiple general subjects.

3.6 Timeline:

Week	Activity
Week 1	Topic finalization & subject selection
Week 2	Designing question format and menu structure

Week	Activity
Weeks 3–4	Coding quiz logic, hint system, leaderboard & file handling
Week 5	Testing and debugging
Week 6	Final documentation and presentation

3.7 Expected Outcomes:

- Fully functional quiz game in C.
- Accurate and fair scoring with hint-based support.
- Persistent and sorted leaderboard display.
- Extendable question bank and subject system.

3.8 Goals:

- Improve learning through interactive testing.
- Strengthen concepts of file handling, structures, sorting, and modular programming in C.
- Develop clean, maintainable, and reusable code.

4. Justification – Why It Is a Complex Computing Problem:

This project requires the integration of multiple advanced programming concepts:

- File handling for reading structured questions and storing results.
- Use of structures to store question data and leaderboard entries.
- Sorting algorithms to rank scores based on performance.
- Time tracking and date handling for session logging.
- Console UI control, input validation, and error handling.

These components work together to form a complete, interactive computing solution beyond simple linear code.

5. Real-World Application Potential:

This project can be extended for:

- Classroom quiz systems
- Self-learning applications
- Online exam practice tools
- Competitive preparation quizzes

With future enhancements (GUI, database, web connectivity), it can become:

- An educational mobile app
- A training and evaluation tool for institutions
- A module in LMS (Learning Management Systems)

6. Conclusion:

The Interactive Multi-Subject Quiz Game demonstrates effective use of structured programming, file handling, user interaction, and data management in C. It promotes fun learning, knowledge testing, and logical skill building. The system is scalable and can be expanded with additional subjects, questions, and advanced features.