Project Proposal

Project Title

Smart Serve- Restaurant Management System

Group Members

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1. Introduction

- **Background**: This project focuses on developing a Restaurant Management System using C++ with an emphasis on core ObjectOriented Programming (OOP) concepts such as encapsulation, inheritance, abstraction, and polymorphism. It also includes a simple Graphical User Interface (GUI) and utilizes file handling for data storage and retrieval.

- **Problem Statement**: Many small restaurants lack efficient and affordable systems to manage daily operations like order processing, billing, and menu updates. This project aims to solve that problem using a modular, objectoriented approach in C++.

- **Objectives**:

✓ Develop a simple restaurant management software.

✓ Apply OOP principles throughout the codebase.

✓ Implement GUI using a basic graphics library or Windows Forms.

✓ Use file handling for saving customer credentials and order information.

✓ Demonstrate realworld application of abstraction, polymorphism, inheritance, and encapsulation.

2. Scope of the Project

- **Inclusions**:

  - ✓ Menu management.
  - ✓ Order placement and bill calculation.
  - ✓ Basic customer management.
  - ✓ File based storage for persistence.
  - ✓ GUI based interaction.

- **Exclusions**:

  - ▪ Online Payment System

  - ▪ Database integration

- **Overview**: "SmartServe" is a basic restaurant management system that handles menu management, order processing, billing, and customer handling through an interactive GUI. The backend will implement core OOP principles.

- **Technical Requirements**:

  - ✓ Microsoft Visual Studio.
  - ✓ Raylib library for GUI.
  - ✓ File system for persistent storage.

- **Project Phases**:

1. Planning and design

2. Class and file structure setup

3. GUI implementation

4. Report writing and submission

5. Testing and refinement

3. Methodology

- **Approach**: Plan, Code, and Execute each component separately.

- **Team Responsibilities**:

  ➢ Hardeep: GUI Module.
  ➢ Huzaif: Filing Module.
  ➢ Kazim: OOP Concepts and Integrator

4. Expected Outcomes

- **Deliverables**:

  ✓ Working C++ application with GUI
  ✓ Project report

- **Relevance**: This project strengthens understanding of OOP in real applications, show cases file based data handling, and introduces basic GUI programming, a bridge to more advanced systems.

5. Resources Needed

- **Software**:

  ✓ Microsoft Visual Studio
  ✓ C++ OR MinGW Compiler
  ✓ GUI library (RayLib)

- **Other Resources**:

  1. Online tutorials on GUI and file handling

  2. Instructor guidance for integration and debugging