**Project Document: Attendance and Class Assessment Marks Calculator**

**Prepared by:**

**Akshat Pandya**  
BTech III Year – Computer Engineering  
0801CS221014  
SGSITS, Indore

**Project Overview**

**Project Title:**

Attendance and Continuous Assessment Calculator

**Project Description:**

The Attendance and Continuous Assessment Calculator is a Python-based project designed to automate the calculation of students' attendance, lab attendance, assignment scores, quiz scores, and the Continuous Assessment (CW) scores. This system is designed for educators to efficiently calculate and manage student performance data while applying flexible grading schemes. The final results are exported in an Excel format for record-keeping or further analysis.

**Project Objectives:**

* To automate attendance and continuous assessment calculation processes.
* To provide flexible grading schemes for assignments and quizzes.
* To output student results, including Continuous Assessment (CW) scores, in Excel format.
* To minimize manual effort and human error in score calculation.
* To allow customization in score weight distribution for attendance, lab attendance, assignments, and quizzes.

**Project Scope**

**Inclusions:**

* Input module for loading student data (attendance, assignments, quizzes) from an Excel file.
* User-defined scheme selection for assignment and quiz calculations.
* Weight-based score calculation for attendance, lab attendance, assignments, and quizzes.
* Output of results, including Continuous Assessment (CW) scores, in an Excel file.
* Simple user interface using Tkinter for file selection.

**Exclusions:**

* Student-specific special cases or manual input adjustments.
* Advanced analysis or statistical reporting beyond score calculation.
* Web-based or mobile application interface.
* Integration with student information systems or LMS platforms.

**Requirements**

**Functional Requirements:**

1. **User Interface:**
   * Input Excel file with student data.
   * Interface for entering total classes and labs held, and maximum marks for assignments and quizzes.
2. **Attendance Calculation:**
   * Calculate attendance percentage based on total classes attended out of total classes held.
3. **Lab Attendance Calculation:**
   * Calculate lab attendance percentage based on lab sessions attended.
4. **Assignment & Quiz Score Calculation:**
   * Allow three grading schemes: Best Of All, Average, and Relative Grading.
5. **Weight-Based Continuous Assessment Calculation:**
   * Combine attendance, lab attendance, assignment, and quiz scores using user-defined weights.
6. **Excel Export:**
   * Export the final results with percentage symbols in an Excel file.
7. **Error Handling:**
   * Proper error messages and handling for missing or incorrect data inputs.

**Non-Functional Requirements:**

1. **Performance:**
   * The system should calculate scores and generate the result file within seconds for up to 100 students.
2. **Usability:**
   * The interface must be simple enough for non-technical users (teachers, administrators).
3. **Security:**
   * Basic data protection for student information through local file handling.
4. **Scalability:**
   * The system should be able to handle large datasets without performance issues.

**Project Milestones**

1. **Project Initiation:**
   * Requirement gathering and planning.
   * Research on Python libraries for Excel file handling (e.g., Pandas).
2. **Design Phase:**
   * Design of the input data format and result output structure.
   * User interface design using Tkinter.
3. **Development Phase:**
   * Implementation of the attendance, assignment, and quiz calculation logic.
   * Integration of user-defined grading schemes and score weights.
   * Implementation of the Excel export feature.
4. **Testing Phase:**
   * Unit testing for each calculation function.
   * User acceptance testing with sample data to ensure accuracy.
5. **Deployment Phase:**
   * Packaging the final Python script.
   * Documentation and user manual preparation for end-users.
6. **Post-Deployment:**
   * Bug fixing based on feedback.
   * Regular updates for new features or grading schemes.

**Software Requirements:**

* **Programming Language:** Python 3.x
* **Libraries:**
  + Pandas: For Excel file manipulation.
  + Tkinter: For creating file selection dialogs.
* **Operating System:** Windows, macOS, or Linux

**Hardware Requirements:**

* Basic computer system capable of running Python scripts.
* Excel software for viewing output files.

**Conclusion:**

The Attendance and Continuous Assessment Calculator simplifies the process of calculating attendance and continuous assessment scores, significantly reducing manual efforts and potential errors. This system will help educational institutions and instructors streamline their grading workflows, providing accurate and consistent student performance data. With a user-friendly interface and flexible grading options, this project will serve as a valuable tool for managing student assessments.