DESIGN DOCUMENTATION COSC 3506 MUHAMMAD JAMIL

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COSC3506 Requirements Documentation

Project Title: Student Grade Tracker – A Production-Ready Academic Performance Platform

1. Functional Requirements

These define what the system should do to fulfill the needs of its users (teachers and students).

1.1 Teacher/Admin Features

- The system shall allow the teacher to add a new grade for any student.
- The system shall allow updating an existing grade for a student.
- The system shall allow deletion of any grade entry.
- The system shall dynamically support the creation of new students and new subjects.
- The system shall provide a tabular view of all student grades.
- The system shall allow CSV export of student records.

1.2 Student/Viewer Features

- The system shall allow a student or viewer to input their name and view:
    - Subject-wise grades

- GPA (calculated on a 4.0 scale)
- Percentage average
- Performance chart (bar graph)

1.3 Common Features

- The system shall provide an intuitive Gradio-based UI.
- The system shall provide a "refresh" option for updated student/grade listings.

2. Non-Functional Requirements

These define system-level constraints, usability, and performance goals.

- The system shall run on Google Colab using Python backend components.
- The system shall respond to user interactions within 2 seconds.
- The system shall be accessible and responsive on various screen sizes.
- The UI shall follow a dark-themed accessible design.
- No user authentication is required in demo mode (stakeholder ready).

3. Use Case Descriptions

The following are major use cases of the system:

Use Case 1: Add Grade

Actor: Teacher
Precondition: Teacher is on the dashboard
Flow:

1. Select or input student name
2. Select or input subject
3. Enter grade via slider
4. Click "Add / Update Grade"
5. System inserts or updates grade in the database
6. Status message confirms success

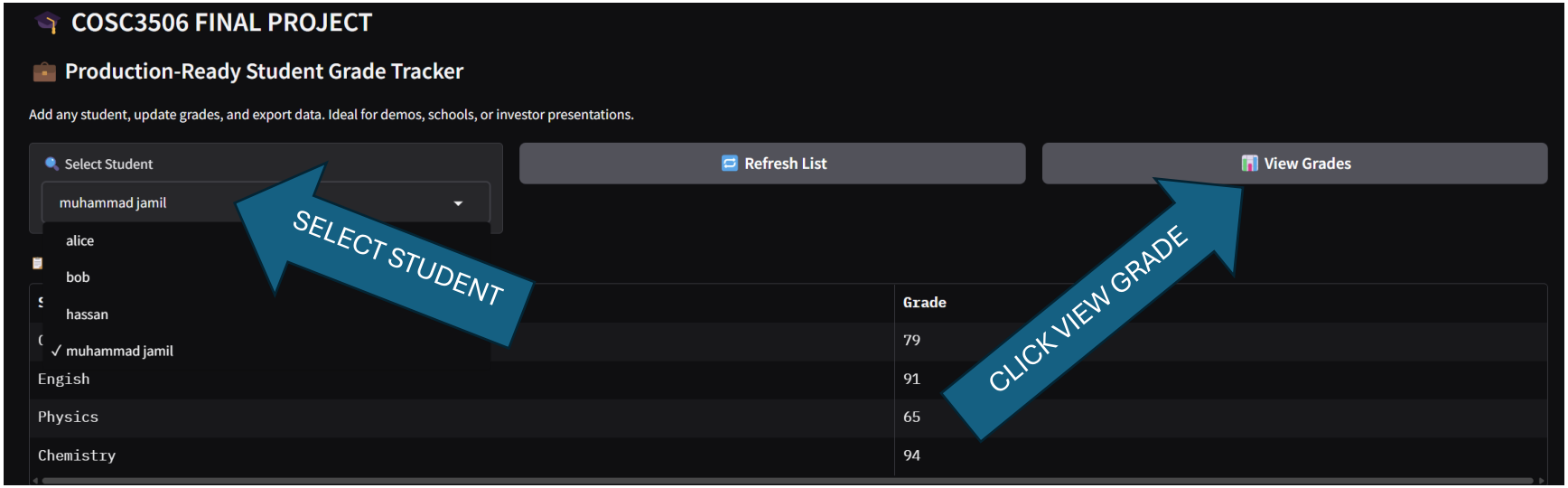
Use Case 2: View Grades and Stats

Actor: Student/Viewer
Precondition: Student name must exist in database
Flow:

1. Enter/select student name
2. Click "View Grades"
3. System retrieves grades, calculates GPA, draws bar chart, and displays results

SELECT STUDENT NAME DEMO:

ENTER STUDENT NAME DEMO:

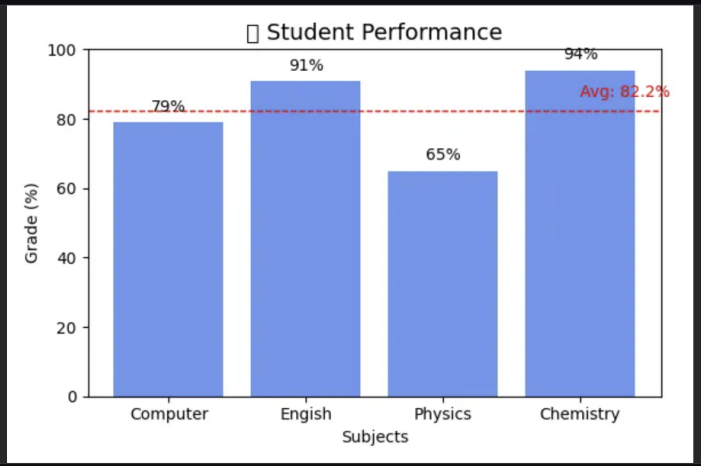


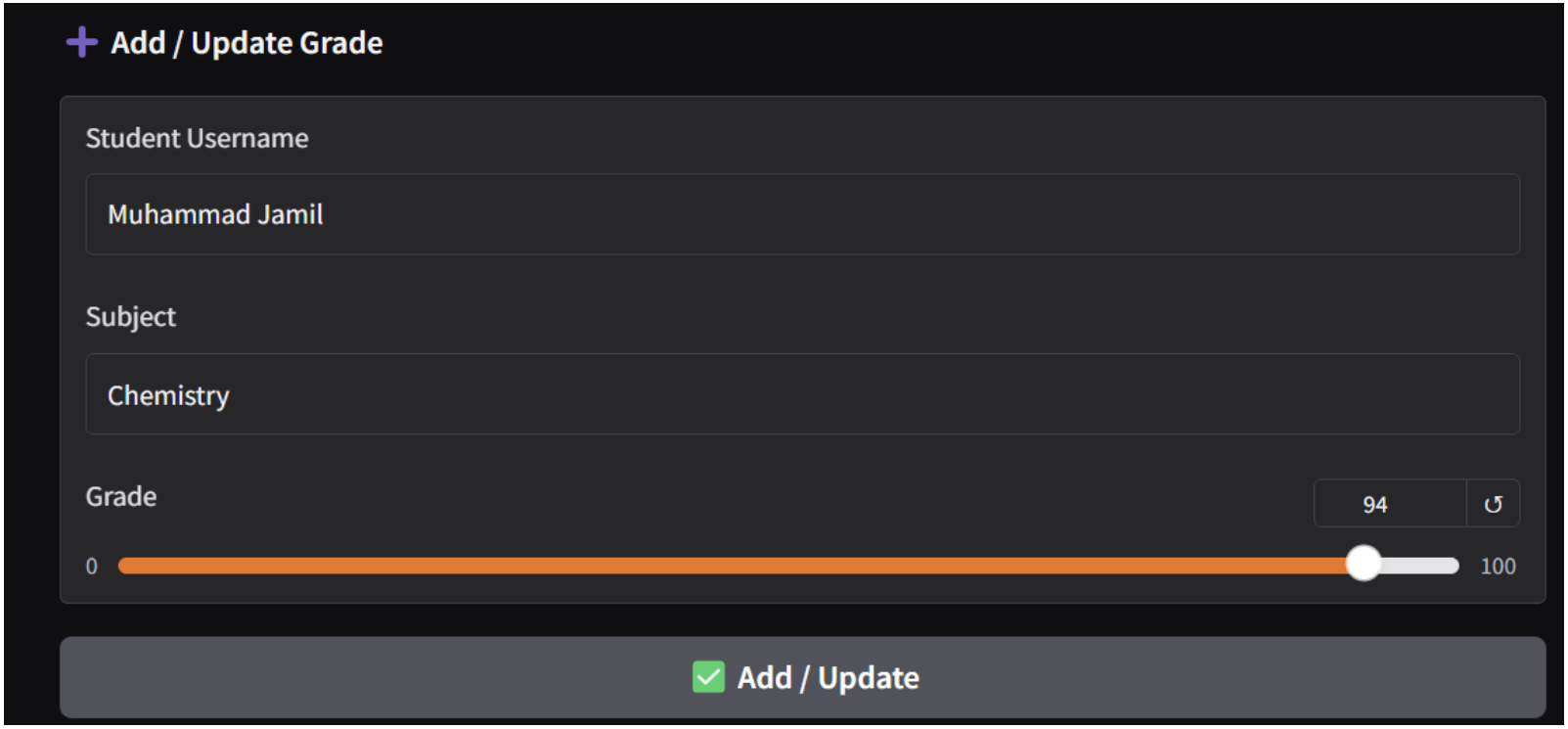
YOU SHOULD SEE:

GPA & Average

GPA: 3.29 | Average: 82.2%

Performance Chart





Use Case 3: Export Grades

Actor: Any user (typically a teacher or stakeholder)
Flow:

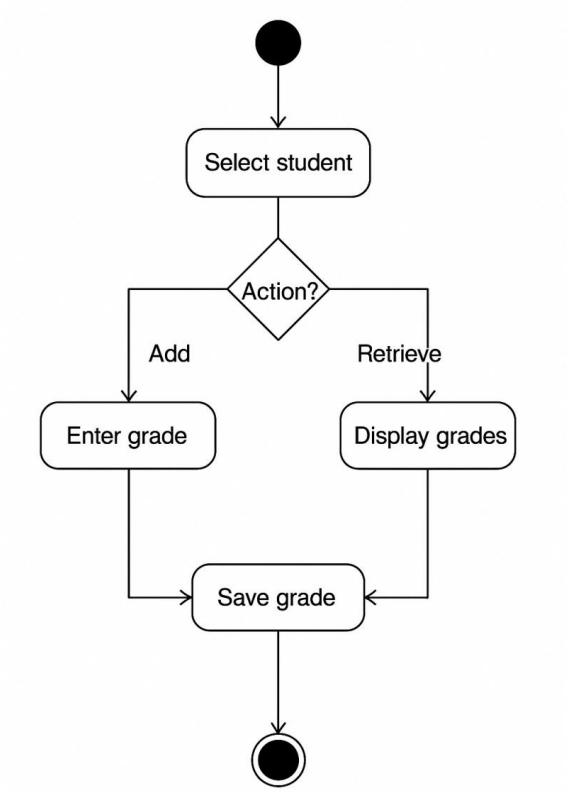
1. Select student
2. Click "View Grades"
3. Click on downloadable CSV file icon

4. System returns .csv with student's full grade report

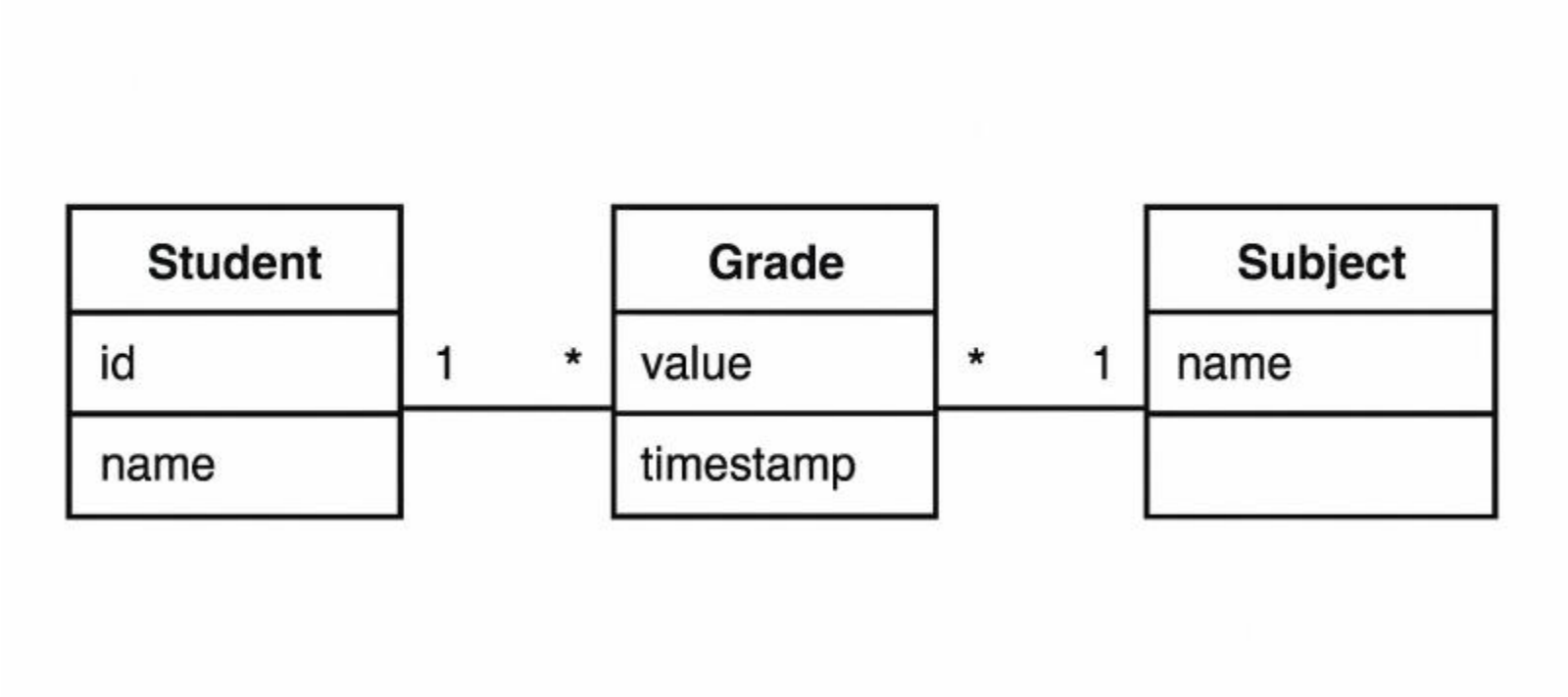
DEMO SCREENSHOTS:


muhammad jamil_grades.csv
136 B • Done

ACTIVITY DIGRAMME:



DOMAIN MODEL DIAGRAMME:



USE CASE DIGARMME: