



# **COMSATS UNIVERSITY ISLAMABAD VEHARI CAMPUS**

**Submitted by:**

M. Fawad Saqlain

**Roll no:**

FA22-BSE-031

**Submitted to:**

Ma'am Yasmeen Jana

**Course:**

Advance Web  
Technologies

**Project  
Name:**

CVUR Portal  
offerings reviews and course  
recommendation portal

# Review App — REST API Design & Implementation Report

## A. Design (8 marks)

### 1. Problem statement & Requirements

This project implements a course review platform for CUI Vehari students. The goal is to let enrolled students securely submit anonymous course evaluations for specific "offerings" (course + teacher + section + term), allow limited editing, and provide admin tools to manage academic terms and the set of offerings. The API is implemented with Express and MongoDB (Mongoose).

#### Primary goals


- Secure student onboarding using CUI Vehari email verification (OTP) and allow users to complete a minimal profile required to participate.
- Allow students to submit one anonymous rating per offering. Ratings must include an overall rating (1-5) and obtained marks; optional free-text comments are supported.
- Provide admin capabilities to manage Terms and Offerings: create, update, delete, activate (promote) terms and to bulk import offerings from XLSX file.
- Generate and store aggregated rating summaries for closed terms during promotion so historical summaries are available without heavy runtime computation.

#### Important functional requirements


- Signup requires a CUI Vehari student email in the format `^(fa|sp) (\d{2})-([a-z]{2,4})-(\d{3})@cuivehari\.edu\.pk$`. The controller enforces this and computes the user's intake and a derived `semesterNumber` from the email and current date.
- Signup uses a 6-digit OTP (stored hashed in `VerificationToken`) that expires in 15 minutes; verification activates the user account.
- Login returns a JWT and sets an `HttpOnly` cookie; `/api/auth/me` returns the populated user (department/program auto-resolved via an email->program map when missing).
- Profile completion supports uploading an ID card image (`express-fileupload`). Only images (png/jpg/gif/webp) up to 1MB are accepted; after completion `profileComplete` is set to `true`.
- Ratings: `POST /ratings` requires `offering`, `overallRating` (1-5), and `obtainedMarks`. Ratings are enforced anonymous server-side (`anonymized = true`), and a unique index prevents more than one rating per student+offering.

- Edit rules: students can only update their own rating and only within the term activation time edit window (controller checks creation date). Editing is closed when the offering's term is no longer active (term is promoted by admin).
- Admin routes are protected by `adminAuth/adminRequire`.  
`/admin/terms/:id/promote` activates the selected term, optionally sets start/end dates, creates the subsequent term, and generates stored rating summaries for the previously active term.
- Offerings upload supports parsing XLSX (ExcelJS) to create Courses, Teachers, Offerings and Departments/Programs. The XLSX uploader accepts common header names (code, title, teacher, department, program, semesterNumber, section) and does in-file dedupe before DB writes.
- Offerings have a unique index on `{ course, teacher, term, section }` to avoid duplicates. Deletion endpoints return JSON for API clients and redirect for HTML form flows.
- Error handling: controllers return a consistent JSON envelope `{ success: true|false, data:..., error:... }` and proper HTTP status codes (400/401/403/404/409/500) according to the failure type.

## 2. Screen Shots:

**CVUR PORTAL**  
SEE CLEARLY, CHOOSE WISELY

Home Sign Up Login Admin

**CVUR PORTAL**  
COMSATS VEHARI • UNOFFICIAL REVIEWS

**Make smarter course choices  
with *real student ratings*.**

CVUR Portal lets COMSATS Vehari students quickly browse how previous batches rated courses and instructors – so you can balance GPA, workload and interest before you lock in your timetable.

Get Started


★ 4.7 avg. satisfaction 🧑 Built for CVUR students


Rating preview


**Software Engineering (CSE-302)**  
Dr. Hasan (b7) 4.1 overall (b7) moderate workload  
Good explanations, but lots of assignments. Midterm grading is strict.  
👤 27 reviews 📅 Fall 2024

**Why students use CVUR**

CVUR is built specifically for COMSATS Vehari students. It stays light-weight, fast and focused on the things that actually matter when you are picking your next semester.

**Real student feedback**  
See honest ratings and short reviews from seniors before you select courses or teachers.

**Know difficulty & workload**  
Understand past difficulty, assessment style and workload to avoid bad surprises.

**Anonymous but constructive**  
Share your experience safely so juniors benefit from your semester.

**How it works**

- Step 1:** Sign up with your COMSATS Vehari email and verify your account.
- Step 2:** Complete your profile and review courses you have taken.
- Step 3:** Use summaries and trends to plan your next semester intelligently.

Create Account Student Login

**About CVUR**

CVUR (Course & Venue Review) is a side project built for COMSATS Vehari students. It is not an official COMSATS product, but aims to complement your academic advising by giving you quick access to what your batch mates actually experienced.  
  
Ratings are stored per term and summarized when a term ends, so browsing older semesters stays fast while new reviews remain fresh and focused.

**Contact the developer**

Have a suggestion, found a bug or want to contribute a feature? Reach out and share what would make this portal more useful for you and your classmates.  
  
✉ Use the channels below to contact the maintainer with feedback or ideas.  
🔗 This project is built with React, Express and MongoDB as part of an advanced web lab semester project.  
  
🐙 GitHub 📄 LinkedIn ✉ Email

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## Sign Up

Use your CUI Vehari email in the format fa22-bse-031@cuivehari.edu.pk.

Name

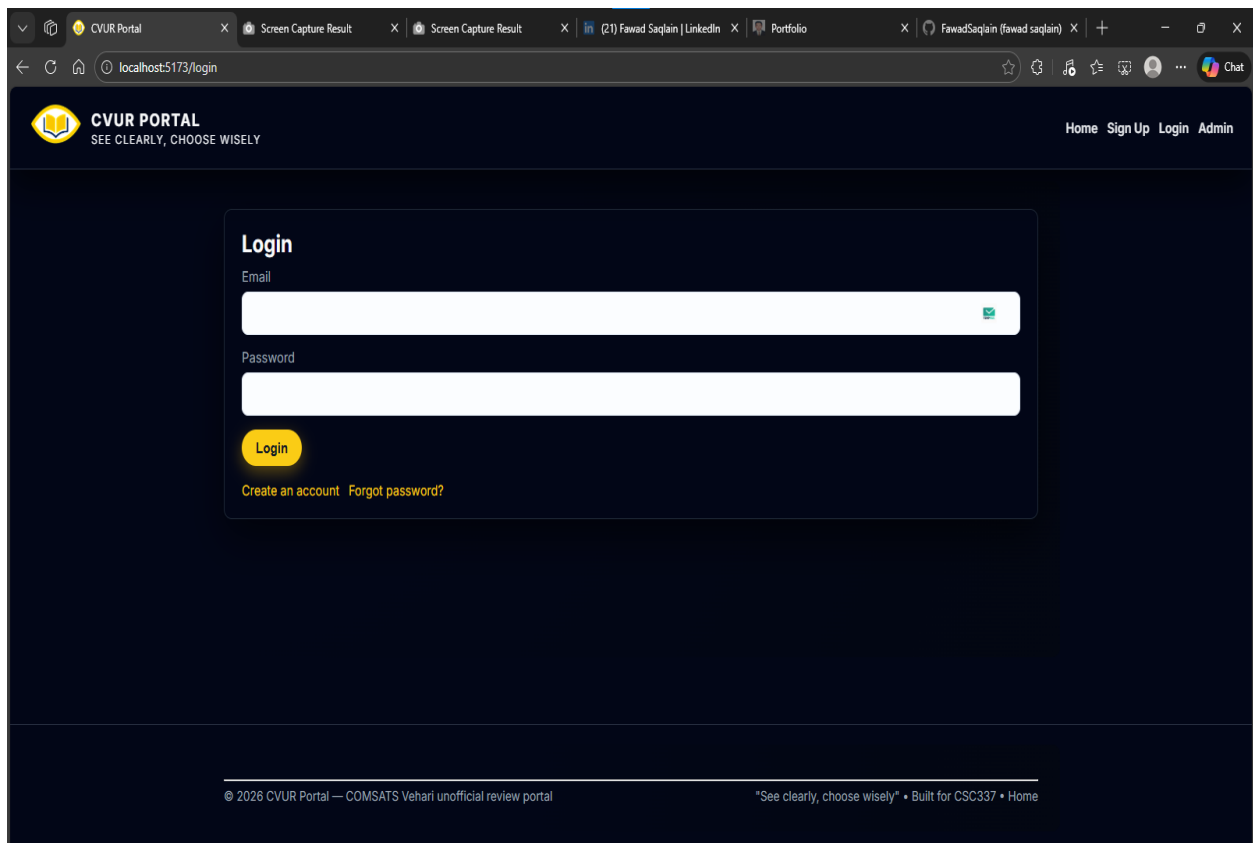
Email

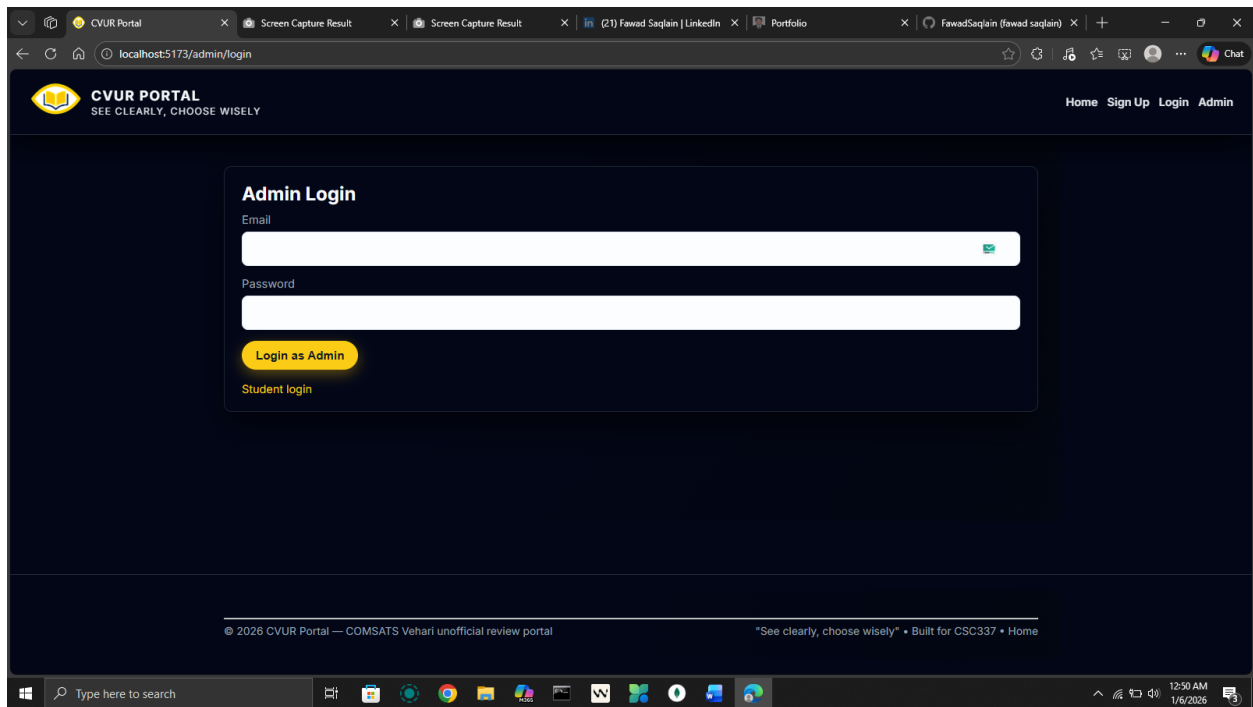
Password

Confirm Password

Create Account

[Already have an account?](#)







## Admin Analytics Dashboard

High-level overview of how CVUR Portal is being used in real time: student accounts, ratings activity, and academic data for current and past terms.

### Students

6

Total registered users

### Ratings Submitted

54

Total reviews captured in the system

### Average Overall Rating

3.63

Across all courses & offerings

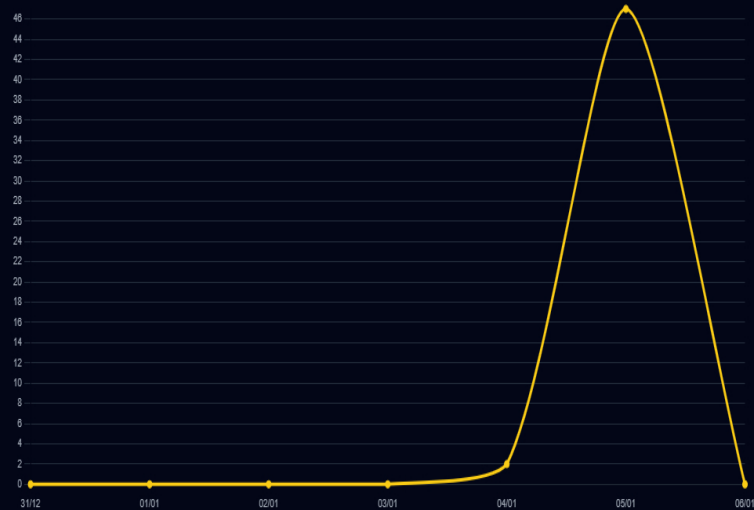
### Academic Data

0 offerings

1 active / 10 terms

## Ratings over last 7 days

Line chart of daily ratings submitted. This helps you see recent engagement trends.



## Activity snapshot

Relative activity across key areas. Each tile shows the total and a range line scaled to the busiest area.




[View Ratings Summaries](#)

CVUR Portal

(21) Fawad Saqlain | LinkedInPortfolioFawadSaqlain (fawad saqlain)

localhost:5173/admin/ratings

Chat

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Admin DashboardView RatingsTermsManage OfferingsManage UsersAdmin Logout

### Admin • Ratings

Summary-only view for inactive terms. Active-term ratings are not displayed.

Search by course, teacher, or term

#### Results

CSC-087 - HCI — Sidra — sp27

1 review Avg marks: 73.00 Updated: 1/6/2026, 12:29:20 AM

No comments available.

3.00 / 5

BTY-746 - Genetics — Hamza Khan — fa25

1 review Avg marks: 10.00 Updated: 1/6/2026, 12:28:16 AM

No comments available.

3.00 / 5

BTY-724 - Genetic Engineering — Hiba Akhtar — fa25

1 review Avg marks: 98.00 Updated: 1/6/2026, 12:28:16 AM

No comments available.

4.00 / 5

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### Admin Terms

Note: Terms must have Start and End dates before they can be activated. To create new terms, use the admin API or add via the database.

SeasonFA

Yeare.g. 25

Start Datemm/dd/yyyy

End Datemm/dd/yyyy

Create Term

#### Existing Terms

Name	Start Date	End Date	Active	Actions
sp28 ID: 694d5f53dd7dfbec5043401c	mm/dd/yyyy	mm/dd/yyyy	No	Promote & Create Next
sp24 ID: 695a37e7d95a6783448078f6	mm/dd/yyyy	mm/dd/yyyy	No	Promote & Create Next
fa27 ID: 694d5d87dd7dfbec50433df1	2025-12-10	2025-12-27	Yes	
sp27 ID: 694d5cc8dd7dfbec50433b99	2027-02-28	2027-06-25	No	Activate
sp26 ID: 694d27e2585832ebb51668	2025-12-01	2026-01-31	No	Activate
fa26 ID: 694d5cbadd7dfbec50433b8a	2025-12-27	2025-12-15	No	Activate
fa25 ID: 694d1d22585832ebb51667	2025-08-01	2025-12-31	No	Activate
sp23 ID: 694d6947dd7dfbec5043403a	2025-12-03	2025-12-30	No	Activate
fa23 ID: 694d9b6a7bktf2257d062001	2026-01-14	2026-04-30	No	Activate
fa22 ID: 694d692add7dfbec5043402b	2025-12-03	2025-12-31	No	Activate

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CVUR Portal

Screen Capture Result


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Portfolio

FawadSaglaim (fawad saglaim)

localhost:5173/admin/offerings

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### Offerings by Term

Term:  
fa22

Filter

+ Add Class / Bulk Upload

Code	Title	Teacher	Dept	Program	Sem	Section	Term	Actions
CS-101	Introduction to Computer Science	Jane Doe	Computer Science	Bachelor of Science in Computer Science	1	A	fa22	 
CS-102	Data Structures	John Smith	Computer Science	Bachelor of Science in Computer Science	2	A	fa22	 
CS-201	Algorithms	Emily Khan	Computer Science	Bachelor of Science in Computer Science	3	B	fa22	 
HCI-101	Human Computer Interaction	Sidra Ali	Computer Science	Bachelor of Science in Computer Science	3	B	fa22	 
SPM-101	Software Project Management	Ayesha Khan	Computer Science	Bachelor of Software Engineering	5	B	fa22	 
BAF-110	Auditing	Usman Malik	Management Sciences	Bachelor of Accounting and Finance	1	A	fa22	 
BAF-111	Managerial Accounting	Ali Ahmed	Management Sciences	Bachelor of Accounting and Finance	1	B	fa22	 

Type here to search

1:00 AM  
1/6/2026

CVUR Portal

Screen Capture Result


(2/1) Fawad Saglaim | LinkedIn

Portfolio

FawadSaglaim (fawad saglaim)

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### Admin b7 Add Class Manually

Department  
-- Select Department --

Program / Degree  
-- Select Program --

Semester Number

Section (optional)

**Subjects**  
Course Code  
Course Title  
Teacher Name  

Add subject

Add Class(es)

**Or upload .xlsx (bulk)**  
Choose .xlsx file  
Choose File No file chosen  
Term (optional)  
fa27 (active)  

Upload and Add Classes

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## Student Users

Create new student

Search by email or name

Search

Email	Name	Role	Active	Degree	Roll #	Semester	Section	Actions
fa21-bse-031@cuivehari.edu.pk	aslam	student	No	bse	031	9	-	
fa22-bse-002@cuivehari.edu.pk	Fawad Saqlain	student	Yes	bse	002	7	-	
fa22-bse-021@cuivehari.edu.pk	Hamza Iqbal	student	No	bse	021	7	-	
fa22-bse-031@cuivehari.edu.pk	Fawad	student	Yes	bse	031	7	B	
fa22-bse-118@cuivehari.edu.pk	Ali Raza	student	Yes	bse	116	7	B	

Previous Page 1 Next

Total users: 5



## Verify Signup (OTP)

Email

fa25-bse-031@cuivehari.edu.pk

OTP

Verify

Resend OTP

[Back to Login](#)

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My ProfileGive ReviewView RatingsMy ReviewsLogout

Complete Profile

Add section, phone and (if applicable) CGPA. You can also upload your university ID card.

Section

e.g., A

Phone

e.g., 03xx-xxxxxxx

University ID Card (image, max 1MB)

Choose FileNo file chosen

Save Profile

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My ProfileGive ReviewView RatingsMy ReviewsLogout

My Profile

Your verified student details for CVUR Portal

Edit profile

EMAIL

fa22-bse-031@cuivehari.edu.pk

NAME

Fawad

DEPARTMENT

Computer Science

PROGRAM

Software Engineering

INTAKE

fa2022

SEMESTER

7

SECTION

B

CGPA

3.43

PHONE

+923228730277

UNIVERSITY ID (UPLOADED)

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FawadSaqlain (fawad saqlain)















localhost:5173/dashboard/ratings

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 **My Ratings**

Offering (Teacher — Course)	Overall	Marks	Comment	Submitted	Actions
Hamza Khan — BTY-746 - Genetics	4	40		1/5/2026, 4:39:11 PM	
Hiba Akhtar — BTY-724 - Genetic Engineering	4	50		1/5/2026, 4:39:05 PM	
Amna Anwar — BSM-746 - Abstract Algebra	4	80		1/5/2026, 4:39:00 PM	
Imran Malik — BSM-724 - Calculus II	3	40		1/5/2026, 4:38:56 PM	
Sana Butt — BSE-746 - Requirements Engineering	5	37		1/5/2026, 4:38:51 PM	
Hassan Sheikh — BSE-724 - DevOps Practices	5	90		1/5/2026, 4:38:27 PM	
Ayesha Javed — BMD-746 - Linear Algebra	3	49		1/5/2026, 4:38:17 PM	
Sara Butt — BMD-724 - Probability and Statistics	5	50		1/5/2026, 4:38:11 PM	
Sara Tariq — BES-746 - Introduction to Environmental Science	5	80		1/5/2026, 4:38:05 PM	
Usman Saleem — BES-724 - Environmental Geology	5	59		1/5/2026, 4:37:59 PM	
Amna Yousaf — BEN-746 - Microprocessors and Interfacing	5	78		1/5/2026, 4:37:51 PM	
Imran Akhtar — BEN-724 - Data Communication	5	16		1/5/2026, 4:37:37 PM	
Sara Raza — BED-746 - Assessment and Evaluation	5	80		1/5/2026, 4:37:14 PM	
Zain Sheikh — BED-724 - Educational Technology	3	90		1/5/2026, 4:37:08 PM	

Type here to search


1:38 AM  
1/6/2026

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localhost:5173/dashboard/ratings

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 **Give Reviews**

Term: sp27 (active)

Auditing by Amna (Section B)

Give Review

Financial Reporting by Noor (Section B)

Give Review

Remote Sensing and GIS by Imran (Section B)

Give Review

Environmental Microbiology by Noor (Section B)

Give Review

Business Research Methods by Usman (Section B)

Give Review

Business Communication by Omar (Section B)

Give Review

Introduction to Computer Science by Maryam (Section B)

Give Review

Software Construction by Hiba (Section B)

Give Review

Mathematics for Economists by Sana (Section B)

Give Review

Statistics for Economists by Maryam (Section B)

Give Review

Educational Technology by Zain (Section B)

Give Review

Assessment and Evaluation by Sara (Section B)

Give Review


Data Communication by Imran (Section B)

Give Review

Type here to search

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1/6/2026

3


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[View Ratings](#)
[My Reviews](#)
[Logout](#)

### ★ Give Review

Auditing — Amina Anwar (Section B)

Overall Rating (1-5)

★★★★★

Obtained Marks

98

Comment (optional)

great

[Submit Review](#)

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### 3. Resource model & URIs

Primary resources with example URIs (derived from project):

Resource	URI	Purpose
User	/api/auth/login, /api/auth/me	Login, profile, complete profile
Rating	/ratings (POST), /ratings/:id (PUT/GET)	Create, update, view ratings
Offering	/admin/offerings (GET), /admin/offerings/:id (DELETE/PUT)	Admin manage offerings
Term	/admin/terms, /admin/terms/:id/promote	Manage academic terms and promotion

Public ratings API	/api/ratings, /api/ratings/summary	Public summary data and mobile API
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#### **4. HTTP Methods & Status Codes**

#### **5. JSON Structure & Schema**

### **B. Implementation (14 marks)**

#### **1. Project structure & code quality**

#### **2. Endpoints (CRUD)**

#### **3. Validation & Error Handling**

#### **4. Authentication / Security**

#### **5. Database Integration**

#### **6. Documentation & Testing**

#### **Requests through Postman**

#### **Observed Postman tests (actual requests & responses ran)**