Athena Edu. - Digital Education Platform

Objective: To design and implement a comprehensive digital learning platform, that decentralizes the educational model by empowering professors globally, enhances student engagement through a feature-rich environment, and bridges the gap between academia and industry by integrating employer feedback and opportunities, all while ensuring easy accessibility for all students.

1. Introduction

In recent times, the educational landscape has been undergoing a significant transformation. Moving away from the traditional institution-centric approach, there's a discernible shift towards a more decentralized, professor-led model. This evolution is further catalyzed by the proliferation of digital platforms, presenting a unique opportunity to leverage technology in making education both more accessible and affordable.

This report introduces "Athena Edu.", a state-of-the-art digital learning platform. Drawing inspiration from Athena, the Greek goddess renowned for her wisdom, the platform embodies the principles of knowledge and enlightenment. Developed using Apache NetBeans and meticulously coded in the Java programming language, Athena Edu. has been designed with the end-user in mind. It boasts a feature-rich environment complemented by a vibrant and intuitive user interface, ensuring a seamless and engaging learning experience for its users.

2. Proposed Idea

Athena Edu. is meticulously designed to cater to four distinct user roles: Students, Professors, Admins, and Employers, each with unique functionalities and interactions within the platform.
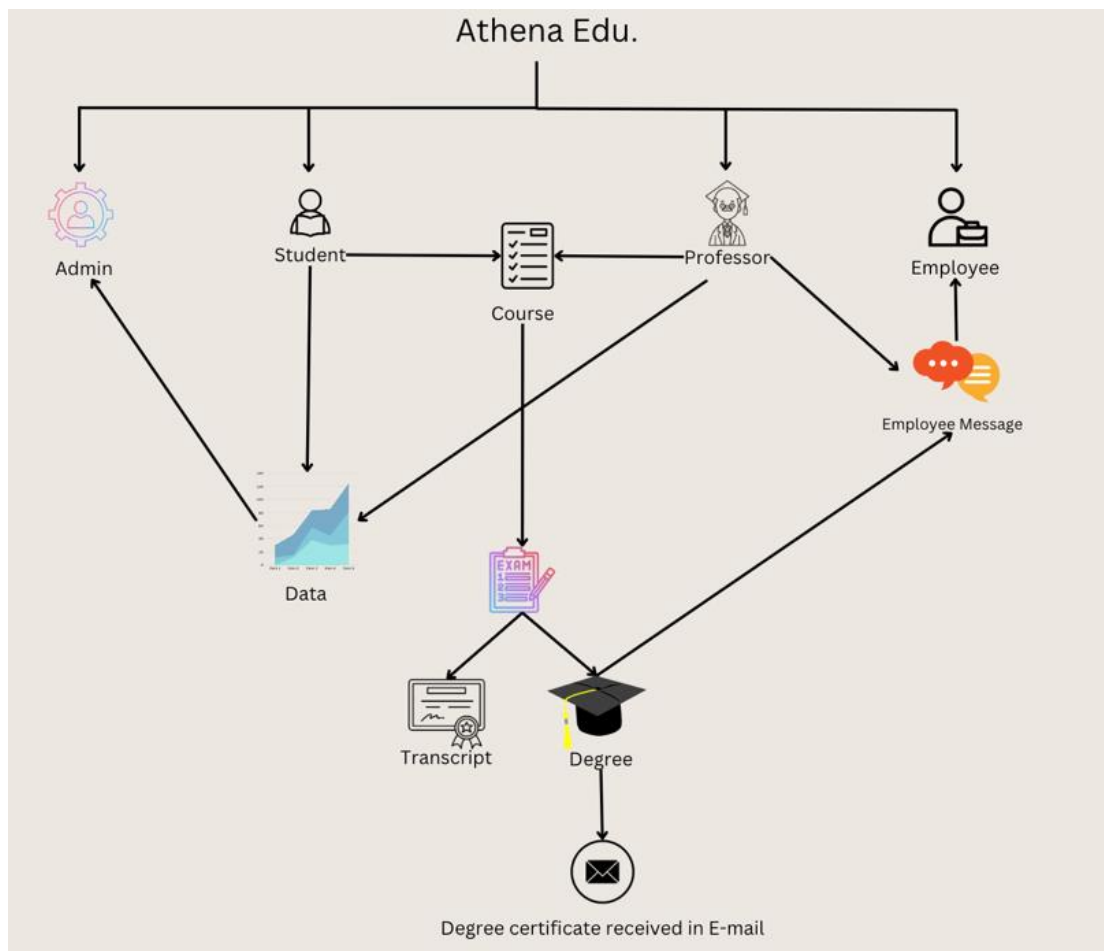
Professors: Central to the platform's educational model, professors from around the globe can register on Athena Edu., offering a diverse range of courses. Their autonomy in course management allows for a dynamic and responsive curriculum, tailored to meet the evolving needs of students.

Students: Students are provided with a rich array of courses from various professors, enabling a flexible and comprehensive learning journey. The platform facilitates their academic progression towards graduation, requiring the successful completion of eight courses as a prerequisite for earning their degree.

Admins (Platform Owners): Admins have access to a robust analytics dashboard, providing insights into various performance metrics such as student achievements and professor ratings. This data-driven approach empowers stakeholders to make informed decisions to enhance the educational quality and overall user experience on the platform.

Employers: A novel feature of Athena Edu. is the inclusion of an employer section, fostering a direct connection between the academic and professional realms. Employers can access profiles of graduated students, facilitating recruitment processes by identifying potential candidates for job openings. Furthermore, employers can engage in meaningful dialogues with professors, fostering a synergy that allows course structures to be refined in alignment with industry demands and expectations.

Workflow of Athena Edu.

Athena Edu.

Admin Student Course Professor Employee

Employee Message

Data

Transcript Degree

Degree certificate received in E-mail

Overview of Athena Edu. Features:

General Features:
- **New User Creation**: Athena Edu. welcomes students and professors globally to register by providing basic details, user ID, and password.
- **Credential Verification**: Users undergo a credential check, post which they're directed to a personalized homepage with tailored features.
- **Employer Messaging**: Employers can view profiles of graduates, communicate job opportunities, and liaise with professors for course improvements.
- **Admin Statistics**: This section displays a comprehensive overview of student GPAs, graduation statuses, and professor ratings.

Features for Professors:
- **Course Offering**: Professors can introduce new courses each term, complete with schedules and a "Useful for" section to guide student choices.
- **Syllabus**: Course creation includes detailing the syllabus, offering students a glimpse into the curriculum.
- **Announcement**: A dedicated space for professors to relay crucial course-related information to enrolled students.
- **Exam**: Professors can set up exams, allowing enrolled students to participate and receive grades.
- **Enrolled Students Overview**: Professors can view a list of students, their exam grades.
- **Feedback**: Anonymized feedback from students assists professors in refining their courses.
- **Validation**: Measures are in place along with prevention of course duplication and ensure exams are accessible only when intended.

Features for Students:
- **Course Registration**: Students can search and register for courses using various filters, including professor name, topic, region, language, etc.

- **Course Module Access**: Enrolled students gain access to all course modules, from announcements to exams.
- **Progress Tracking**: Students can monitor their degree progression and current GPA at any time.
- **Peer Chat**: An interactive feature allowing students of the same course to collaborate and learn together.
- **Professor Rating**: Students can rate their professors, contributing to an average rating displayed on Athena Edu.
- **Feedback**: A platform for students to provide anonymous feedback, fostering open communication.
- **Scholarship**: High-performing students are recognized and rewarded with scholarships based on their grades.
- **Transcript & Degree**: Students can download transcripts whenever required and, upon completing eight courses, they receive degree certificate with unique ID via email.
- **Validation**: Safeguards are in place along with prevention to double enrolment and limit course registration to eight.

3. **Design Methodology**

There were separate java classes created namely – Students_details, Students_details_list, Professor_details, Professor_details_list, Course_details and the Course_details_list.
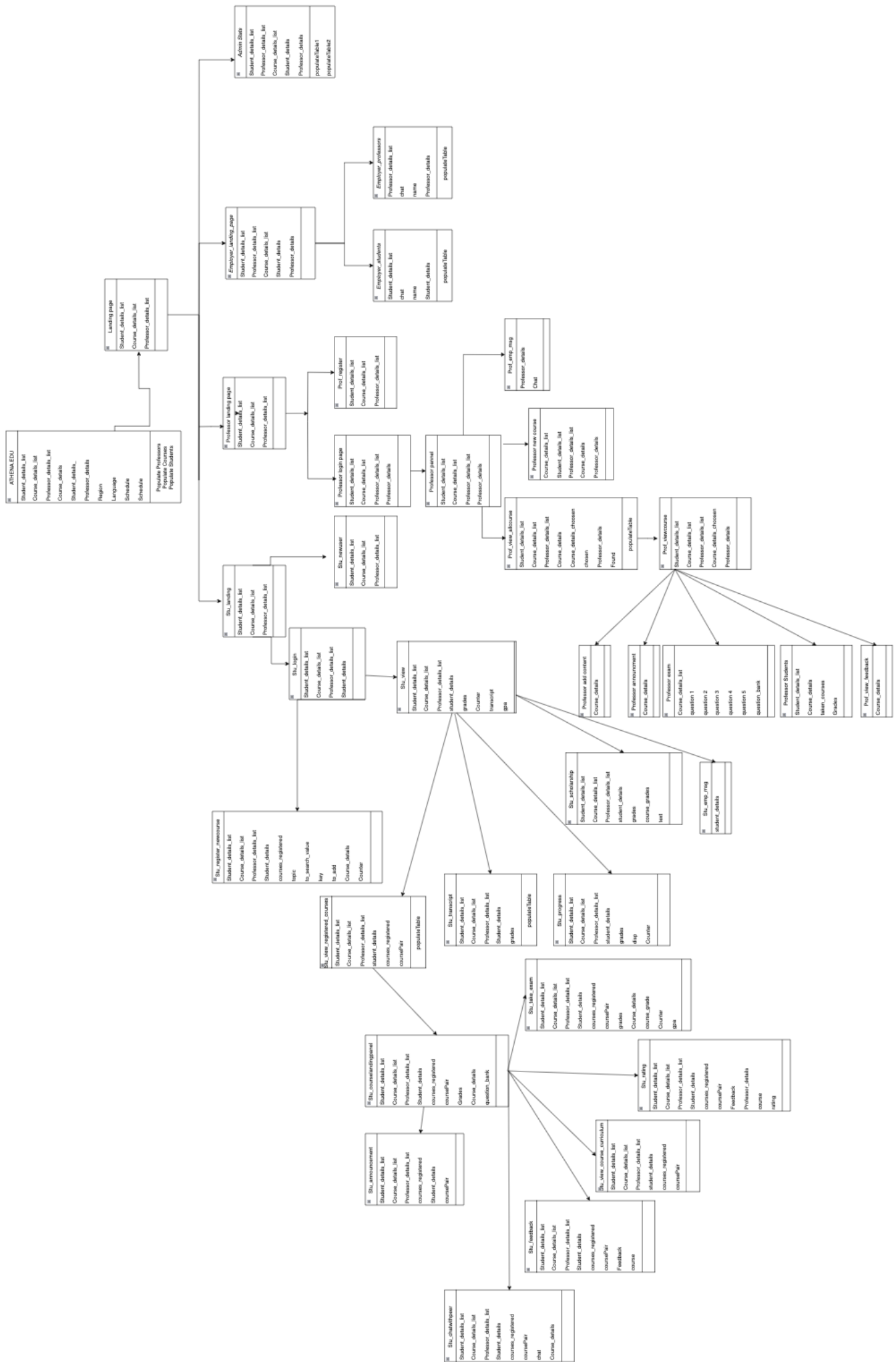
How Athena Edu. is different from traditional university setup:

Athena Edu. stands at the forefront of education, not only offering a professor-led, decentralized model but also introducing features that redefine the learning experience. Professors from around the world engage students through direct messaging, providing support and addressing their concerns, a unique approach when compared to traditional universities. Furthermore, students have the flexibility to engage in chats with their peers at any time, promoting collaborative learning. They can track their progress exponentially, ensuring that their educational journey remains on course.

In a departure from the norm, students have the opportunity to rate their professors, providing valuable feedback on teaching skills and overall course experiences. To motivate and recognize excellence, Athena Edu. also provides scholarships for students who meet predefined criteria, rewarding high performers and encouraging academic achievement.

Moreover, Athena Edu. takes it a step further by offering the opportunity for students to gain prestigious third-party certifications directly from their dashboards, making the pursuit of knowledge more accessible and productive. This innovative approach ensures that Athena Edu. not only erases geographical boundaries, making education globally accessible but also fosters a dynamic, interactive, and rewarding educational environment for all. However, it's essential to address universal internet access and device availability challenges to fully unlock the potential of these features.

The java classes containing the required attributes and methods that were necessary for Athena Edu. to function are mentioned in the below diagram.

ATHENA.EDU
- Student_details_list
- Course_details_list
- Professor_details_list
- Course_details
- Student_details
- Region
- Language
- Schedule
- Schedule
- Populate Professors / Populate Courses / Populate Students

Landing page
- Student_details_list
- Course_details_list
- Professor_details_list

Admin State
- Student_details_list
- Professor_details_list
- Course_details_list
- Student_details
- Professor_details
- populateTable1
- populateTable2

Employer_landing_page
- Student_details_list
- Professor_details_list
- Course_details_list
- Student_details
- Professor_details

Employer_professors
- Professor_details_list
- chat
- name
- Professor_details
- populateTable

Employer_students
- Student_details_list
- chat
- name
- Student_details
- populateTable

Professor landing page
- Student_details_list
- Course_details_list
- Professor_details_list

Prof_register
- Student_details_list
- Course_details_list
- Professor_details_list

Professor login page
- Student_details_list
- Course_details_list
- Professor_details

Professor pannel
- Student_details_list
- Course_details_list
- Professor_details
- Professor_details

Prof_emp_msg
- Professor_details
- Chat

Professor new course
- Course_details_list
- Student_details_list
- Professor_details_list
- Course_details
- Professor_details

Prof_view_allcourse
- Student_details_list
- Course_details_list
- Professor_details_list
- Course_details
- Course_details_chosen
- chosen
- Professor_details
- Found

populateTable

Prof_newcourse
- Student_details_list
- Course_details_list
- Professor_details_list
- Course_details_chosen
- Professor_details

Professor add content
- Course_details

Professor announcement
- Course_details

Professor exam
- Course_details_list
- question 1
- question 2
- question 3
- question 4
- question 5
- question_bank

Professor Students
- Student_details_list
- Course_details
- taken_courses
- Grades

Prof_view_feedback
- Course_details

Stu_landing
- Student_details_list
- Course_details_list

Stu_newuser
- Student_details_list
- Course_details_list
- Professor_details_list

Stu_login
- Student_details_list
- Course_details_list
- Professor_details_list
- Student_details

Stu_view
- Student_details_list
- Course_details_list
- Professor_details_list
- student_details
- grades
- Courier
- transcript
- gpa

Stu_register_newcourse
- Student_details_list
- Course_details_list
- Professor_details_list
- Student_details
- courses_registered
- topic
- to_search_value
- key
- to_add
- Course_details
- Courier

Stu_scholarship
- Student_details_list
- Course_details_list
- Professor_details_list
- student_details
- grades
- course_grades
- list

Stu_emp_msg
- student_details

Stu_view_registered_courses
- Student_details_list
- Course_details_list
- Professor_details_list
- student_details
- courses_registered
- coursePair
- populateTable

Stu_transcript
- Student_details_list
- Course_details_list
- Professor_details_list
- Student_details
- grades
- populateTable

Stu_progress
- Student_details_list
- Course_details_list
- Professor_details_list
- student_details
- grades
- disp
- Courier

Stu_counselingpanel
- Student_details_list
- Course_details_list
- Professor_details_list
- Student_details
- courses_registered
- coursePair
- Grades
- Course_details
- question_bank

Stu_take_exam
- Student_details_list
- Course_details_list
- Professor_details
- Student_details
- courses_registered
- coursePair
- Course_details
- course_grade
- Courier
- gpa

Stu_rating
- Student_details_list
- Course_details_list
- Professor_details
- Student_details
- courses_registered
- coursePair
- Feedback
- Professor_details
- course
- rating

Stu_view_course_curriculum
- Student_details_list
- Course_details_list
- Professor_details_list
- student_details
- courses_registered
- coursePair

Stu_announcement
- Student_details_list
- Course_details_list
- Professor_details_list
- courses_registered
- Student_details
- coursePair

Stu_feedback
- Student_details_list
- Course_details_list
- Professor_details_list
- Student_details
- courses_registered
- coursePair
- Feedback
- course

Stu_chatwithpeer
- Student_details_list
- Course_details_list
- Professor_details_list
- Student_details
- courses_registered
- coursePair
- chat
- Course_details

Demonstration of Use cases:

- System startup with all the initial configurations all worked out. These include universal student directory, a universal certification authority to say if a student is ready to graduate. A student is ready to graduate with an MS degree if they take 8 courses max. A directory of available courses and associated search capabilities will be in place to serve students.

Courses directory with search capabilities:

Admin panel showcasing the list of professors and students available at the start of application:

Additionally, the degree provider third party code was set to be in place by including necessary libraries and code.

- A professor can sign up to the service and then able to manage their course catalog (1 or 2 courses) and semester-based course schedule.

Athena Edu.

View Offered Courses

Topic	Term	Schedule
Topic1	Spring 2024	Monday 9am to 10am

View

<Back
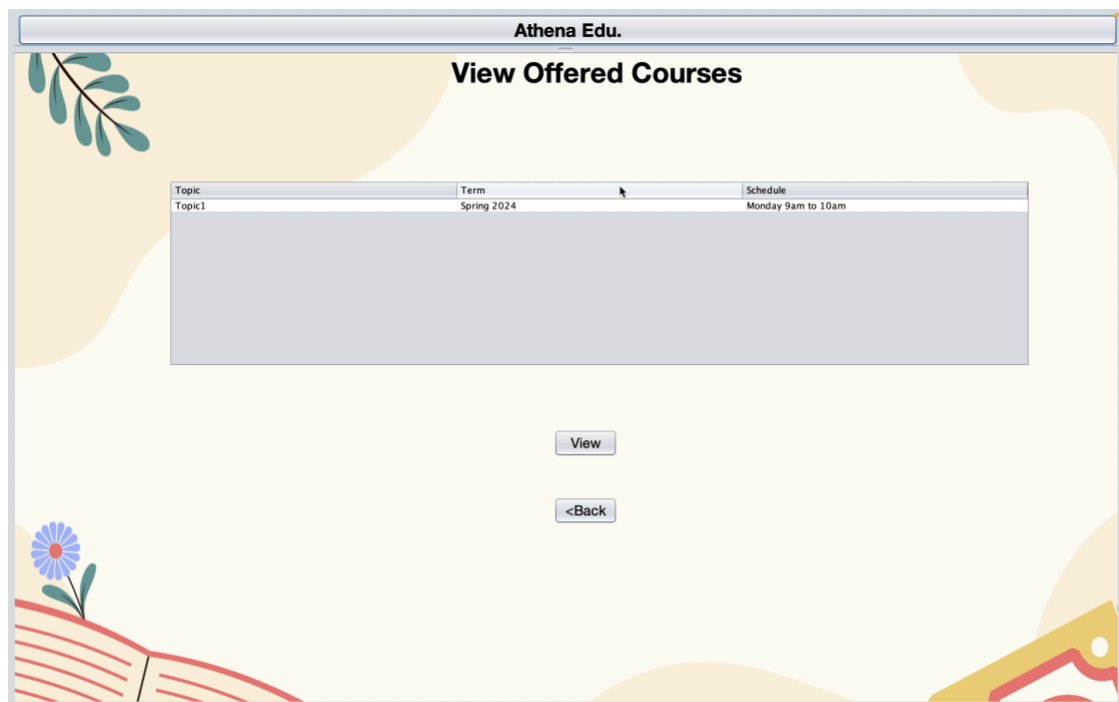
- Students would signup to use the system. A transcript is creating accordingly

Athena Edu.
Name: Student1

Subject	Term	Grade
Topic1	Spring 2024	A+
Topic2	Spring 2024	A+
Topic3	Spring 2024	B+
Topic4	Spring 2024	A
Topic5	Spring 2024	A+
Topic6	Spring 2024	B+
Topic7	Spring 2024	A+
Topic8	Spring 2024	A+

- Professors create course schedule every term with the courses they plan to offer for that term

- Students browse the courses that are available from any professor anywhere in the world. They can search by professor name, topic, region, language, etc.

- Students decide to register for classes. They will search for topics and register the courses they want to take. They should be able to see the professor rating before they register.

- Students declare they want to graduate. The platform would review their transcript and indicate if the student satisfy graduation requirements.

- A dashboard that enables platform owners to collect performance data of different varieties.

- Any additional innovative ideas used:
  - Employer Messaging to Student

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  Students

Name	GPA	Aspiring to be

  Select

  Send Message

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  - Employer Messaging to Professor

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  Professors

Name	Rating	Speciality
Professor1	0.0	Data Science
Professor2	0.0	Data Science
Professor3	0.0	Data Science
Professor4	0.0	Data Science
Professor5	0.0	Data Science
Professor6	0.0	Data Science
Professor7	0.0	Data Science
Professor8	0.0	Data Science
Professor9	0.0	Data Science

  Select

  Send Message

  <Back

o Admin Statistics

Athena Edu.

Statistics

Student Name	Graduated	GPA
Student1	No	0.0
Student2	No	0.0
Student3	No	0.0
Student4	No	0.0
Student5	No	0.0
Student6	No	0.0
Student7	No	0.0
Student8	No	0.0
Student9	No	0.0
Student10	No	0.0

Professor Name	Rating
Professor1	0.0
Professor2	0.0
Professor3	0.0
Professor4	0.0
Professor5	0.0
Professor6	0.0
Professor7	0.0
Professor8	0.0
Professor9	0.0
Professor10	0.0

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o Course Announcements

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Announcement

Announcement

Post

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o Course Exams

Exam

1	Question1	True ▾
2	Question2	True ▾
3	Question3	True ▾
4	Question4	True ▾
5	Question	True ▾

Post

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o Enrolled Students Overview

Students

Name	Score
Student1	A+

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○ Feedback to Professor by student

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Student Portal

Feedback

Good course Prof!

Save

<Back

○ Student Progress

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Student Portal

Progress

Congrats on your progress!. You have completed 1 course(s) and your GPA is 4.0

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o Peer Chat

Student Portal

2023-10-31 – Student1: Hello
2023-10-31 – Student2: Hey

Enter your message   Hey   Send

<Back

o Professor Rating

Student Portal

Rate your professor out of 5   1 ▾
                                    1
                                    2
                                    3
                          Save   4
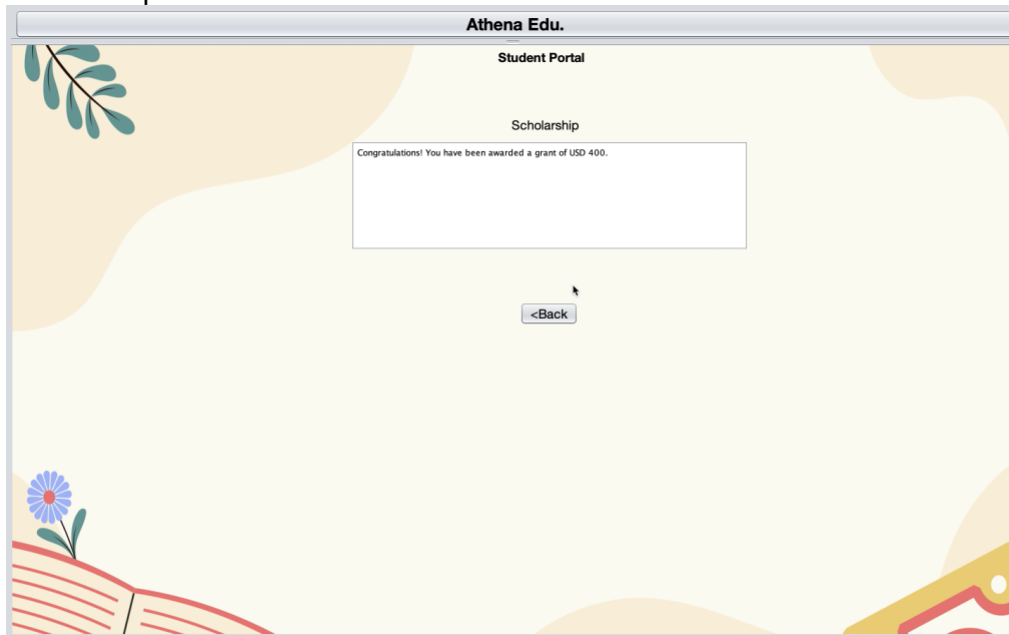   5

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o Scholarship

o Degree Certificate

Degree Certificate [Inbox x]

A **Athena Edu.**
to me ▾

Greetings of the day from Athena Edu.,

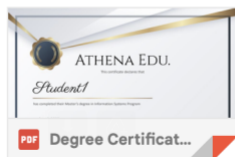Congratulations on earning your Master's degree at Athena Edu. Platform!

Find your degree certificate in the attached pdf!

Keep learning!

Regards,
Athena Edu.

This email sent automatically using Certify'em for Google Forms

One attachment • Scanned by Gmail ⓘ

PDF Degree Certificat...

ATHENA EDU.

This certificate declares that

Student1

has completed their Master's degree in Information Systems Program

on 31-10-2023

Certificate ID SYAQXI-CE000010

Made for free with Certify'em

4. Assessment and Opinion

The emergence of digital platforms, exemplified by Athena Edu., marks a transformative phase in the educational landscape. The central question remains: Can such platforms genuinely democratize education for the underprivileged?

In terms of **accessibility**, digital platforms erase geographical limitations. With an internet connection, students from any location can access global knowledge. However, the challenge of the digital divide persists. Ensuring universal access to the internet and the necessary devices becomes paramount.

Considering **affordability**, digital platforms present a distinct advantage. Without the overheads of traditional institutions, these platforms can offer quality education at reduced costs. The direct professor-student engagement model of Athena Edu. might lead to competitive course pricing while maintaining educational quality.

On the front of **empowerment**, many among the less fortunate face a lack of guidance, mentorship, and resources. Digital platforms bridge this gap. Features such as peer interactions, direct feedback from professors, and avenues for employer engagement transform these platforms into more than just educational tools; they become gateways to broader opportunities.

In conclusion, while the promise of digital educational platforms is immense, their success will be determined by how effectively they address these multifaceted challenges and truly level the educational playing field. Hoping that through educational platforms like Athena Edu., many of the barriers in traditional education system can be surpassed.