



Exam Management System

CSE, SUST



Introduction

EMS is a software that can perform web-based examination system where teacher and student can manage exams online, publish results, test integrity and so on!



Motivation

When we first heard about this project, it was already working great. Our vision was to see SUST, to use this piece of software to assess students even if they are not in campus due to pandemic or whatever the reason is. Also an online exam management system is not only taking the exam, also it automates and reduces a lot of work load for the teacher as well as department, which could enable them to be more productive and help us be better engineers!



Key Features

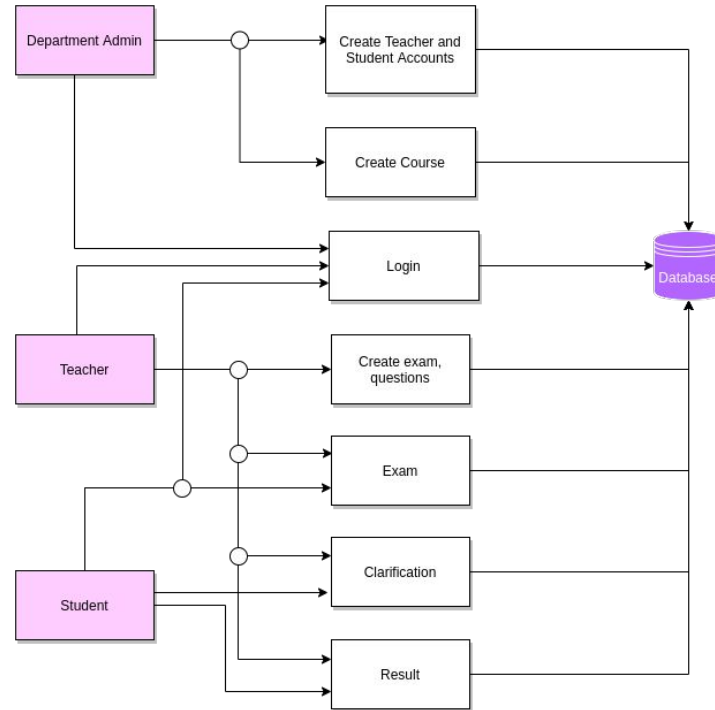
- Creating MCQ/free-text/code based Exam
- Evaluating and grading (auto/manual)
- Plagiarism Detection
- creating dummy accounts for students to attempt an exam
- evaluating dynamic answers by running a code
- Publishing results of a exam/test without any hassle



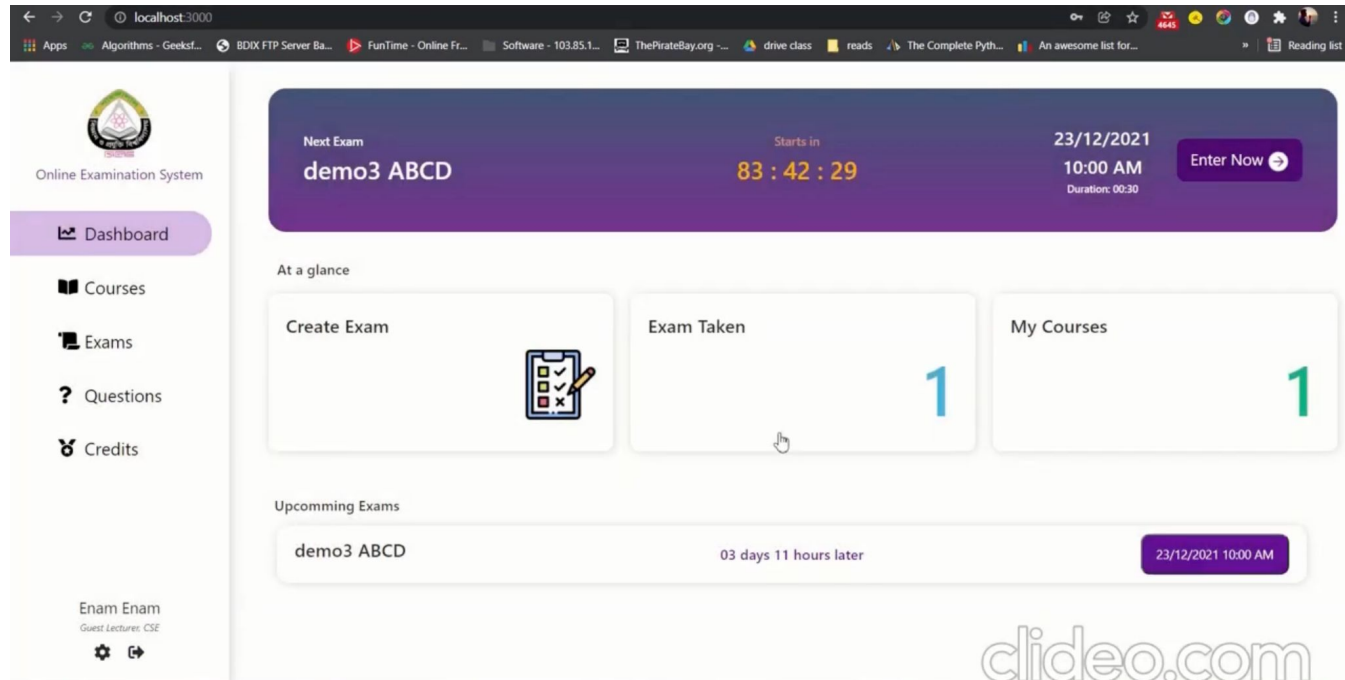
Tools And Technologies

- Frontend
 - React.js as frontend
 - Ant design as Ui Framework
 - Redux as state management tool
- Backend
 - Node.js runtime environment
 - Express.js Routing framework
 - Moment.js to handle exam time management
 - Sendgrid Mailling api
- Devops
 - Pm2 as long running process manager
 - UFW to block all ports
 - Nginx as proxy server

Component Diagram



Dashboard for a Student



The screenshot shows a web browser at localhost:3000 displaying a student dashboard. The browser's address bar and tabs are visible at the top. The dashboard has a sidebar on the left with a logo and navigation links: Dashboard, Courses, Exams, Questions, and Credits. The main content area features a purple header for the next exam, 'demo3 ABCD', with a countdown timer of 83:42:29 and a start time of 23/12/2021 at 10:00 AM. Below this, there are three cards: 'Create Exam' with a clipboard icon, 'Exam Taken' with a large blue '1', and 'My Courses' with a large green '1'. At the bottom, an 'Upcomming Exams' section shows the same exam starting in 03 days 11 hours. The footer includes the text 'Enam Enam Guest Lecturer: CSE' and a watermark 'clideo.com'.

localhost:3000

Apps Algorithms - Geeks... BDIX FTP Server Ba... FunTime - Online Fr... Software - 103.85.1... ThePirateBay.org - ... drive class reads The Complete Pyth... An awesome list for... Reading list

Online Examination System

Dashboard

Courses

Exams

Questions

Credits

Enam Enam
Guest Lecturer: CSE

Next Exam
demo3 ABCD
Starts in
83 : 42 : 29
23/12/2021
10:00 AM
Duration: 00:30
[Enter Now](#)

At a glance

Create Exam

Exam Taken

My Courses

Upcomming Exams


demo3 ABCD

03 days 11 hours later

23/12/2021 10:00 AM

clideo.com


Student Exam Dashboard



Online Examination System

- Dashboard
- Courses
- Exams**
- Results
- Credits

Ovishek Paul



← Exam

Term test 01 (CSE 135)

Running 00 : 53 : 52

Total 6 questions

Answer Questions

Title	Type	Marks	
Favorite Picture	broad	10	
Broad Question	broad	10	
Matching Question	matching	10	✓
Fill blank	fillInTheBlank	10	✓
Supernova	broad	10	✓
Code code code	broad	10	✓

Clarifications

Ask a question

Select Topic

All

Topic: Matching Question **ANSWERED**

How to solve this?

Asked by Ovishek Paul 23d ago

Answer: Just drag the buttons right and match corresponding row!

General **PENDING**

Do you take another exam?

Asked by Ovishek Paul 23d ago

Plagiarism Detection

Looking for student events, if they have changed their tab on an exam.

The screenshot displays the 'Exam Management System' interface. The main window shows an 'Exam' for 'CSE 101 (demo3)' which is 'Running' with a timer at '00:16:32'. A modal window titled 'Log of sas sas (122121)' is open, showing a list of events. The events are filtered by 'Tab change' and show multiple instances of 'hid or changed the tab' at various times. The background interface includes a sidebar with 'Dashboard', 'Courses', 'Exams', 'Questions', and 'Credits', and a bottom section for 'Enam Enam'.

Event	Time
Changed Tab	hid or changed the tab at 09:48:06 PM
CSE 101 exam of demo3: demo3	was running at Wednesday, January 5th 2022, 9:39: pm to 10:09 pm
Changed Tab	hid or changed the tab at 09:49:51 PM
CSE 101 exam of demo3: demo3	was running at Wednesday, January 5th 2022, 9:39: pm to 10:09 pm
Changed Tab	hid or changed the tab at 09:51:23 PM
CSE 101 exam of demo3: demo3	was running at Wednesday, January 5th 2022, 9:39: pm to 10:09 pm
Changed Tab	hid or changed the tab at 09:52:08 PM
CSE 101 exam of demo3: demo3	was running at Wednesday, January 5th 2022, 9:39: pm to 10:09 pm

Plagiarism Detection

An event of student login

The screenshot displays the 'Exam Management System' interface. A modal window titled 'Log of sas (122121)' is open, showing login details for a student. The modal includes a date range filter (2022-01-05 21:39:13 to 2022-01-05 22:09:13) and checkboxes for 'Login' (checked) and 'Tab change'. The log is divided into three sections: 'Logged In', 'Device Info', and 'IP Info'.

Logged In	
Date	Wednesday, January 5th 2022
Time	09:47 PM

Device Info	
browser	Chrome
browserVersion	96.0.4664.110
os	Windows 10.0
platform	Microsoft Windows

IP Info	
ip	116.58.201.27
hostname	banglalinksm.com
city	Dhaka
region	Dhaka
country	BD
loc	23.7104.90.4074
org	AS45245 Banglalink Digital Communications Ltd
postal	1000

The background interface shows the 'Exam' section for 'CSE 101 (demo3)' with a running time of 00:18:24. The left sidebar contains navigation links: Dashboard, Courses, Exams (selected), Questions, and Credits. The bottom status bar shows the system time as 9:50 PM on 1/5/2022.

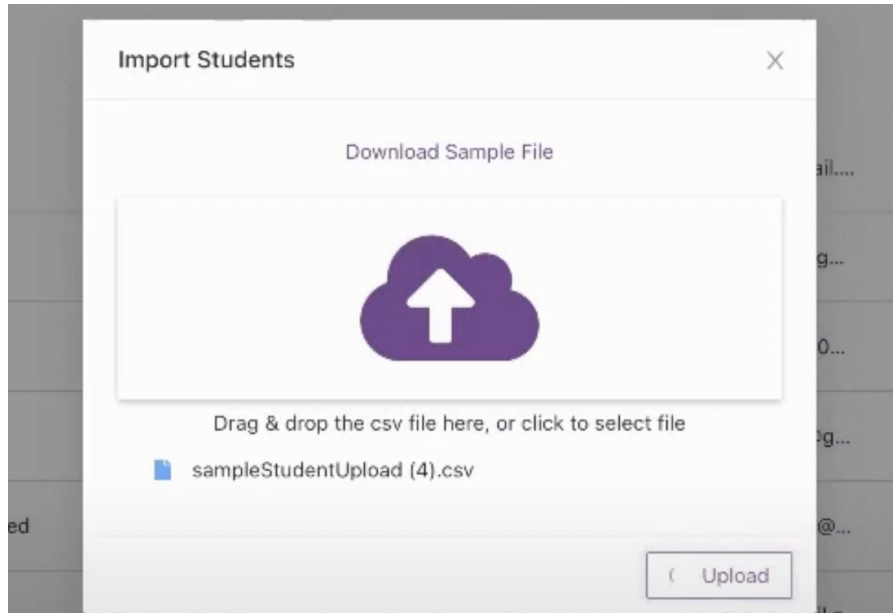
Plagiarism Detection

Multiple login detection

The screenshot displays the 'Exam Management System' interface for a 'CSE 101 (demo3)' exam. The exam is currently 'Running' with a timer at '00:18:55'. The interface includes a sidebar with navigation options: Dashboard, Courses, Exams (selected), Questions, and Credits. The main content area shows the exam details, including a progress bar and a table of participants. The table has columns for 'Regi No.', 'Name', and 'Marks'. One participant, 'sas sas', is highlighted with a red circle and a tooltip indicating 'Made 5 login(s) during the exam time'.

Regi No.	Name	Marks
122121	sas sas	0

Importing Students From a CSV





Download Credentials in a batch

```
Users > royantar > Downloads > student_creds (6).csv
```

```
1  "registrationNo","email","password"
```

```
2  "20181111112","royantar1+2@gmail.com","E95jx38Vfo"
```



Achievements

- A short term test on July of CSE'19
- Two Lab finals of CHE'18 and PAD'18 on December
- Two Lab Finals of CSE' 19 on December



Future Goals

- Introduce serverless architecture to some services
- Optimize Database queries
- Introduce caching
- Use server side rendering for pages that will remain static for at least a few seconds
- Saving exam attempt data periodically in a optimized way (currently over 100 requests per second for one batch)



Team

Supervisor

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Acknowledgement

Thanks to all the Open Source engineers who helps us by making libraries, writing their findings, best practices, solving approaches and error findings and Stackoverflow.com for their wonderful community.



Thank You