CEHD Aggie Educator Portal

Summary

The main objective of the project is to create an application to record, maintain and approve the time logs of the students. This application is being designed to address the requirement of the **College of Education and Human Development (CEHD)** under the supervision of Strader, R Arlen (strader@tamu.edu). The students would be filling the time logs for each working day in the application, which would be notified to the cooperating teacher via email for approval. In a nutshell, our application would help in digitalising the manual timesheet logging and approval process of the students.

The application was developed in the Django framework using so that it can be integrated into the main project of the client without many difficulties. A relational database was used to retain the historical data and for reporting purpose. The features of the application include user interface for students to clock the time logs of the working days, a notification system notifying the cooperating teacher via mail to approve or reject the aggregated weekly timesheet of the students, a cooperating teacher view to track the student's time logs for the semester as well as to approve or reject them, and a supervisor interface to keep track of the cooperating teachers, allowing the users (student, co-op teacher, supervisor) to view the current as well as previously entered or approved time-logs.

User Stories

User Story 1, Points: 5

Feature: User Authentication
As a student or cooperating teacher or supervisor,
So that I can submit or view the timesheets according to my user role,
I want to be able to login to the application

User Story 2, Points: 8

Feature: Submit Timesheets – Student
As a student,
So that a record of my attendance can be maintained,
I want to be able to submit timesheets

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DESCRIPTION

As a student,
so that a record of my attendance can be maintained
I want to be able to submit timesheets,

LABELS

iteration 2 ×   iteration 3 ×

CODE

Paste link to pull request or branch...

TASKS (5/5)

- ☑ Student timesheet web view #181689385 ✓
- ☑ Student timesheet APIs #181563597 ✓
- ☑ TDD & BDD #181563609 ✓
- ☑ Demo to client - 1
- ☑ Demo to client - 2

TEXAS A&M UNIVERSITY
Education & Human Development

Logout

Submit Timesheets

Student Name: John C Doe   **Student UIN:** 123   **Student email:** abc@xyz.com
Semester: SPRING   **Supervisor:** John Paul   **Co-Op Teacher:** Michael Moore
Co-Op Teacher email: moore@xyz.com

View Previous Timesheets

Date	Notes/Comments	Start Time	End Time	Total Hours	Approved
25-04-2022	current week monday	03:51 AM	04:51 AM	1.0	No
26-04-2022	current week tuesday	07:42 PM	09:42 PM	2.0	No
27-04-2022	current week wednesday	12:50 AM	02:50 AM	1.0	No
28-04-2022	current week thursday	04:02 PM	08:02 PM	3.0	No
29-04-2022	current week friday	03:03 PM	10:03 PM	4.0	No
30-04-2022		--:-- --	--:-- --		N/A
01-05-2022		--:-- --	--:-- --		N/A

Save Timesheet   Submit Timesheet

User Story 3, Points: 8

Feature: View Submitted Timesheets - Students
As a student,
So that I can check the approval status of submitted timesheet,
I want to be able to view timesheets

DESCRIPTION

As a student,
so that I can check the approval status of the submitted timesheet
I want to be able to view timesheets

LABELS

iteration 4 ×

CODE

Paste link to pull request or branch...

TASKS (4/4)

- ☑ Web view #181916058 ✓
- ☑ API creation #181976736 ✓
- ☑ BDD #181916054 ✓
- ☑ demo to the client

TEXAS A&M UNIVERSITY
Education & Human Development

Logout

View Submitted Timesheets

Student Name: John C Doe   **Student UIN:** 123   **Student email:** abc@xyz.com
Semester: SPRING   **Supervisor:** John Paul   **Co-Op Teacher:** Michael Moore
Co-Op Teacher email: moore@xyz.com   **Start Date:** 25-04-2022   **End Date:** 01-05-2022

View Selected Timesheets   Submit Timesheets

Date	Notes/Comments	Start Time	End Time	Total Hours	Hours Approved
25-04-2022	current week monday	03:51 AM	04:51 AM	1.0	No
26-04-2022	current week tuesday	07:42 PM	09:42 PM	2.0	No
27-04-2022	current week wednesday	12:50 AM	02:50 AM	1.0	No
28-04-2022	current week thursday	04:02 PM	08:02 PM	3.0	No
29-04-2022	current week friday	03:03 PM	10:03 PM	4.0	No

User Story 4, Points: 8

Feature: View Timesheet Co-op Teacher User Story
As a co-op teacher
So that I can keep track of the attendance of the students,
I want to be able to view timesheets submitted by my students

DESCRIPTION

As a co-op teacher
so that I can keep track of the attendance of the students
I want to be able to view timesheets submitted by my students

LABELS

iteration 4 ×

CODE

Paste link to pull request or branch...

TASKS (4/4)

- ☑ Web view #181916050 ✓
- ☑ API creation #181976730 ✓
- ☑ BDD #181563613 ✓
- ☑ Demo to the client

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Education & Human Development

Logout

View Timesheets

Cooperating Teacher Name: Michael Moore   **Cooperating Teacher Email:** moore@xyz.com

Semester: Select Semester   **Year:** Select Year   **Students:** John C Doe (abc@xyz.com)
Status: ○ Approved ○ Submitted ⦿ Both   **Start Date:** 18-04-2022   **End Date:** 20-04-2022

View Selected Timesheets   Home

All * fields are required

Date	Notes/Comments	Start Time	End Time	Total Hours	Approved
18-04-2022	previous week monday	08:54 PM	11:54 AM	0.0	Yes
19-04-2022	previous week tuesday	11:59 AM	02:59 PM	4.0	Yes
20-04-2022	previous week wednesday	04:32 AM	06:32 AM	2.0	Yes

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User Story 5, Points: 8

Feature: Approve Timesheet Co-op Teacher User Story
As a co-op teacher
so that I can record the attendance of the students
I want to be able to view and approve timesheets submitted by my students

User Story 6, Points: 8

Feature: View Timesheets – Supervisor
As a supervisor,
So that I can monitor the progress of students under co-op teachers throughout the semester,
I want to be able to view time logs of all the timesheets submitted by students under all co-op teachers

All user stories created for the application were implemented successfully. User Story 5 was added during Iteration 4 to add more granularity to the features being developed for the application. All user stories were sub-divided into 3 major parts: *creation of web view (3 points), development of API (3 points), and development of BDD and TDD for each user story (2 points).*

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Email functionality snapshot

Timesheet Submitted | Waiting for approval ⟳ Inbox ×

seprojtestemail@gmail.com
to me ▾

Hi,
The student **John C Doe** ,**abc@xyz.com** has submitted the timesheet on **2022-04-29** for approval. Please login to your account to approve the time sheets.

Best regards

↩ Reply   ➡ Forward

Timesheet Approved ⟳ Inbox ×

seprojtestemail@gmail.com
to me ▾

Hi,
The timesheets submitted for the dates between 2022-04-18 and 2022-04-24 have been approved on 2022-04-27 by Michael Moore.
You can login to your account to verify the status of your submitted time sheets.

Best regards

↩ Reply   ➡ Forward

Timesheet Rejected | Contact your assigned cooperating teacher ⟳ Inbox ×

seprojtestemail@gmail.com
to me ▾

Hi,
The timesheets submitted for the dates between 2022-04-18 and 2022-04-24 have been rejected on 2022-04-27 by Michael Moore.
Please contact your assigned cooperating teacher, Michael Moore (moore@xyz.com) for more information.

Best regards

↩ Reply   ➡ Forward

Lo-fi UI mock-ups

Students Submitted Timesheet View   **Co-operating Teacher View**

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Supervisors View:

SUPERVISOR VIEW

STUDENT NAME: [ ]				FROM : [ ]			

VIN : [ ]
SEMESTER : [ ]   To : [ ]
Co-op Teacher Name : [ ]   STATUS : [ ]

Date	Stud. Name	Co-op Teacher Name	Supervisor Name	Task Desc	Start Time	End Time	Total Hours	Semester	Status
10/17/22	P. Nayak	N. XYZ	P. MNL	Monday	10:20AM	12:20PM	2 HOURS	Fall	✓

Roles

- Manisha Dixit - Developer
- Piyush Nayak - Developer
- Rajesh Satpathy - Developer
- Sanjay Nayak - Developer
- Sruti Patnaik – Developer

The role of Scrum Master and Product Owner was changed in each iteration to provide experience to all team members and head the development. Development activities were assigned uniformly to each of the team members.

Scrum Iteration Details

- **Iteration 0** and **Iteration 1**: The first two iterations focused completely on the requirements gathering, creation of lo-fi UI mockups, creation of ER-diagram for database setup, database modelling, creation of design flow, setup of environments for development and production. All design documents were verified with the client and after approval from the client, the development was started from Iteration 2. Iteration 1 had some development started for initial user authentication page (5 story points).

- **Iteration 2**: The user authentication page (5 story points) and the initial Heroku deployment was completed in Iteration 2. The student submit timesheet user story was started at the end of Iteration 2.

- **Iteration 3**: The students submit timesheet web view, corresponding APIs, and BDD & TDD test cases comprising of 8 story points were completed in Iteration 3. The student view timesheet user story was started at the end of Iteration 3.

- **Iteration 4**: The student view timesheet user story, cooperating teacher view submitted timesheet user story, cooperating teacher approve timesheet user story, and the supervisor view timesheets user story were completed in this iteration, which had a total of 32 story points. The email functionality, which was started in Iteration 3, was completed in Iteration 4, which had 3 story points.

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The accomplishment in each iteration includes the BDD & TDD test cases, coverage reports of the whole application, development of APIs, development of web views, documentation of meeting notes with the client, and any work on the feedback from the demo presented to the client.

Customer Meeting details

- **Meeting Dates**: Every Wednesday from 02/23/2022 till 04/27/2022
- **Time**: 4:00 - 4:30 PM CST
- **Place**: Zoom

1. **Iteration 0:**

   Meeting Date: Feb 23, 2022

   We had a detailed discussion with the client in understanding the requirements of the project- "CEHD Teacher Certification Manager". This is a new application, and we were supposed to present the design documents for his approval before starting development of the application.

2. **Iteration 1:**

   Meeting Date: Mar 02, 2022, and Mar 09, 2022

   We presented all the design documents, lo-fi mock-ups, ER-diagrams to the client. The feedbacks and changes were handled and presented to him for sign off.

   Requirement Gathering / Feedback from client:

   - Add semester field in the time logs table of postgres server
   - Add the functionality to view the previous logged hours by student
   - Add a semester filter in the all the views student, co-op teacher and student
   - Current week timesheet to be shown in the views

3. **Iteration 2:**

   Meeting Date: Mar 23, 2022

   In this meeting, the development team clarified certain doubts on the application with the client, conveyed the development progress of the team.

   - Development progress so far: User login page was created, application successfully deployed on Heroku, and student submit timesheet page in progress
   - Tables were created as per the database model and test data was filled
   - Improvements related to change in the database model was discussed with the client

   Demo Date: Mar 25, 2022

   Demo of User Story: Demo of User Authentication and the Student Timesheet View was given to client and the feedback /changes were taken care in next iteration.

4. **Iteration 3:**

   Meeting Date: April 6th, 2022

   In this meeting, we conveyed the task completion status of the user stories planned for upcoming iteration and the next demo was scheduled. Below changes were addressed in the student view user story.

   - 7 days entry auto populated with their corresponding week date (Monday - Sunday)
   - Save button inclusion to save the timesheet without any notification to Co-op teacher

- Submit button inclusion to submit the timesheet and send a notification to co-op teacher
- Student is allowed to update the timesheet feature until approved
- Change the 'task description' to 'Notes/Comments'
- Calculate the hours between end time and start time and add to the hours tab, and make it editable for custom edit by students

Demo Meeting: April 8th, 2022

Demo of the student view with all the functionalities were presented to the client. Demo Notes -

- Student logins to the application
- Updates the timesheet in student view and once the student hits save, the time log is reflected in the backend time log tables
- Student re-logins, the prefilled timesheet of the current week is displayed.
- Overall Feedback from client: All the features work as expected.
- Features to address include previous week timesheets connection and enabling the mail notification once submit button is clicked

5. **Iteration 4:**

Meeting Date: April 20th, 2022

In this meeting, we updated the client with the current progress of the application, conveyed the timelines and scheduled the final Demo meeting. All the user stories were completed and addressed in this iteration.

- Final Demo Meeting: April 27, 2022

Complete Demo of the application was given to the client.

BDD/TDD process details

TDDs were written using the Django test library and the test cases were used to create the coverage report using the `coverage` library of python. The coverage of the developed application is 93%. BDDs for the application were developed using `behave` library, a part of `Cucumber` BDD framework. `selenium` and `factory_boy` libraries were used to automate the user story feature test cases using chrome web driver. All reports, including coverage and BDD test reports, are provided in the project repository in GitHub.

Configuration Management Approach

A total of 5 branches were created in GitHub corresponding to each member of the team. 25 versions of the application were deployed into Heroku for testing in Heroku server. Production deployment in Heroku server has around 6 versions.

Issues

Initial issues were encountered during the Heroku deployment. The Django application deployment to Heroku requires certain packages like `gunicorn`. After initial deployment, the rest deployments to Heroku were smooth without any issues. No issues were encountered during GitHub deployment, and other tools/libraries integration.

Tools used

- GitHub
- Heroku
- AWS RDS

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- Django REST Framework
- SMTP
- CodeClimate
- Behave (Cucumber)

Repository contents and Deployment

The `main` branch of the repository contains the latest code of the developed application. The contents of branch `main` is used to deploy into the production server of Heroku. The codes are present in the folder `/code/cehd` in the main repository. All python libraries required by the application is present in the file `requirements.txt`. The folders present inside the above folder in the main repository - `cooperating`, `core`, `epp_program`, `epp_student`, `login`, `student_placements`, `supervisor`, `time_logs` denotes the apps present in the application.

The `.env` file contains the necessary database information as well as the SMTP related information. The `Procfile` is necessary for the application deployment in Heroku, `config.json` contains information needed to relate the type of semesters with the semester start and end dates, `bdd_report.txt` contains the BDD test cases output. The `utils` folder contains the common utility code required by different apps. The coverage report of the application is provided in `/coverage_html_report/index.html`.

The API documentation is provided in the link below, along with the `Getting Started` document denoting the whole process to use AWS RDS as the database and Heroku as the deployment server.

Links

Links to Pivotal tracker, GitHub repo, Heroku deployment, poster video, video demo, etc.

- Pivotal tracker - https://www.pivotaltracker.com/n/projects/2555005
- GitHub repo - https://github.com/sanjaynayak1628/CEHD_Aggie_Educator_Portal/
- Heroku deployment - http://arcane-temple-55328.herokuapp.com/
- Code Coverage - https://codeclimate.com/github/sanjaynayak1628/CEHD_Aggie_Educator_Portal
- API Documentation – https://github.com/sanjaynayak1628/CEHD_Aggie_Educator_Portal/tree/main/documentation/Spring2022/API%20Documentation
- Poster – https://github.com/sanjaynayak1628/CEHD_Aggie_Educator_Portal/blob/main/documentation/Spring2022/SE%20Poster_Final.pdf
- Getting Started document - https://github.com/sanjaynayak1628/CEHD_Aggie_Educator_Portal/blob/main/documentation/Spring2022/Getting%20Started.pdf
- ER Diagram document - https://github.com/sanjaynayak1628/CEHD_Aggie_Educator_Portal/blob/main/documentation/Spring2022/ER-Diagram.pdf