Project Plan Presentation
Stroodle: Learning Management System

The Capstone Experience
Team Atomic Object
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Stroodle is a Learning Management System (LMS) with the primary objective of improving upon existing LMS such as D2L, Blackboard, and Google Classroom.

Other LMS platforms tend to be overcomplicated:
- Has redundant/rarely used functionalities
- Has complicated dashboards for students
- Makes course configuration for professors difficult and time consuming.

Stroodle will provide students and faculty with an easy-to-use eLearning system with functionalities such as:
- Uploading/downloading course files and assignments
- Calendar reminders
- Quizzes
- Gradebook
Design Specifications

• Stroodle features a clean and straightforward interface for displaying courses, events, announcements, and other course materials.
• Stroodle's interface uses a pastel type color theme for a visually pleasing and inviting experience, with color-coded classes so courses are easy to differentiate.
• The web application has a navigation bar, and another column for relevant information such as notifications, calendar, and upcoming events.
• Simple course configuration for professors to upload materials, create assignments, and grade student submissions.
• The mobile app offers all the functionalities of the web application while maintaining user-friendliness.
Screen Mockup: Home Page

Messages

Dr. Robert Howard  9/20/2021

Hi Jane, this is just a friendly reminder that the quiz is due this Wednesday. The quiz is based on chapter 5 in your textbook. Thanks!

Prof. Henrietta Stevens

Hello, this is a class notification for LIT 331. My records indicate that your current grade in the course is 54%. Please message me if you have any questions.

Notifications

- HIS 232 - Project 1 Grade has been released
- PHY 101 - Quiz 5 is due on Wednesday, September 22nd

End of new notifications

Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thur</th>
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Upcoming Events

- 2:30 PM Midterm 3 Review
- 3:45 PM HW 3 Due

The Capstone Experience
Screen Mockup: Course List
Screen Mockup: Course Page

Introductory Physics
Dr. Robert Howard

Messages From Dr. Robert Howard:

9/20/2021:
Hey all, please remember to finish your quiz by this Wednesday! We will be starting a new unit next week.

9/13/2021:
Reminder! HW 5 will be due on Monday the 20th! This is a very involved assignment so PLEASE DO NOT WAIT until the last minute to start it! If you run into any issues let me know BEFORE THE DEADLINE so you can get the help you need. I will not accept
## Screen Mockup: Calendar View

**Calendar**

**Introductory Physics**

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- **Homework #1**
- **Welcome Activity**
- **Quiz #1**
- **Lesson: Force, Motion,**...
- **Reading: Chapter 1**
- **Quiz #2**
- **Homework #2**
- **Lesson: Energy**
- **Reading: Chapter 2**
- **Quiz #3**
- **Homework #3**
- **Guest Lecture: Dr. Finch**
- **Homework #4**
- **Project 1: News Laws in**
- **Quiz #4**
- **Homework #5**
- **Extra Credit: Video Demo**
- **Lesson: Friction**

- **Homework #2**

  This homework deals with Newton’s Law...

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The Capstone Experience  
Team Atomic Object Project Plan Presentation  
7
Screen Mockup: Course Content

Course Files
Introductory Physics

Week 1
Week 2
Week 3
Week 4
Week 5

Notifications
No notifications at this time

September 2021

To Do
HW 5 Due
Intro to Momentum Lecture Slides
Homework 5 Problems
Screen Mockup: Professor File Upload

Course Files
Introductory Physics

Upload Resource

Title: Chapter 1: Force, Motion, and Energy

Description: This chapter introduces a few basic concepts in physics. Force, motion, and energy are critical to understanding more complex applications of physics and help explain the world around us.

Upload File: Select File

*Valid file types include: .docx, .pptx, .pdf, .xlsx, .jpeg, .png.

Location:
- Week 1
- Week 2
- Week 3
- Week 4
- Week 5
Screen Mockup: Quiz Creation

Quiz Creation
Introductory Physics

Name: Quiz 6: Momentum and Inertia

Duration: from: 3:45pm 10/02/2021 to: 5:00pm 10/02/2021

1. Inertia is......
   - An object’s tendency to lose momentum over time
   - An object’s tendency to resist changes in velocity
   - A force that draws matter together
   - Resistance that one object gets when moving over another
   Points: 5

2. (Free Response) What is the difference between momentum and velocity?

12 Points Total

New Question  Save All  Copy
Screen Mockup: Professor Gradebook

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<th>Student</th>
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<th>Homework #2</th>
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Screen Mockup: Mobile App View
Technical Specifications

• Both web and mobile app
  ▪ React and React Native
• Web and mobile apps share back end
  ▪ Node.js and Express.js
• Standard, relational database storage as well as object storage
  ▪ PostgreSQL and Google Cloud Storage
• Cloud hosting
  ▪ Heroku
System Architecture

- Web Front End: React, NEXT.js
- Back End: node.js, Express.js, Auth0
- Mobile Front End: React Native, Expo
- User
- PostgreSQL
- Google Cloud Storage
System Components

- **Hardware Platforms**
  - Desktop computer
  - IOS device
  - Android device

- **Software Platforms / Technologies**
  - React
  - React Native
  - Next.js
  - Expo
  - Node.js
  - Express.js
  - Auth0
  - PostgreSQL
  - Google Cloud Storage
  - Google Calendar API
  - Heroku
Risks

• Course document storage
  ▪ Course instructors can upload files such as PDF’s, Word documents, and images. These need to be stored separately from the main database and be available for download by students.
  ▪ Object storage will be a high priority task, leaving time to resolve potential roadblocks during implementation. Resources like official documentation, third-party tutorials, and our project contacts will be utilized.

• Application permissions
  ▪ There will be different permission types for each user, such as course instructors and students. Depending on a user’s permissions, they will be able to access different types of data, perform certain actions, and go to specific views. Permissions will need to be tracked and checked carefully as to not accidentally allow users of limited permission types to perform administrative level actions.
  ▪ A well-defined permission structure will be put in place and dependent features will be implemented around it. This way, the team will not have to go back and modify existing features to account for permissions, which could lead to code depreciation.

• Implementing administration
  ▪ The professor will have the ability to add students to their course and will need to be able to search for the students. On the other hand, there must be a guarantee that the student will see they are enrolled in the course.
  ▪ Ensure that the professor has the correct permission and can add students to their course by being able to search for them. It is also important that this functionality is worked on early in development to reduce issues when implementing administration.
Questions?