

SPRINT 2 PLAN

PROJECT: TEAM FORMATION

PROJECT SUMMARY:

This application facilitates streamlined, automated team formation for student projects, ensuring diversity, inclusion, and proficiency considerations. Professors can design customizable forms to collect student data on attributes such as gender, ethnicity, and programming proficiency. They can assign weightages to guide team formation and set submission deadlines. Professors also have the flexibility to modify the form, weightages, and deadlines before the submission period closes.

Students can securely log in to access the form, submit, and update their responses until the deadline. Once submissions are finalized, the system automatically generates teams of four students, ensuring:

- Gender diversity, with at least two females in teams where females are present.
- Inclusion of students from underrepresented ethnic backgrounds, ensuring they are not isolated in teams.
- A balanced mix of programming proficiency by including both high and low-skill coders.

This application optimizes the team formation process to create fair, inclusive, and well-balanced student groups.

TEAM ROLES:

PRODUCT OWNER: Hitha Magadi Vijayanand (hoshi_1996@tamu.edu)

SCRUM MASTER: Sai Jaideep Reddy Mure(saijaideepreddymure@tamu.edu)

TEAM MEMBERS: Sahithi Duppati , Ramya Reddy Gotika, Raja Karthik Vobugari, Rithika Sapparapu, Uday Kumar Reddy Mettukuru, Phani Jyothi Kurada

CLIENT MEETING DETAILS:

Date: 07 October 2024

Time: 4.30 pm

Place: Online Meeting

In the meeting with the client to discuss the project's first draft and obtain thorough feedback,

the product owner demonstrated the application. Here are some of the results and highlights.

1. The product owner was satisfied with the UI style and approved it; more UI enhancements can be done later if there is enough bandwidth.
2. The Add Students feature was implemented, but the client requested UI visibility for this feature.
3. The client also stated that she wants the team to focus on the student side of the implementation. That is, students should be able to access the form, fill it out, change it before the deadline, and then submit it.
4. Also, the priority item should be the Team Formation logic

Regular Weekly Meeting Schedule:

The product owner has discussed with the client and has scheduled a recurring weekly meeting every Monday at approximately 4:15 PM in room ZACH 424.

Meeting Link : <https://meet.google.com/rue-uyno-swr>

USER STORIES

Feature: Display Teams for Students

As a student

I want to see the team I am assigned to So that I can view my team members **and** team details

Scenario: Student views their assigned team details **Given** I am logged in as a student

And I have been assigned to a team

When I navigate to the "My Team" page

Then I should see the name of my team **And** I should see a list of all team members

Scenario: Student has not been assigned to any team **Given** I am logged in as a student

And I have not been assigned to any team

When I navigate to the "My Team" page

Then I should see a message saying "You have not been assigned to a team yet" **And** I should not see any team details

Feature: Publish form

As a professor,

I want to publish the form to the students,

So that I can collect the data required to form teams.

Scenario: Successfully publishing a form

Given the form is ready with all required fields

When the professor clicks on "Publish Form"

Then the form should be made accessible to students

And students should be able to submit their data.

Feature: Close form

As a professor,

I want to temporarily close access to a published form,

So that I can make edits without students accessing it.

Scenario: Closing a published form

Given the form is currently published

When the professor clicks on "Close Form"

Then the form should be temporarily unavailable to students

And students should not be able to submit data during the closure.

Feature: Number of teams

As a professor,

I want to decide the number of teams required based on the student count,

So that I can efficiently split students into teams.

Scenario: Deciding number of teams based on student count

Given the total number of students is known

When the professor selects the number of teams

Then the students should be divided equally into the specified number of teams.

Feature: Access form

As a student,

I want to access the form,

So that I can provide the information required to generate teams.

Scenario: Student accessing the form

Given the form is published **and** available

When a student clicks on the form link

Then the student should be able to access **and** submit their data for team formation.

Feature: Display Student Details Form
As a student, I want to view the form for entering my details.

Scenario: Student views the details form after logging in
Given I am logged in as a student
When I navigate to the "Student Details" page
Then I should see a form to enter my student details
And I should see fields for my name, email, **and** enrolled courses **and** other preferences
And I should see a submit button to save my details
Feature: Edit Student Details Form
As a student, I want to edit my details in the form.

Scenario: Student edits their details after logging in
Given I am logged in as a student
And I have already filled out my student details
When I navigate to the "Edit Student Details" page
Then I should see a form pre-filled with my current details
And I should see fields for my name, email, enrolled courses, **and** other preferences
And I should see a submit button to save my updated details

Scenario: Student submits updated details
Given I am logged in as a student
And I have already filled out my student details
When I navigate to the "Edit Student Details" page
And I update my name to "New Name"
And I update my email to "newemail@example.com"
And I click the submit button
Then I should see a confirmation message saying "Your details have been updated successfully"
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And my updated details should be displayed on the "Student Details" page

Feature: Team Formation
As a professor,
So that I can ensure gender representation (female **and** other non-male genders) in teams,
I want the system to include at least two individuals from these gender groups

Scenario: System ensures at least two individuals from gender groups (female **and** other non-male genders) in teams
Given the submission period has closed
When the system processes student data for team formation
Then each team should include at least two individuals from gender groups (female **and** other non-male genders) if applicable

Feature : Block Submissions After Deadline
As a professor
So that I can ensure fairness
I want to block students from submitting the form after the deadline has passed

Scenario : Submissions are blocked after the deadline
Given I have set a deadline for the form
And the deadline has passed
When a student attempts to submit the form
Then they should see a message indicating the deadline has passed
And they should not be able to submit their responses

Feature: Set Attribute Weightage with Total Sum Constraint
As a professor,
So that the team formation algorithm can prioritize factors appropriately,
I want to set weightages for attributes while ensuring their sum equals 1.
Background: **Given** I am logged in as a professor **And** I am on the form editing page

Scenario: Professor attempts to update weightage of an existing attribute exceeding total weightage of 1
Given I have attributes with total weightage 1.0
When I update the weightage of "Programming Proficiency" from 0.5 to 0.6 **Then** the weightage for "Programming Proficiency" should be updated to 0.6
And I should see a notification "Total weightage is 1.1. Weightages should sum to 1."

Feature: Team Formation
As a professor,
So that I can ensure inclusivity in teams,
I want the system to include at least two individuals from underrepresented groups.

Scenario: System includes underrepresented groups in teams
Given the submission period has closed
When the system processes student data for team formation
Then each team should include at least two individuals from underrepresented ethnic groups if applicable

Feature: Team Formation
As a professor,
So that I can ensure diverse programming skills within teams,
I want the system to include students with varied programming proficiency in each team.

Scenario: System ensures varied programming proficiency in teams
Given the submission period has closed
When the system processes student data for team formation
Then each team should include students with different levels of programming proficiency

Scenario: Student leaves required fields empty
Given I am filling out the form,
When I leave any required field empty,
And I attempt to submit the form,
Then I should see an error message indicating that all required fields must be filled,
And the form should not be submitted until all required fields are completed.

Scenario: Student enters invalid data into a field
Given I am filling out the form,
When I enter invalid data into one or more fields (e.g., entering non-numeric data in a numeric field),
And I attempt to submit the form,
Then I should see an error message indicating which fields contain invalid data,
And the form should not be submitted until the invalid data is corrected.

Feature: Add Multiple Choice Questions (MCQ) without correct answers

Scenario: Professor successfully adds a new MCQ question without a correct answer
Given I am logged in as a professor
And I navigate to the "Add Question" page
When I select "MCQ" as the question type
And I enter "What is your gender?" in the question field
And I add "Male" as option 1
And I add "Female" as option 2
And I add "Non-binary" as option 3
And I add "Prefer not to say" as option 4
And I click "Submit"
Then I should see the message "MCQ question added successfully"
And I should see the question "What is your gender?" with the options "Male," "Female," "Non-binary," and "Prefer not to say"

Scenario: Professor tries to add an MCQ question without any options
Given I am logged in as a professor
And I navigate to the "Add Question" page
When I select "MCQ" as the question type
And I enter "What is your gender?" in the question field
And I do not add any options
And I click "Submit"
Then I should see an error message "Please provide at least two options for the MCQ"
And the question should not be saved

Scenario: Professor tries to add an MCQ question with only one option
Given I am logged in as a professor
And I navigate to the "Add Question" page
When I select "MCQ" as the question type

And I enter "What is your gender?" in the question field
And I add "Male" as option 1
And I do not add any other options
And I click "Submit"
Then I should see an error message "Please provide at least two options for the MCQ"
And the question should not be saved

Scenario: Professor tries to add an MCQ without entering a question
Given I am logged in as a professor
And I navigate to the "Add Question" page
When I select "MCQ" as the question type
And I leave the question field blank
And I add "Male" as option 1
And I add "Female" as option 2
And I click "Submit"
Then I should see an error message "Please enter a question"
And the question should not be saved

Feature: Apply CSS styling to web pages

Scenario: Professor views pages with new CSS styling applied
Given I have applied the new CSS styles to multiple web pages
And I am logged in as a professor
When I navigate to the "Home" page
Then I should see the header styled with the new CSS (e.g., blue background, white text)
And I should see the buttons styled with rounded corners and a hover effect
And the footer should be aligned correctly with updated font styling

Storyboard :

Student Details Form Submission

Edit Submission

First name :

Middle name:

Last name:

UIN :

Email:

list of pref.
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Submit

SPRINT BACKLOG :

Sprint Goal:

The sprint goal is to enable professors to create and manage a customizable form for collecting student data on attributes such as gender, ethnicity, and programming proficiency, while allowing them to set weightages for the team formation algorithm and specify submission deadlines. Additionally, implement a secure student login system, enabling students to fill out and update the form until the deadline. The sprint will also include developing the core functionality to automatically generate student teams based on the predefined rules, such as gender diversity, ethnic inclusion, and a balance of programming proficiency. By the end of the sprint, both professor and student functionalities, along with the team generation logic, should be ready.

Stories pulled into the sprint, assigned developers and story points:

Team Members	Assigned User Stories	Story Points and Time Estimates
Hitha Magadi Vijayanand	Feature: Display Teams for Students	3 points (up to 2 days)
phani Jyothi Kurada	Display Student Details Form As a student, I want to view the form for entering my details. Edit Student Details Form As a student, I want to edit my details in the form.	2 point (up to half a day) 3 point (up to half a day)
Ramya Reddy Gotika	Minimum Required Gender Representation in Teams	3 points (up to 2 days)
	Block Submissions After Deadline As a professor	2 points (up to 2 days)
Raja Karthik Vobugari	Add Multiple Choice Questions (MCQ) without correct answers Apply CSS styling to web pages	3 points (up to 2 days) 3 points (up to 2 days)
Rithika Sapparapu	System ensures varied programming proficiency in teams Student enters invalid data into a field	5 points (up to 2 days) 1 points (up to 2 days)
Sahithi Duppati	Set Attribute Weightage with Total Sum Constraint	5 points (up to 2 days)

	Scenario: System includes underrepresented groups in teams	1 points (up to 2 days)
Sai Jaideep Reddy Mure	Successful login with valid credentials for students	3 points (up to 2 days)
	Failed login due to incorrect credentials for students	2 points (up to 2 days)
Uday Kumar Reddy Mettukuru	Student views their assigned team details	3 points (up to 2 days)
	No of teams	5 points (up to 2 days)
	Successfully publishing a form	3 points (up to 2 days)
	Closing a published form	1 points (up to 2 days)

PROJECT RESOURCES:

Heroku : <https://team-formation-be0f7e7d165b.herokuapp.com/>

GitHub Repo : <https://github.com/phanijyothi11-tamu/team-formation.git>

Project Management page : <https://github.com/users/phanijyothi11-tamu/projects/1>

Slack workspace : <https://app.slack.com/client/T07PN8XD8D7/C07P6NWELCD>
