

[FYE]-Team Formation

Project Summary -

The goal of this project is to develop an application that automates the formation of balanced and diverse teams for ENGR 102, replacing the current manual process. Instructors currently spend significant time grouping students based on responses to questions related to programming experience, gender, and ethnicity, with a focus on promoting diversity and avoiding group dynamics that might negatively impact underrepresented students.

The proposed application is an automation of the above mentioned requirement where it allows students to complete a questionnaire, with their answers used to automatically generate balanced teams formed on the basis of some criteria like Programming expertise, gender, ethnicity and race etc. Where each feature having its own weightage and the one with at most weightage is considered as the topmost priority for filtration and so on. Once the specified deadline is reached, the teams are created, the instructor can download a file containing the team assignments for further use. This streamlined solution aims to simplify team formation without unnecessary complexity, focusing exclusively on efficiency and balance. The primary stakeholders are the course instructors and the students enrolled in ENGR 102, with the application designed to meet the specific needs of both groups.

Customer meeting date/time/place details -

Our entire team met our Customer/ Client : **Prof. Niki Ritchey** (snritchey@tamu.edu) in-person on 23rd Sep,'24 around 4pm at ZACH 424. We have set up a regular weekly meeting with our client every Monday around 4:15pm at ZACH 424.

Summary of Meet:

During our requirement gathering discussions, we explored various potential scenarios and outcomes to deepen our understanding of the project. We also emphasized the key aspects from the client's perspective. The following critical questions were raised during the discussion:

1. **Instructor Control Over Team Count:** Should the instructor have the ability to manually specify the number of teams, or should this be determined automatically based on student numbers and constraints like team size?
2. **Additional Criteria for Team Assignment:** Beyond "programming experience," "gender," and "ethnicity," are there other criteria that should be considered when forming teams? For example, should we also consider:

- Major or specialization?
 - Year of study (e.g., freshman, sophomore)?
 - Leadership experience or collaboration preferences?
 - Time zone or schedule compatibility?
3. **Diversity Prioritization:** Are you expecting teams to be diverse and balanced across all the criteria mentioned above, or is there a specific order of preference for diversity (e.g., prioritize programming experience first, then gender, etc.)?
 4. **Downloading Team Assignments:** Should the instructor be able to download the team assignments at any point during the form-filling process, or should downloading only be allowed after all students have completed their forms? Would it be beneficial to have a "draft" version available for download at any stage?
 5. **Involvement of Additional Stakeholders:** Besides the instructor, are there any other stakeholders involved in this process, such as:
 - Teaching Assistants (TAs)?
 - Department administrators or heads?
 - Students (for feedback or input)?

User Stories for Implementation-

Initial Deployment on Heroku

- Implemented a basic landing page with initial commits.
- Deployed the initial commits onto Heroku.

Feature: Login with Username and Password

- **As a college student**

So that I can securely access my account, I want to log in using my college-issued username and password.

- **Scenario: Successful login with valid credentials**

Given I am on the login page, when I enter my username (college email ID) and password, and click "Login", I should be authenticated using the college SSO. I should then be redirected to the platform's dashboard, and see the message "Welcome, [User Name]!".

- **Scenario: Failed login due to incorrect credentials**

Given I am on the login page, when I enter incorrect credentials and click "Login", I should see the error message "Invalid username or password" and remain on the login page to try again.

Feature: Create New Form and Add Questions

- **As a professor**

So that I can collect student information for team formation, I want to create a new form.

- **Scenario: Professor creates a new form**

Given I am logged in as a professor, when I navigate to the form management page and click "Create New Form", I should see a blank form template with options to add questions and attributes.

- **Scenario: Professor adds a multiple-choice question**

Given I am editing a form, when I select "Add Question", choose "Multiple Choice", and enter the question text and answer options, the question should be added to the form.

- **Scenario: Professor adds a text input question**

Given I am editing a form, when I select "Add Question", choose "Text Input", and enter the question text, the text input question should be added to the form.

- **Add Specific Attributes**

As a professor, So that I can collect relevant information for team formation, I want to add specific attributes to the form.

Scenario: Professor adds a specific attribute

Given I am editing a form When I select "Add Attribute" And I enter "Programming Proficiency" as the attribute name And I select "Scale 1-5" as the attribute type Then "Programming Proficiency" should be added as an attribute to the form

Feature: Upload Excel File Containing Student Details

- **As a professor**

I need to upload student details in Excel format.

- **Scenario: Successful upload and storage of student details**

Given the professor is logged into the system When the professor uploads an Excel file with valid student details Then the system should parse the Excel file And each student's email and class ID should be stored in the database And a success message "Upload successful" should be shown to the professor

- **Scenario: Upload fails due to missing email column**

Given the professor is logged in, when they upload an Excel file missing the

email column, the system should reject the upload and display the message "Email column is required".

- **Scenario: Upload fails due to unsupported file format**

Given the professor is logged in, when they upload a non-Excel file (e.g., .txt or .pdf), the system should reject the upload and display the message "Unsupported file format".

- **Scenario: Upload with empty Excel file**

Given the professor is logged in, when they upload an empty Excel file, the system should reject the upload and display the message "The file is empty".

Feature: Set and Update Deadline for Form Submission

- **As a professor**

I want to set or update a deadline for form submission to ensure timely student responses.

- **Scenario: Set deadline for form submission**

Given I am editing a form, when I select "Set Deadline" and choose a date and time, the deadline should be added, and students should not be able to submit after the deadline.

- **Scenario: Update deadline for form submission**

Given I am editing a form with a deadline, when I click "Edit Deadline" and choose a new date and time, the updated deadline should be saved and displayed to students.


User Interface -

Login Page

Loginpage

Welcome to Team Form !

Email

Password 

[Forgot Password](#)

Login

Sign in with Google

Sign in with Github

Team formation

Create New form

Team formation

Form title: Enter text

Form description: Enter text

Create form Cancel

Team formation

Form title
Form description

Add attribute

Set deadline

Team formation

Select attribute type

Text Input

MCQ

Cancel

Team formation

question:

Team formation		
Form title		
Form description		
Attributes	options	weightage
Gender	<input type="button" value="set weightage"/>
Ethnicity	<input type="text"/>	<input type="button" value="set weightage"/>
:	:	:

1

Form title

Form description

Attributes	options	weightage
Gender	<input type="text" value="input"/> <input type="button" value="set"/>

Form title

Form description

Attributes	options	weightage
Gender	- - -	0.3 <input type="button" value="Reset"/>
<input type="button" value="Set deadline"/>		

Sprint backlog -

What is the sprint goal?

The goal for this sprint is to develop functionalities when logged in as a Professor.

Which stories were pulled into the Sprint?

When logged as Professor, the professor should be able to achieve the following functionalities:

- 1) Able to login as Professor with their Tamu credentials (ensuring authentication).
- 2) Able to create new form for a class and add the form questions.
- 3) Under questions, ability to add specific attributes.
- 4) Add students into a class.
- 5) Set deadline for the particular project.

How many points?

1 point is assigned for 4 hours of work each day.

To whom is each story assigned?

Jaideep - Login / Authentication for Professor

Uday - Create new form along with add questions

Rithika - Add input text fields and specific attributes into form

Ramya - Set deadlines for particular project functionality

Sahithi - Design layouts for modules along with form data handling

Hitha - Error handling functionalities for Add students module

Karthik - Uploading student data and handling storage in add students module

Phani - Deployment into Heroku

What are the tasks and their time estimates?

Following are the tasks to be achieved for this Sprint :

1. Login / Authentication for Professor - 3 +3
2. Create new form along with add questions -3 +3
3. Add input text fields and specific attributes into form -3+ 3
4. Set deadlines for particular project functionality -3+3
5. Design layouts for modules along with form data handling -3+3
6. Error handling functionalities for Add students module -3+3
7. Uploading student data and handling storage in add students module -3+3
8. Deployment into Heroku -3+3

Team Roles -

Product Owner : Sahithi Duppati (sahithi@tamu.edu)

SCRUM Master : Phani Jyothi Kurada (phanijyothi11@tamu.edu)

Links -

Deployed Application on Heroku :

<https://fathomless-anchorage-60590-5aba8fd6be02.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>