

Form Buster

Software Design Descriptions

Version 1.0

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Introduction

1. Scope and Purpose

This SDD describes the overall architectural design of Form Buster and the interactions of the system with external components. These external components are a user authentication system and a student database. They will be simulated, as access to the current existing systems is not granted for the project. The document goes more in-depth on the design topics discussed in the SRS document. It provides a clear description of the organization of the classes used to implement Form Buster, as well as depicting and describing the external appearance of the website.

2. Intended Audience

The intended audience for the document is:

- The Form Buster team
- The Faculty Sponsor
- Senior Design Instructor
- Maintenance Engineers (future reference)

3. References

This document refers to:

- Form Buster's Project Plan(<http://formbuster.me/plan1.pdf>)
- Form Buster's Software Requirements Specifications document (<http://formbuster.me/requirement.pdf>)
- IEEE Standard for Systems Design

4. Definitions & Acronyms

API *Application Programming Interface*

GUI *Graphical User Interface*

IEEE *Institute of Electrical and Electronics Engineers* - Organization that handles the standardization of software project documents

PAWS *University System Database*

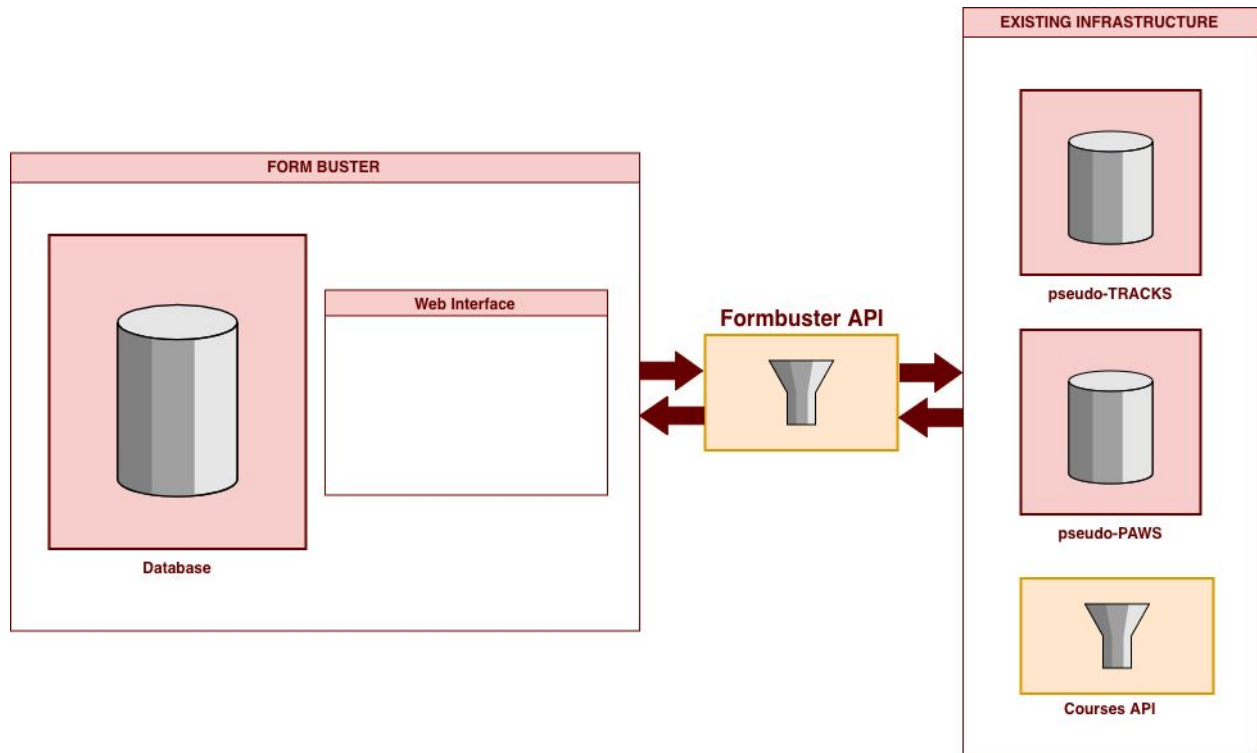
SRS *Software Requirements Specifications*

TRACKS *Account System Provider* - Authentication System

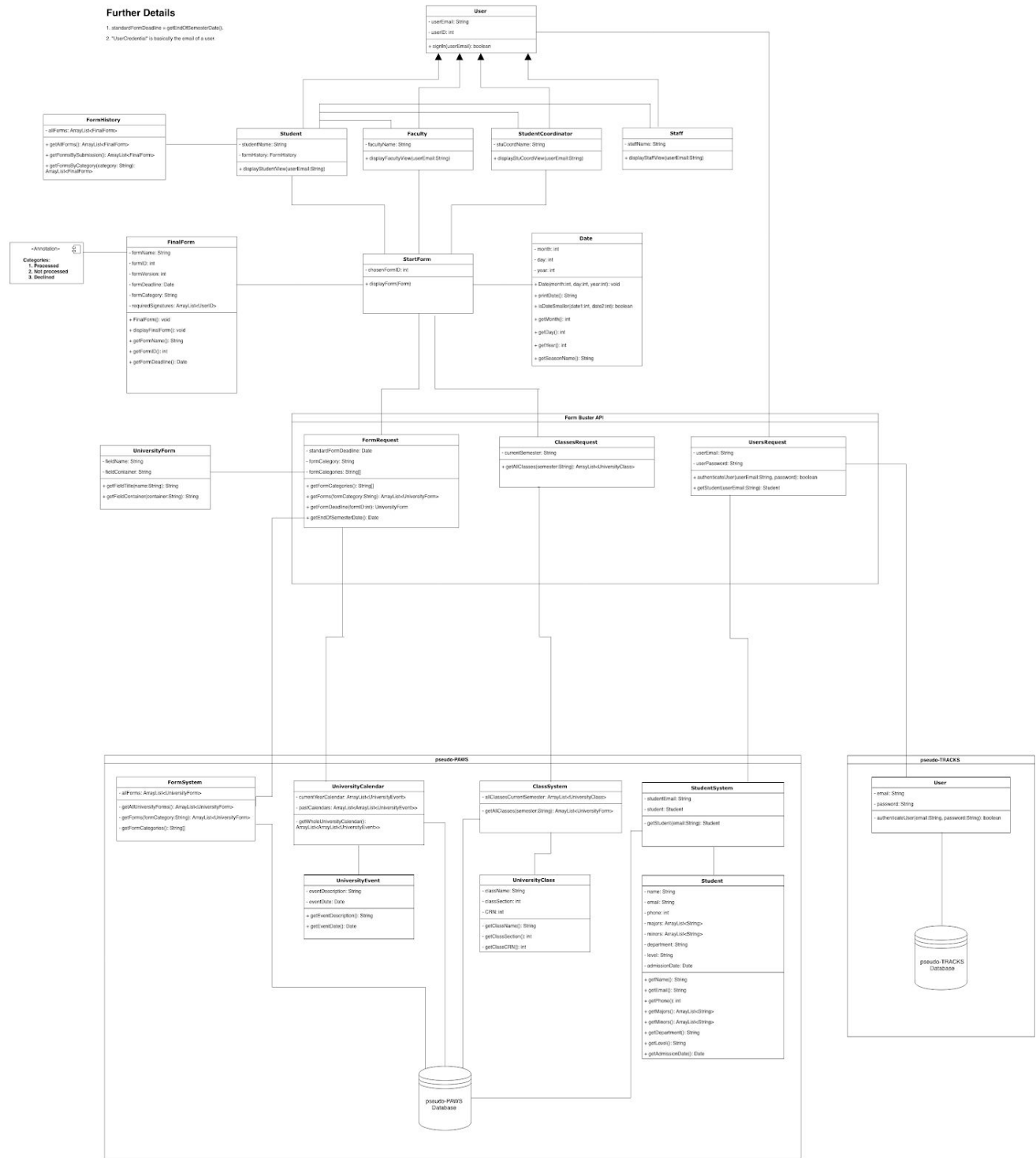
UML *Unified Modeling Language*

Module Design

5. System Architecture Diagram



6. Classes Diagram



7. Classes

Form Buster

- **User:** represents a type of user in Form Buster's system, whom has an email and that can be either a student, faculty member, student coordinator, or staff member.
- **Student:** represents a student user.
- **Faculty:** represents a faculty member user.
- **StudentCoordinator:** represents a student coordinator user.
- **Faculty:** represents a faculty member user.
- **FormHistory:** represents a history of forms in which a student submitted through Form Buster's system. It holds all the forms and is also used to sort the forms which will be displayed in the student's "Form History" menu option view.
- **StartForm:** is the component which starts a form for a student. It communicates with the Form Buster API in order to get specific forms and initiate them. Since student, faculty, and student coordinators can start a form for a student, then all of them are connected to this class.
- **FinalForm:** represents a form modified by the Form Buster system, in which contains extra information about the form, such as required signatures, form deadline, form version, etc.
- **UniversityForm:** represents an university form which only contains information provided by the university. It is different from the FinalForm, because it doesn't contain filled information by the student, not added information from Form Buster's system.
- **Date:** represents a date. It is used auxiliate in the manipulation of dates for the forms. It also contains functions in which compare dates so that we can see if a form is past the pre defined deadline for it.

Form Buster API

- **FormRequest:** is the component in the API which makes the calls for getting forms and their deadlines.
- **ClassesRequest:** is the component in the API which is used to obtain information regarding classes of the university, like getting all the classes for a specific semester.
- **UsersRequest:** is the component in the API which gathers information about the users of the university, and most important, authenticate them to log in into the Form Buster system.

Pseudo-TRACKS

- **User:** represents a user in the authentication system of TRACKS. It is used to authenticate users such as students, student coordinators, faculty members, and staff members.

Pseudo-PAWS

- **UniversityEvent:** represents university's events. Includes academic events, form events, etc.
- **UniversityCalendar:** represents a calendar, and thus it holds many university's events. It helps on computing the current year's calendar and past calendars too.
- **FormSystem:** represents the system of forms from the university and it gathers the forms from the university's database.

- **UniversityClass:** represents a class within a university. It contains all the information regarding a specific class entity.
- **ClassSystem:** represents the system of classes of an university. It is used to compute all the classes that are available to be taken at specific semesters.
- **StudentSystem:** represents the system of students, which is used to obtain information about specific students, given their email.
- **Student:** represents a student entity, which has all the attributes of a student in an university.

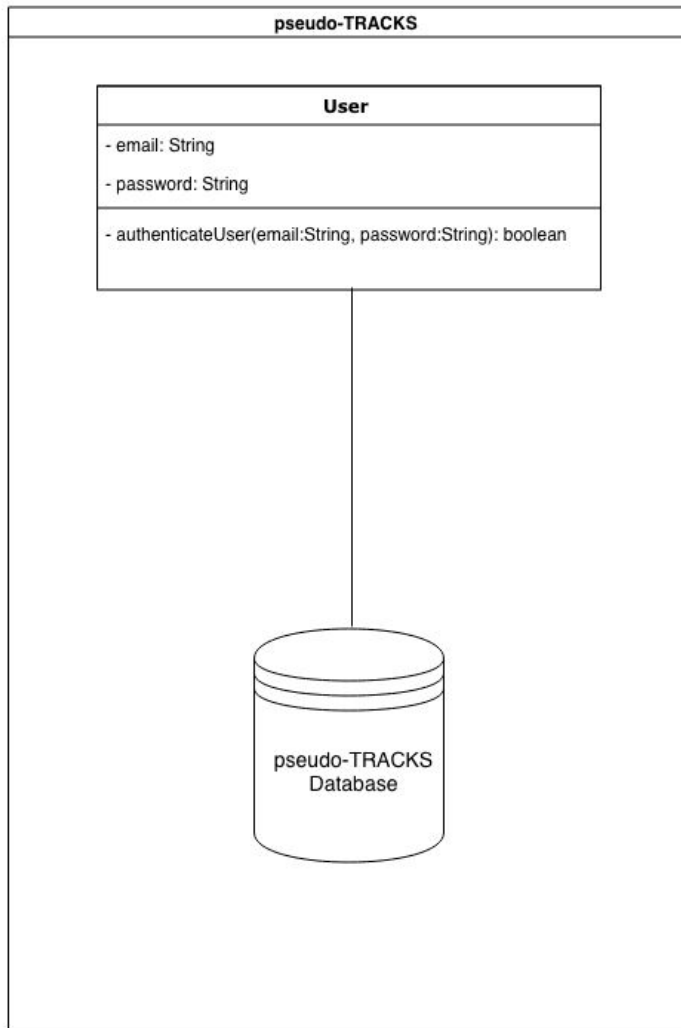
8. Design Rationale

The rationale behind the design adopted for Form Buster is to build a platform that can easily be used with existing authentication systems (TRACKS) and university databases (PAWS).

Database Design

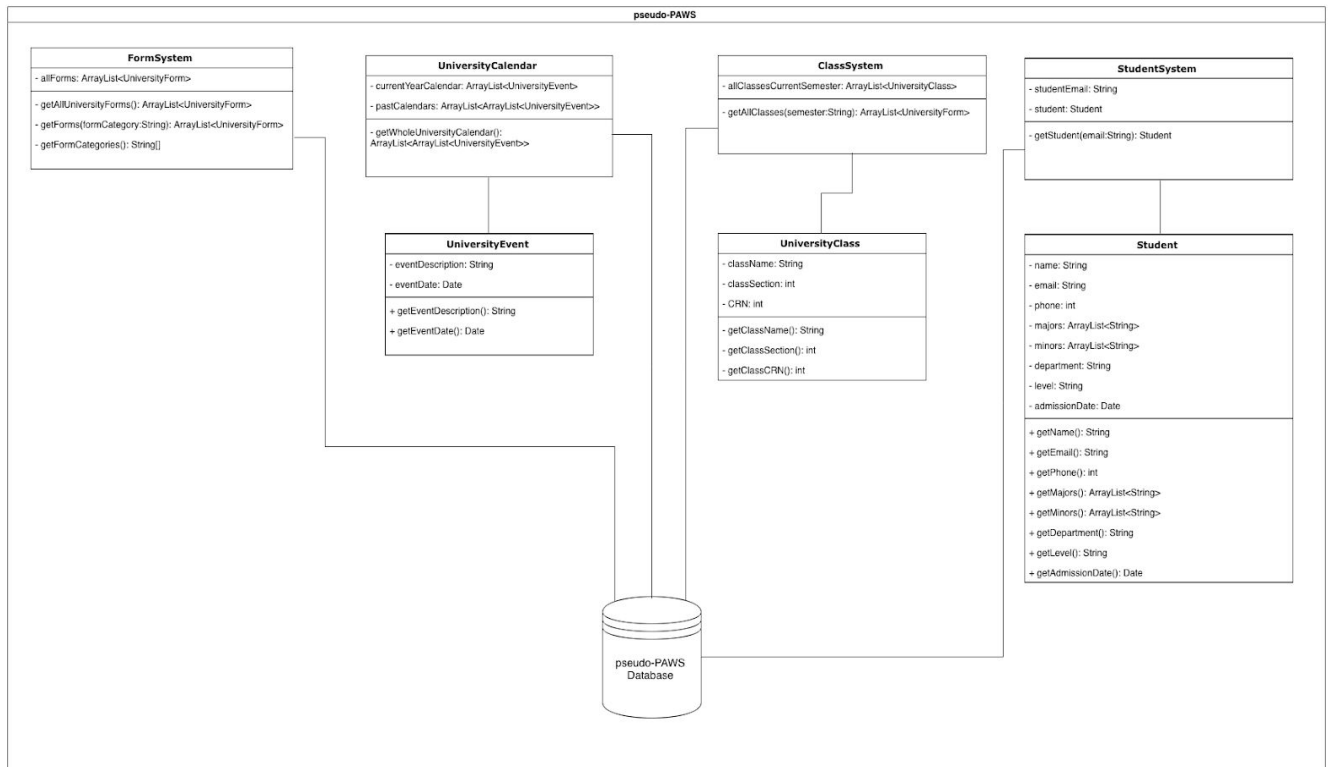
9. pseudo-TRACKS

Form Buster will simulate the university's user authentication system, in order for students, faculty, student coordinators, and staff to sign into Form Buster.



10. pseudo-PAWS

Form Buster will also simulate the university's database, which will provide Form Buster with the necessary information about a student, such as their student id, address, phone number, etc., which will be used to store information along with user-entered, form specific, information. This is a representation of this database:

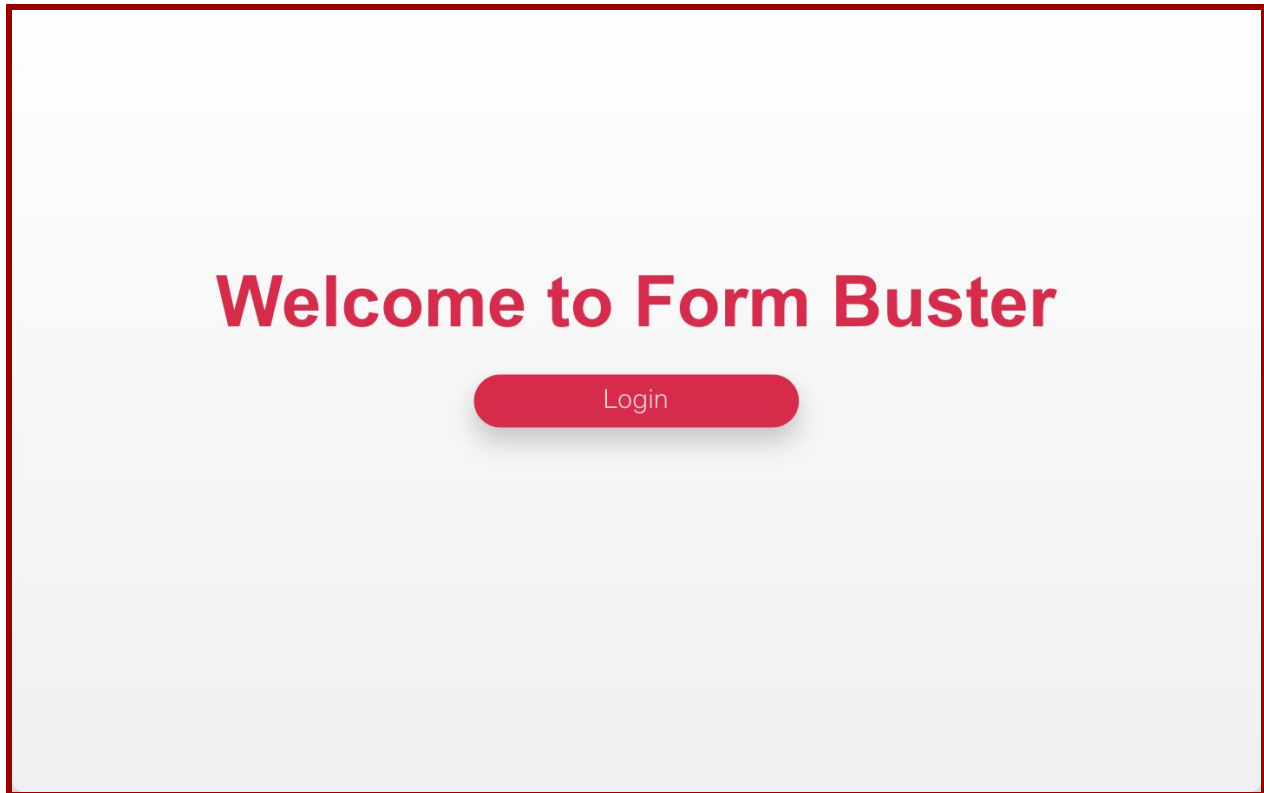


11. Form Buster Database

Form Buster's database will hold data relative only to the forms submitted and approved through the system. A non-relational scheme will be used in order to record the forms information for the students.

Graphical User Interface

12. Login



Main Page

pseudo-Tracks

student@my.fit.edu

studentpassword

Login

Student Login Page

pseudo-Tracks

faculty@dpt.fit.edu

facultypassword

Login

Faculty Login Page

pseudo-Tracks

staff@fit.edu

staffpassword

Login

Staff Login Page

pseudo-Tracks

studcoord@fit.edu

studcoordpassword

Login

Student Coordinator Login Page

14. Dashboard View

FORMBUSTER

Test Student | Notification Preferences | Sign out

Dashboard > In-Progress

Forms

History

Equivalency Exam

✓✓✓✓✗✗

Submission date: 09-09-2018
Due Date: 09-18-2018

Registration

✓✗

Submission date: 09-09-2018
Due Date: 09-18-2018

Closed Class

✓✓✗

Submission date: 09-09-2018
Due Date: 09-18-2018

Other Form

✓✓✓✗

Submission date: 09-09-2018
Due Date: 09-18-2018

Notifications

David Lee approved your Registration form.
4 min ago

Alex Johnson declined to sign your form.
4 min ago

Jonathan Chen started a form for you.
4 min ago

Robert Grant is unavailable to sign your form.
4 min ago

Your Closed class form has been processed.
4 min ago

View all notifications

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Student Dashboard View

FORMBUSTER

Test Faculty | Sign out

Dashboard > Incoming Forms

Sort by : Due Date ▾

Students

History

Registration - Josh Adam

Due Date: 09-18-2018
Submission date: 09-09-2018

Approvals

✓✓✓

Closed Class - John Arnold

Due Date: 09-18-2018
Submission date: 09-09-2018

Approvals

✓✓✓

Add/Drop - Josh Adam

Due Date: 09-18-2018
Submission date: 09-09-2018

Approvals

✓✓✓

Other Form - Josh Adam

Due Date: 09-18-2018
Submission date: 09-09-2018

Approvals

✓✓✓

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Faculty Dashboard View

15. Forms View

The screenshot shows the FORMBUSTER Forms View interface. The top navigation bar is dark red with the FORMBUSTER logo on the left and links for 'Test Student', 'Notification Preferences', and 'Sign out' on the right. A left sidebar contains three menu items: 'Dashboard', 'Forms' (highlighted with a red background and a right-pointing arrow), and 'History'. The main content area has a light gray header with a search bar labeled 'Search Forms'. Below this, there is a vertical list of five form cards. The first card is titled 'Registration' and has a description 'Description of the form here'. The second card is titled 'Closed Class' and also has the same description. The third, fourth, and fifth cards are all titled 'Other Form' with the same description. Each card has a 'START FORM' button on the right. A vertical scrollbar is visible on the right side of the form list. The footer is dark red and contains the copyright notice '© 2018 FORMBUSTER, All Rights Reserved.' on the left, and links for 'About', 'Help', and 'Contact Us' on the right.

Student Forms View

The screenshot shows the Student Forms View interface. The top navigation bar is dark red with the FORMBUSTER logo on the left and links for 'Test Student', 'Notification Preferences', and 'Sign out' on the right. A left sidebar contains three menu items: 'Dashboard', 'Forms' (highlighted with a red background and a right-pointing arrow), and 'History'. The main content area is blurred, showing the same list of form cards as the previous screenshot. A white modal dialog box is centered on the screen, featuring a close button (X) in the top right corner. The dialog contains the text 'A Registration form already exists in your Drafts.' and two buttons: 'DELETE DRAFT & START NEW FORM' and 'CONTINUE WITH DRAFT'. The footer is dark red and contains the copyright notice '© 2018 FORMBUSTER, All Rights Reserved.' on the left, and links for 'About', 'Help', and 'Contact Us' on the right.

Draft exists for selected form by student

FORMBUSTER

[Test Student](#) | [Notification Preferences](#) | [Sign out](#)

Dashboard

Forms >

History

Registration

Due: 10/1/18

CSE 1001 - Software Development I - Section X - MWF 10:00-10:50

CSE 1001 - Software Development I - Section X - MWF 10:00-10:50

CSE 1001 - Software Development I - Section X - MWF 10:00-10:50

CSE 1001 - Software Development I - Section X - MWF 10:00-10:50

CSE 1001 - Software Development I - Section X - MWF 10:00-10:50

DISCARD

SAVE

CONTINUE

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Student is filling out a new form

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[Test Student](#) | [Notification Preferences](#) | [Sign out](#)

Dashboard

Forms >

History

Registration

Due: 10/1/18

CRN	SUBJECT	COURSE	SECTION	LEVEL	CRED	GRADE MODE	TITLE
87665	CSE	1001	7	UNDERGRAD	3.0	NORMAL	SOFTWARE DEVELOPMENT I
87665	ECE	3551	5	UNDERGRAD	3.0	NORMAL	MULTIFARIOUS SYSTEMS
87665	CSE	1101	12	UNDERGRAD	1.0	NORMAL	COMPUTER CAREERS & DISC.
87665	OCN	2350	3	UNDERGRAD	3.0	NORMAL	THE WHOLE EARTH
87665	COM	2400	4	UNDERGRAD	3.0	NORMAL	MULTIPLATFORM JOURNALISM

TOTAL CREDITS: 13.0

Students are responsible for meeting all published prerequisite requirements for their registered courses to ensure they have the background necessary for successful performance. A student who fails or drops a prerequisite course after registration for the following term, must, in consultation with his/her advisor, submit a "Change in Registration Status" form to add the prerequisite course.

ENTER PIN

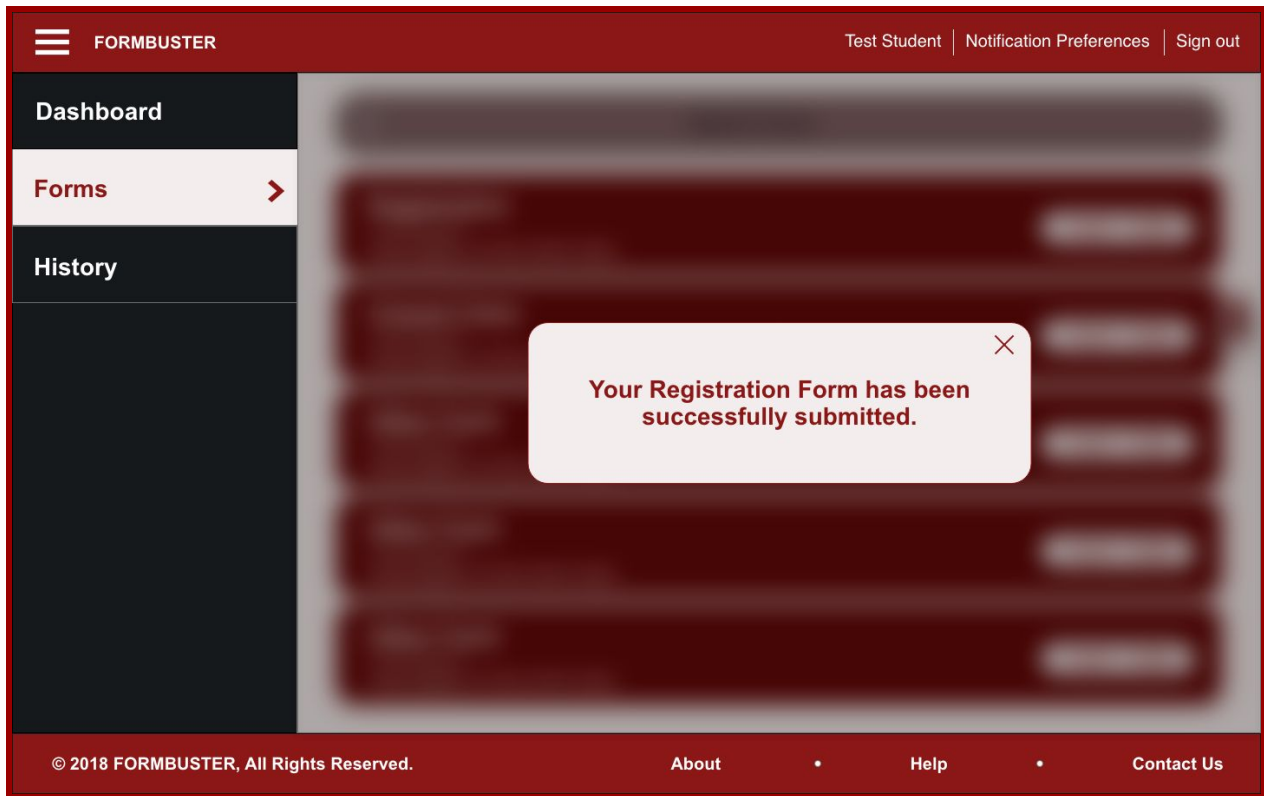
SAVE

SUBMIT

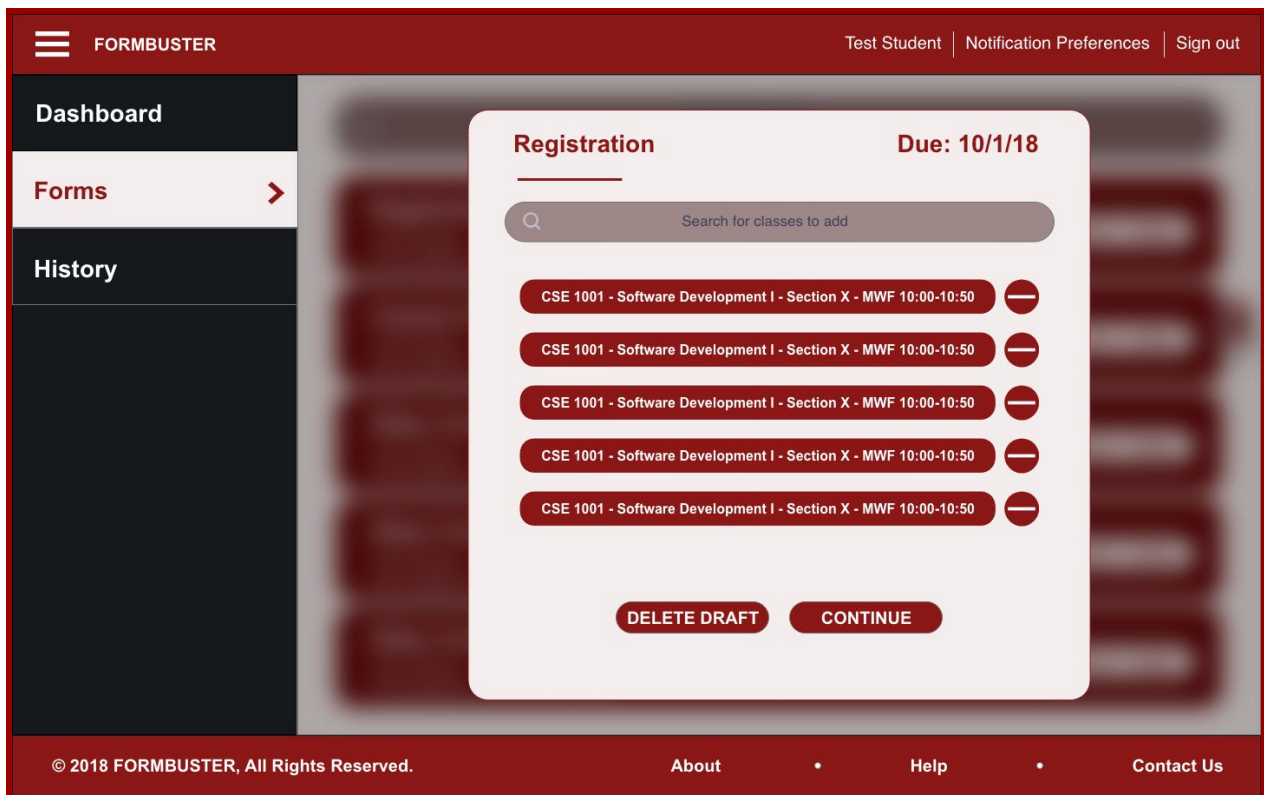
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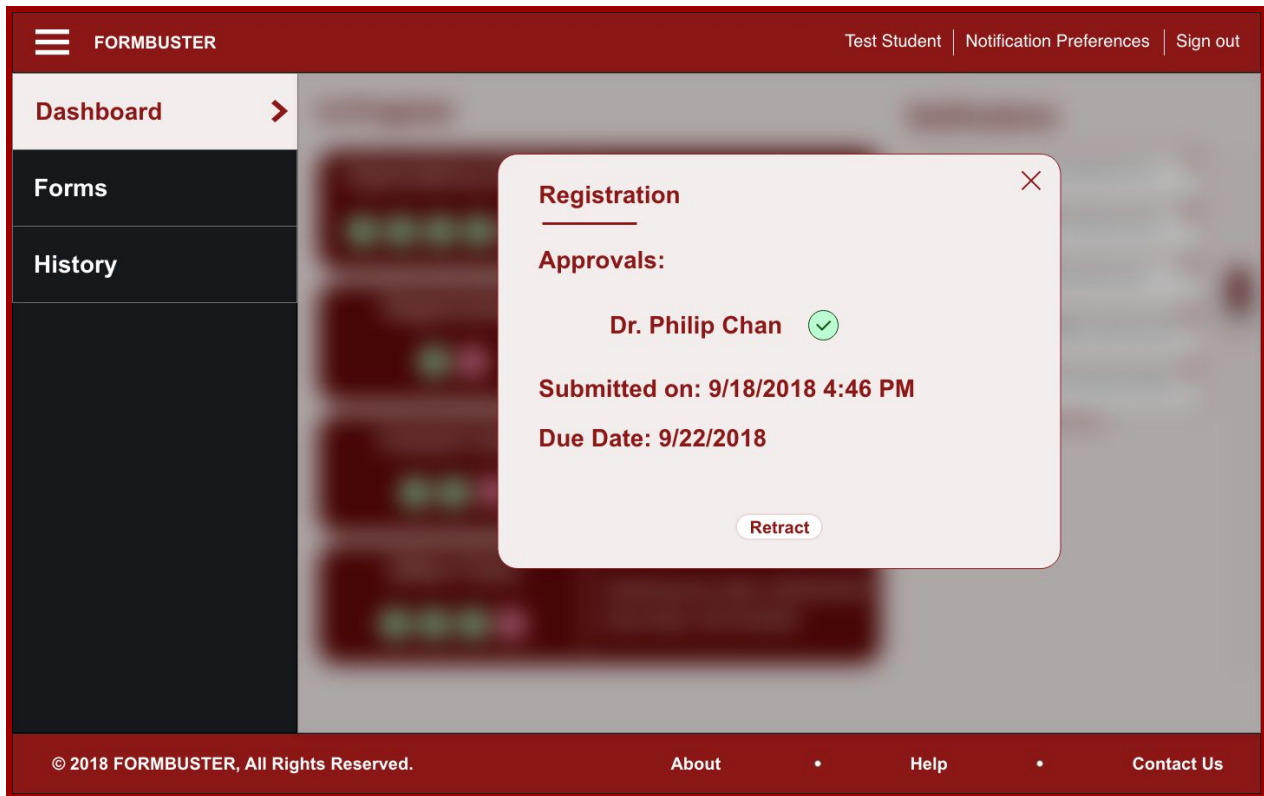
Student is ready to submit



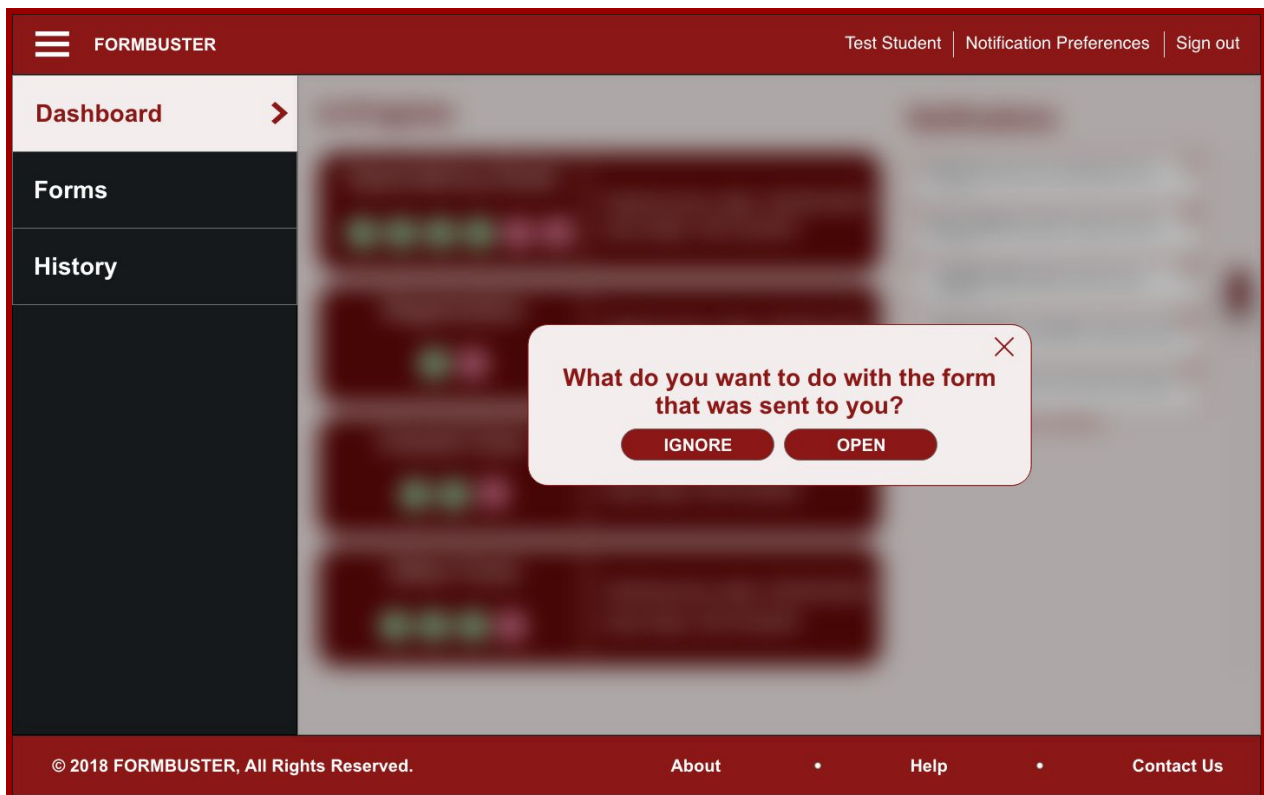
Student's form is submitted



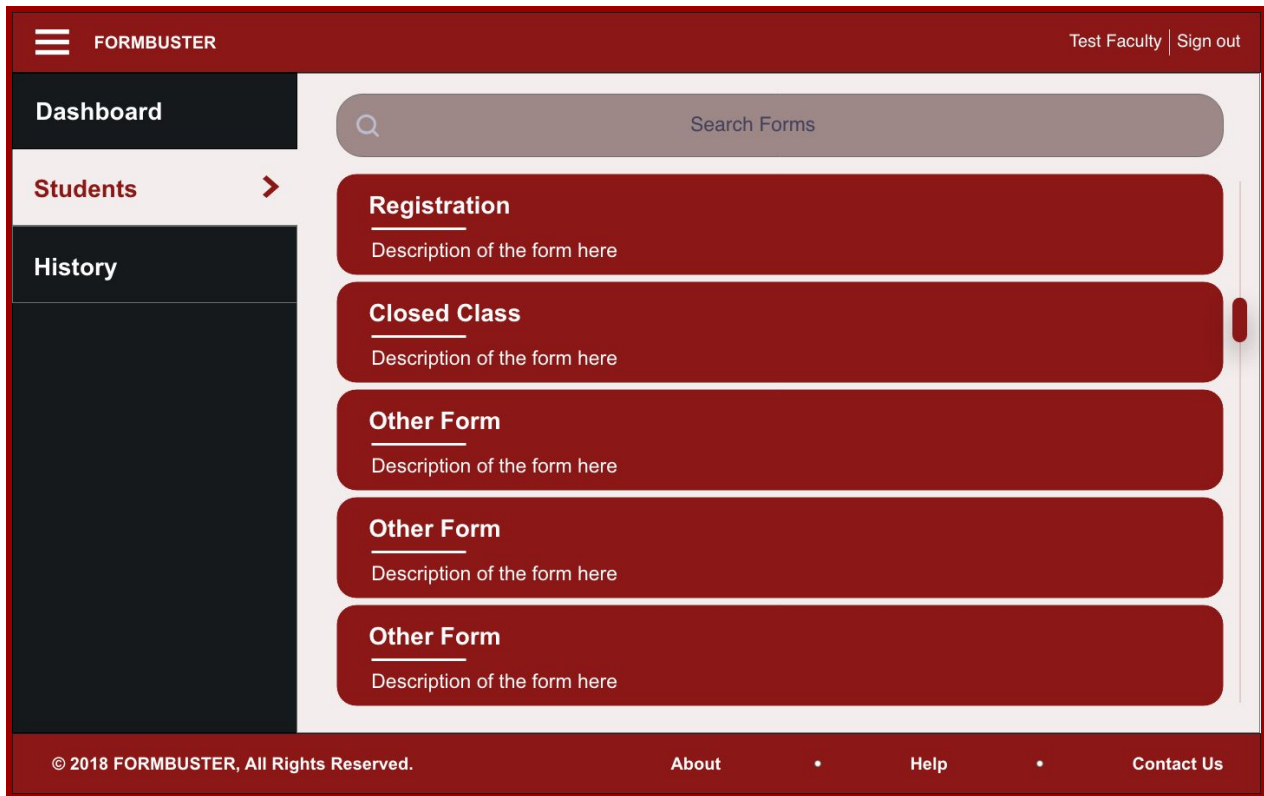
Student continues from draft



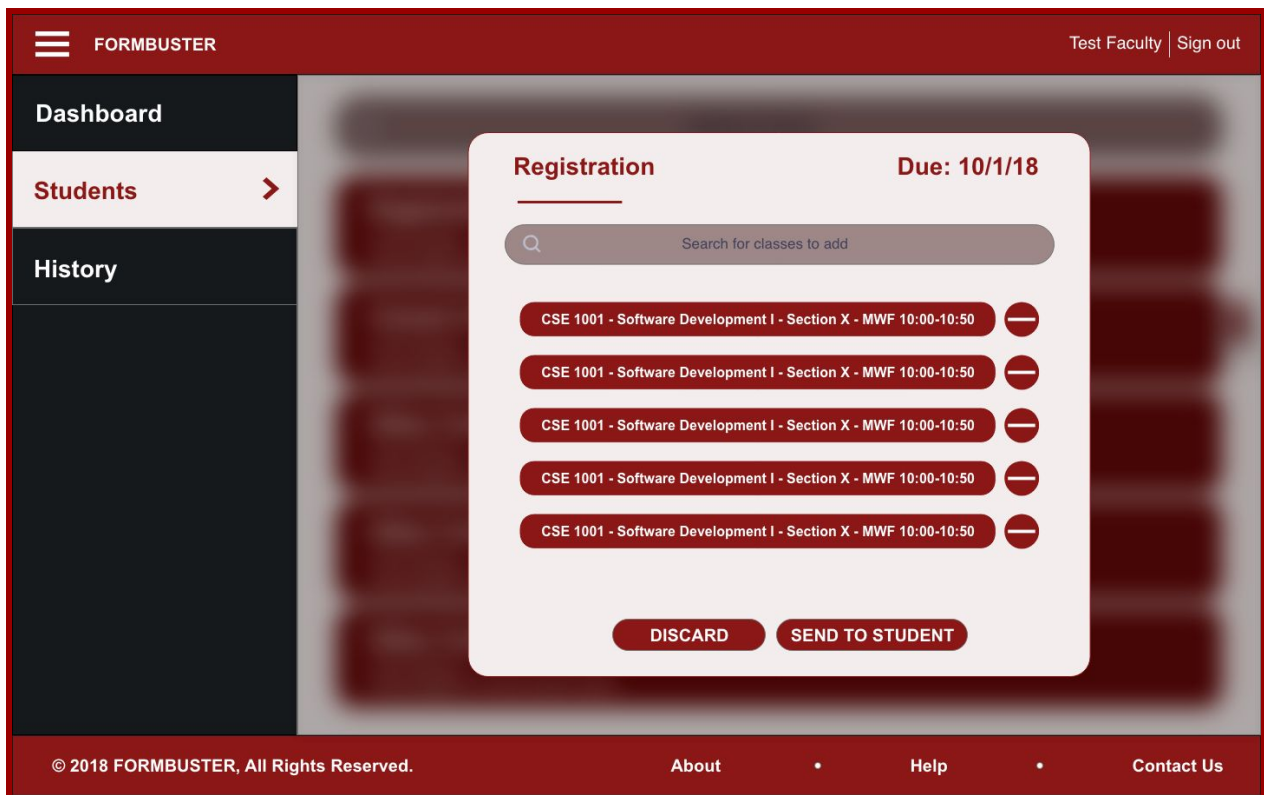
Student is given the option to retract a form



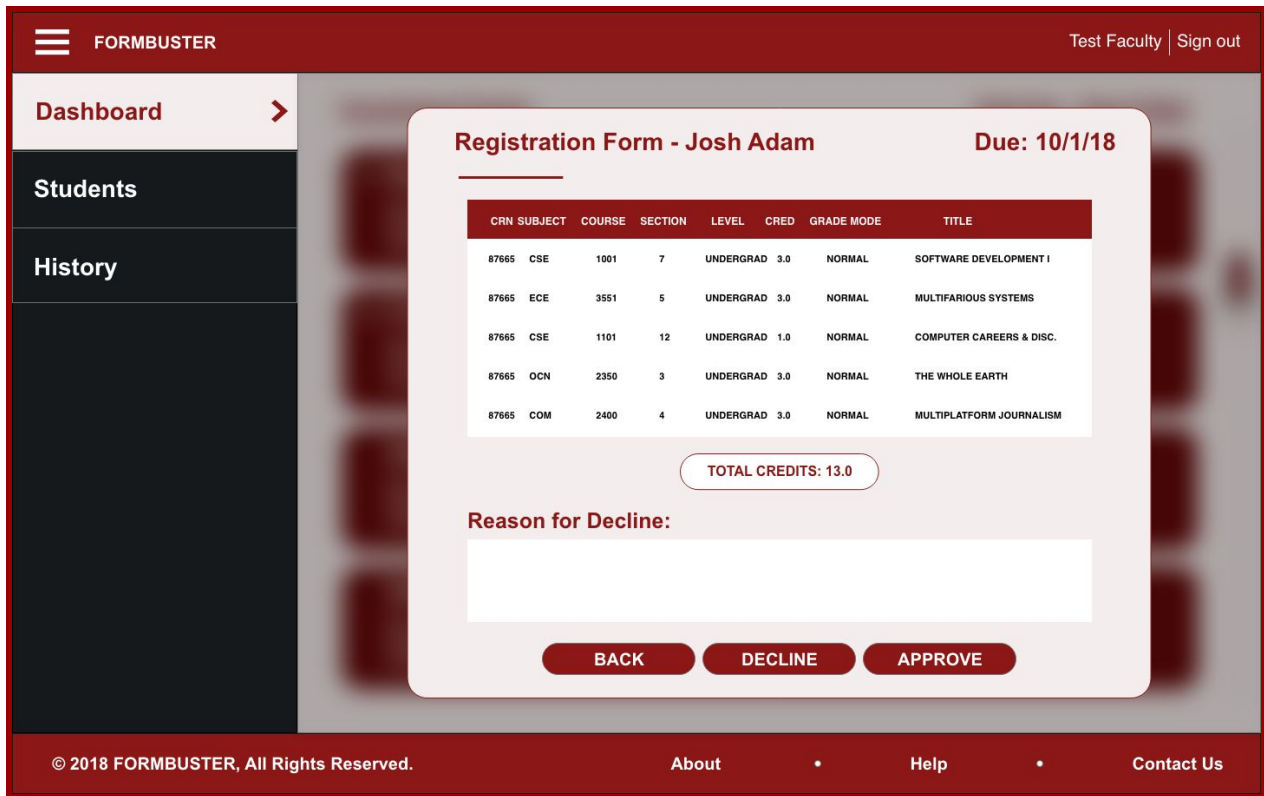
Student opens notification about a form that was started for them



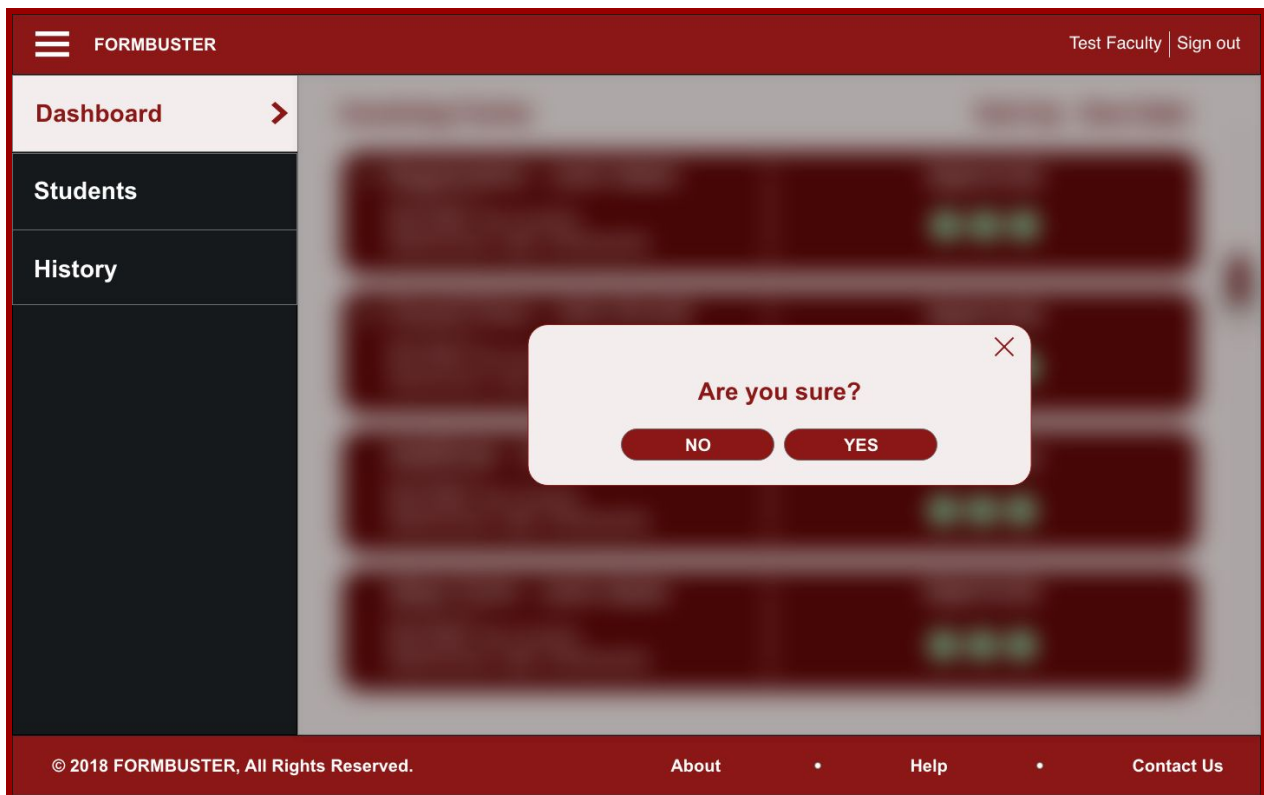
Faculty Select Form to Start for Student



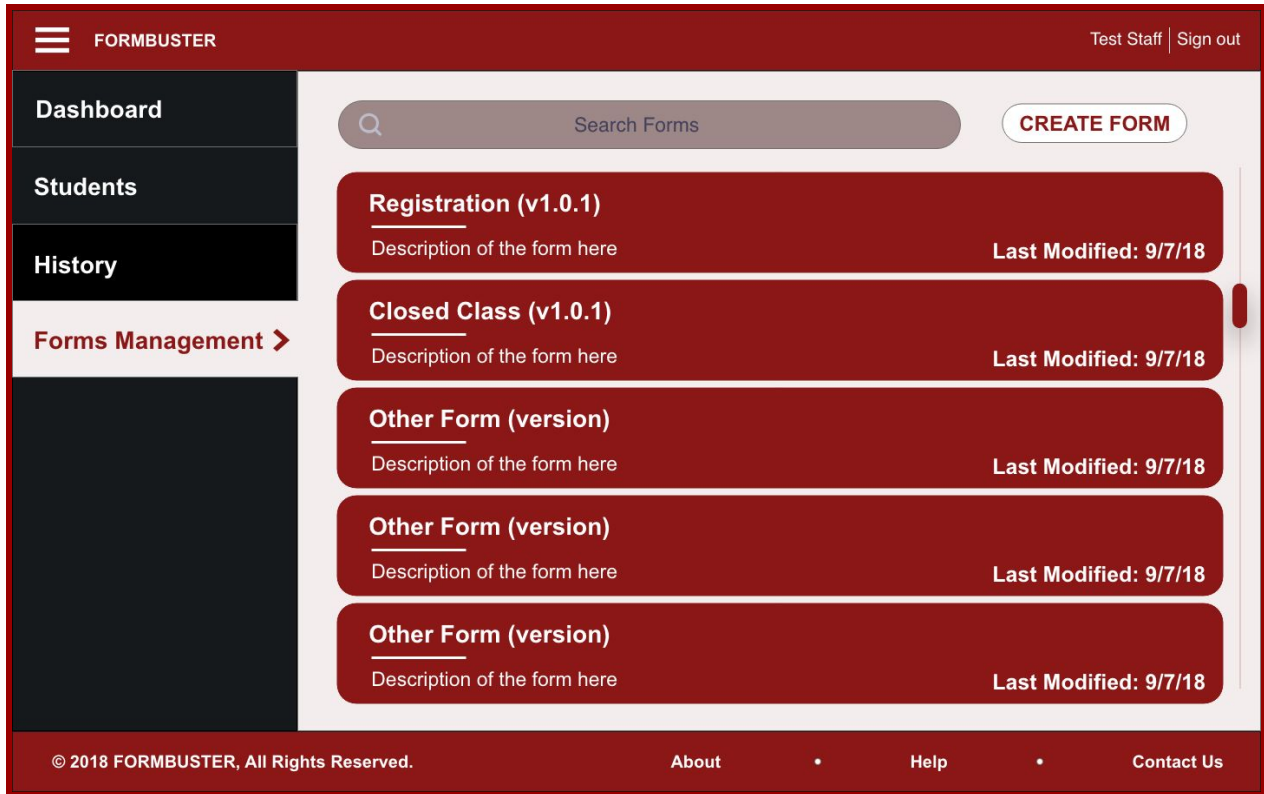
Faculty starts filling in form and is ready to send it to student



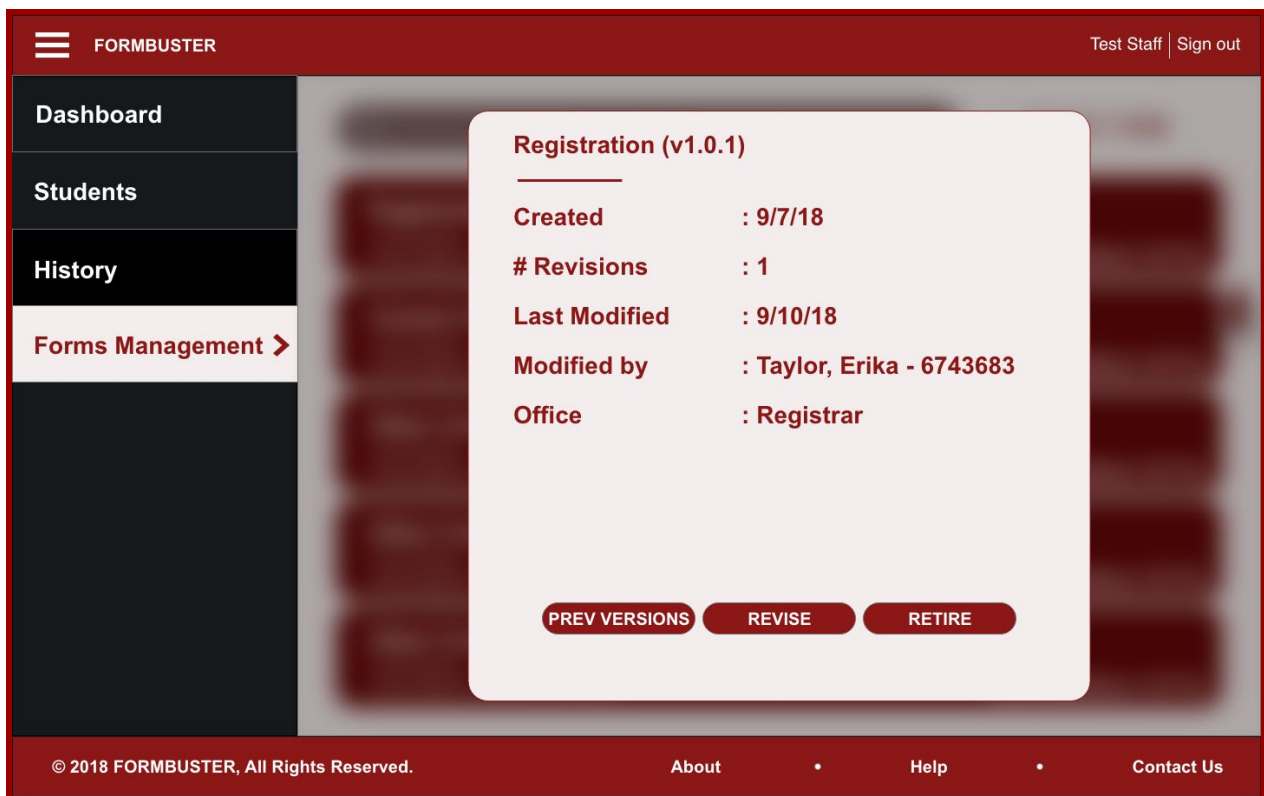
Faculty opens a form awaiting approval



Faculty is asked to confirm form decision



Staff Forms View



Staff Forms Management View

16. Student Records View

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Test Student Coordinator ▾

Q A

Adam, Josh

Arnold, John

Archer, Steve

Archibald, Sophie

Arthur, Alice

Ashton, Dave

August, Martha

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Student Coordinator Students View

≡ FORMBUSTER

Test Faculty | Sign out

Dashboard

Students >

History

Q A

Adam, Josh

Arnold, John

Archer, Steve

Archibald, Sophie

Arthur, Alice

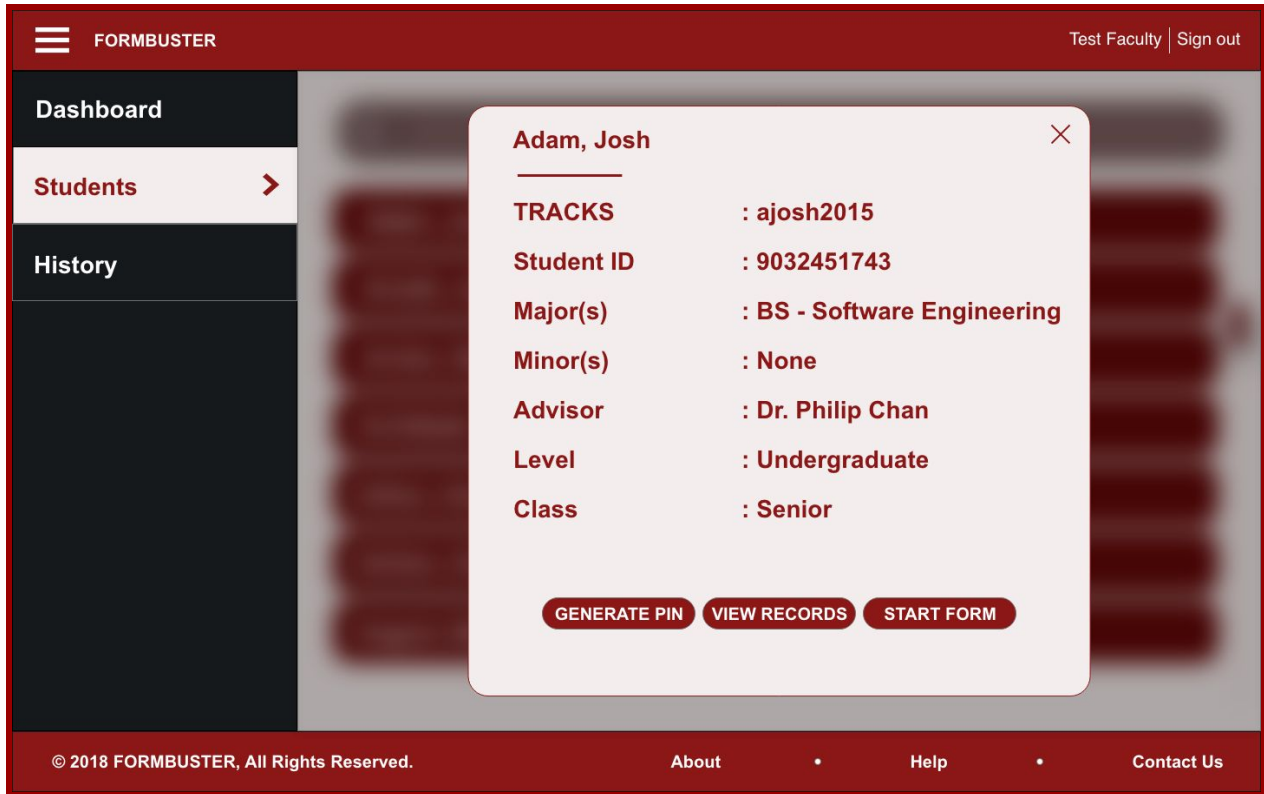
Ashton, Dave

August, Martha

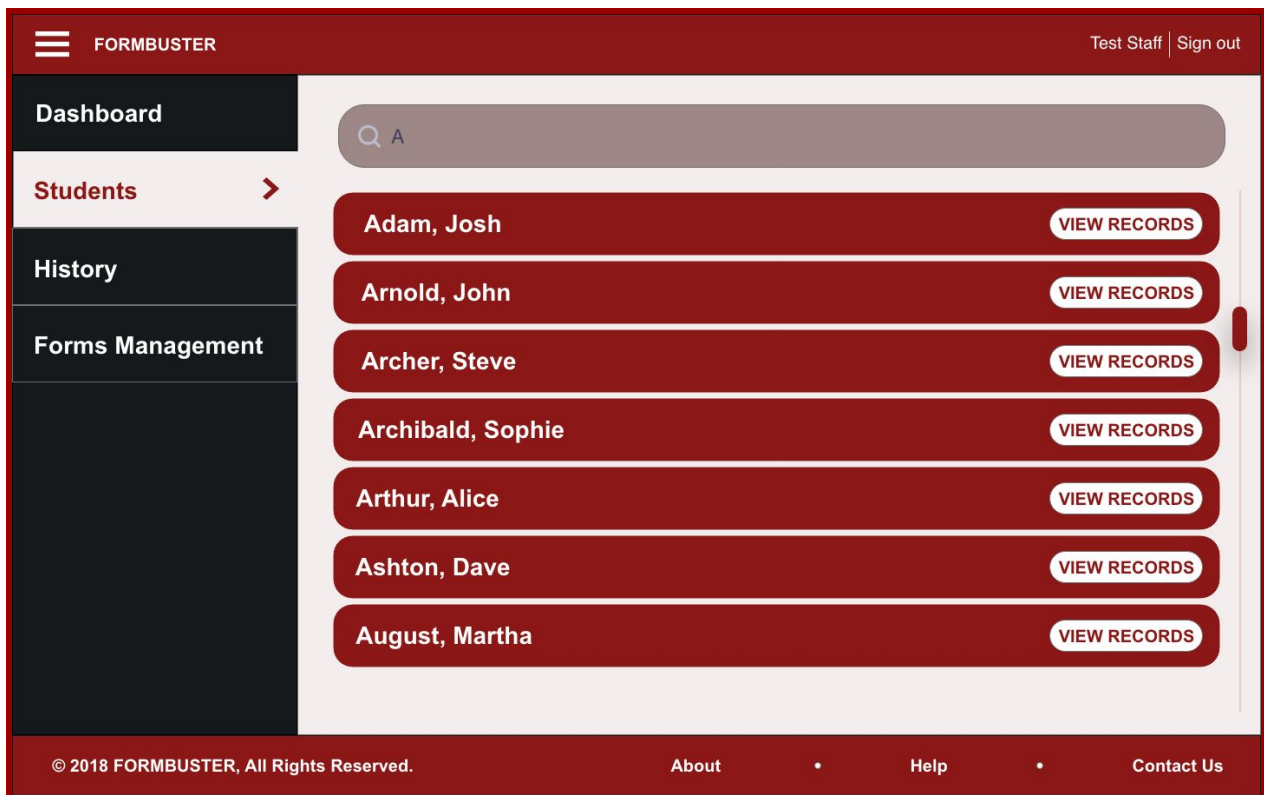
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Faculty Students View



Faculty Detailed Student View



Staff Students View

17. History View

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Test Student | Notification Preferences | Sign out

Dashboard

Forms

History >

Past Forms

Sort by : Processed Date ▾

Equivalency Exam

Submission date: 09-09-2018

Processed on: 09-18-2018

✓✓✓✓✗

Registration

Submission date: 09-09-2018

Processed on: 09-18-2018

✓✓

Closed Class

Submission date: 09-09-2018

Processed on: 09-18-2018

✓✓✓

Other Form

Submission date: 09-09-2018

Processed on: 09-18-2018

✓✓✓✓

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Student History View

FORMBUSTER

Test Staff | Sign out

Dashboard

Students

History >

Forms Management

Past Forms

Sort by : Processed Date

Registration - Josh Adam

Processed Date: 09-18-2018
Submission date: 09-09-2018

Approvals

✓✓✓

Closed Class - John Arnold

Processed Date: 09-18-2018
Submission date: 09-09-2018

Approvals

✓✓✓

Add/Drop - Josh Adam

Processed Date: 09-18-2018
Submission date: 09-09-2018

Approvals

✓✓✓

Other Form - Josh Adam

Processed Date: 09-18-2018
Submission date: 09-09-2018

Approvals

✓✓✓

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Staff History View

FORMBUSTER

Test Faculty | Sign out

Dashboard

Students

History >

Past Forms

Sort by : Approved Date

Registration - Josh Adam

Approved Date: 09-18-2018

Submission date: 09-09-2018

Approvals

✓✓✓

Closed Class - John Arnold

Approved Date: 09-18-2018

Submission date: 09-09-2018

Approvals

✓✓✗

Add/Drop - Josh Adam

Approved Date: 09-18-2018

Submission date: 09-09-2018

Approvals

✓✓✓

Other Form - Josh Adam

Approved Date: 09-18-2018

Submission date: 09-09-2018

Approvals

✓✓✓

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Faculty History View

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Test Faculty | Sign out

Dashboard

Students

History >

Registration Form - Josh Adam

Approved

CRN	SUBJECT	COURSE	SECTION	LEVEL	CRED	GRADE MODE	TITLE
87665	CSE	1001	7	UNDERGRAD	3.0	NORMAL	SOFTWARE DEVELOPMENT I
87665	ECE	3551	5	UNDERGRAD	3.0	NORMAL	MULTIFARIOUS SYSTEMS
87665	CSE	1101	12	UNDERGRAD	1.0	NORMAL	COMPUTER CAREERS & DISC.
87665	OCN	2350	3	UNDERGRAD	3.0	NORMAL	THE WHOLE EARTH
87665	COM	2400	4	UNDERGRAD	3.0	NORMAL	MULTIPLATFORM JOURNALISM

TOTAL CREDITS: 13.0

Reason for Decline:

CLOSE

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Approved form details in Faculty's History View

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Test Faculty | Sign out

Dashboard

Students

History >

Registration Form - Josh Adam Declined

CRN	SUBJECT	COURSE	SECTION	LEVEL	CRED	GRADE MODE	TITLE
87665	CSE	1001	7	UNDERGRAD	3.0	NORMAL	SOFTWARE DEVELOPMENT I
87665	ECE	3551	5	UNDERGRAD	3.0	NORMAL	MULTIFARIOUS SYSTEMS
87665	CSE	1101	12	UNDERGRAD	1.0	NORMAL	COMPUTER CAREERS & DISC.
87665	OCN	2350	3	UNDERGRAD	3.0	NORMAL	THE WHOLE EARTH
87665	COM	2400	4	UNDERGRAD	3.0	NORMAL	MULTIPLATFORM JOURNALISM

TOTAL CREDITS: 13.0

Reason for Decline:

Student missed a pre-requisite.

CLOSE

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Declined Form details in Faculty's History View

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Test Student | Notification Preferences | Sign out

Dashboard

Forms

History >

Registration

Approvals:

Dr. Philip Chan

Submitted on: 9/18/2018 4:46 PM

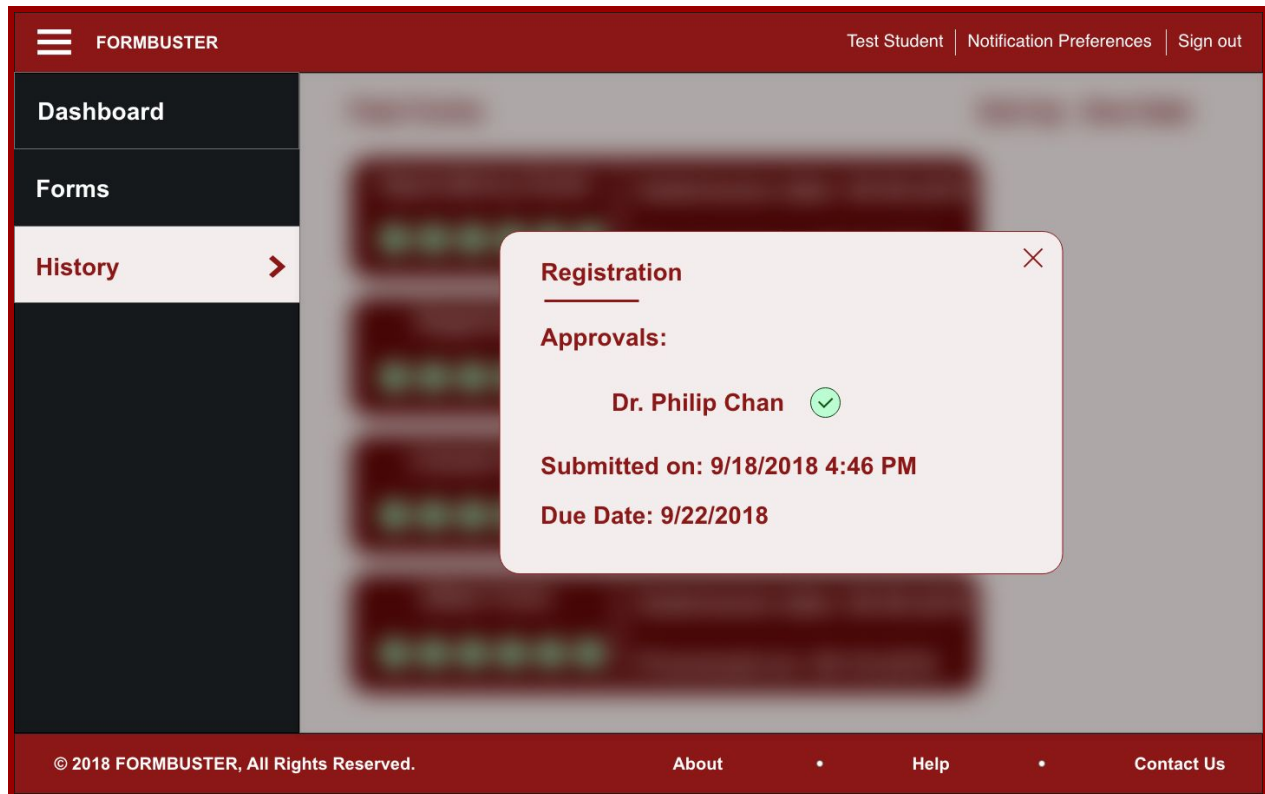
Due Date: 9/22/2018

COPY

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Declined Form Details in Student's History View



Approved Form Details in Student's HHistory View

API Design

18. Requests

Form Buster's API will have basic, but important system calls to the pseudo-PAWS and the pseudo-TRACKS system. These calls will be basic enough that they will be able to be used in other university's system that are different than PAWS and TRACKS.

18a. pseudo-TRACKS

- `authenticateUser(userEmail:String, password)`

18b. pseudo-PAWS

- `getStudent(userEmail:String)`
- `getFormCategories()`
- `getForms(formCategory:String)`
- `getFormDeadline(formID:int)`
- `getEndOfSemesterDate()`
- `getAllClasses(semester:String)`

19. Responses

- `postStudentForm(studentID:int, formID:int)`