



Students Study Better

Documentation

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Grayson High School

2021-22

Running the App

This mobile application was developed in Flutter using the object-oriented programming language, Dart. The application was developed using Visual Studio Code. Regarding the competition submission, “Students Study Better” is available on the App Store and Google Play Store. To install the app, users simply navigate to their respective content store, and search “Students Study Better”.

Build Instructions

The Requirements:

- Visual Studio Code
- Flutter extension for VSCode
- Flutter SDK
- Android Platform 30 SDK(Q) or iOS emulator

In order to build you will need Visual Studio Code and the Flutter extension. Upon opening Visual Studio Code, it will download the necessary packages for the application. You will need to execute a debug version of Students Study Better for Android or Students Study Better for iOS either on an emulator or by connecting an Android mobile device for Windows or an iOS mobile device for Mac using a USB cable.

Project Requirements

Topic: Develop a new mobile application for the students at your school.

App Name	Students Study Better
Students' Scheduling Feature	Students' schedules are implemented with the corresponding grades for each student
Information about extra curricular activities	App has a feature where it has the extra curricular clubs for the
Lunch Menu	Our app provides the daily breakfast and lunch menu
Emailing	Students can email their teachers directly from our app
Calendar with updated school information	Upon the student's input, the app will display the student's school's calendar

Planning Process

Brainstorming

Our planning and development followed a very simple methodology: brainstorm, sketch, build, test, repeat. For our planning process, we first went over the prompt for this year, and started brainstorming. We started in September. As part of the brainstorming stage, we asked many peers and classmates what features they wished to see in a student management app.

GitHub

Our project is organized using a GitHub repository. We picked GitHub for its easy yet effective functionality of sharing code, and its push/pull code function, which is directly integrated within Microsoft VS Code.

Picking a language

Our first decision was to pick a programming language. Initially, we started with HTML, and we were going to use a service called Framework7 to put the HTML and CSS code together and make an app. However, we found a language called Dart, and it was used for Flutter, a software developed by Google to design and make mobile applications. We researched Dart and found that it was an object oriented programming language, similar to Java, of which we are all adept in using.

Constructing individual parts of the application

Every aspect of the app would be processed and designed by Suraj and Benito. Afterward, Suraj created mockups of the basic screens of the application, and Benito and Suraj began working on the individual components of the application.

Implementing the APIs and Firebase

From there, Shafil amalgamated all of our code. He was able to set up the Firebase database and authentication inside of the application, allowing the user to sign up and login. Furthermore, he was able to set up the Menu API (<https://gwinnett.nutrislice.com>) providing the app with accurate menus based on the user's chosen school. Finally he was able to get all of the user's grades,

teachers, and messages using a Dart package. It required the user's ID and eClass password. By November, we had the basic functionality of the app done.

UI

From there, we started to design the UI. Designing the UI was quite simple, but implementing it in Dart took a considerable amount of time. However, by December we had version 1.0.0 done.

Launching app on iOS

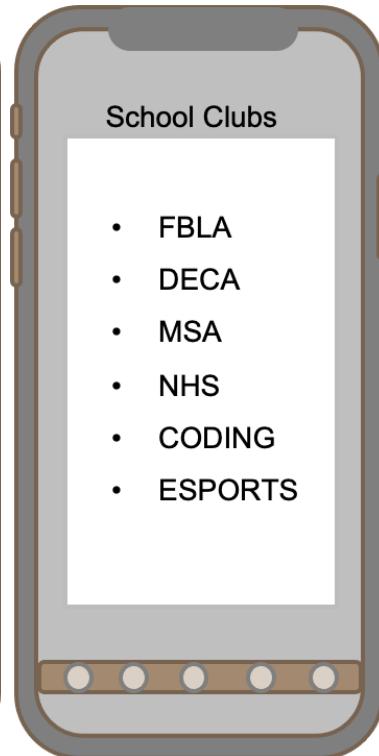
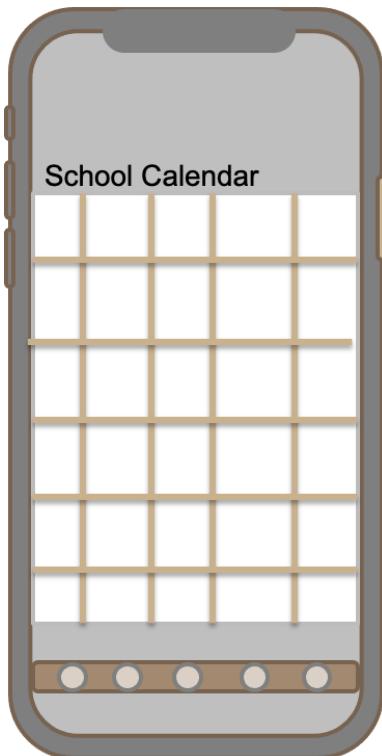
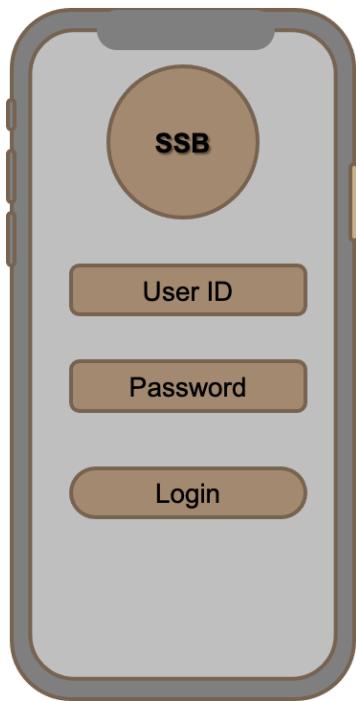
From there, we had to figure out how to get our application on the Apple App Store and Google Play Store. After purchasing an Apple Developer account, we had to configure the Xcode runner file. After building, archiving, validating, and distributing our app, we were approved for external beta testing. After receiving feedback from users at our school, we improved our app and made it public on the App Store.

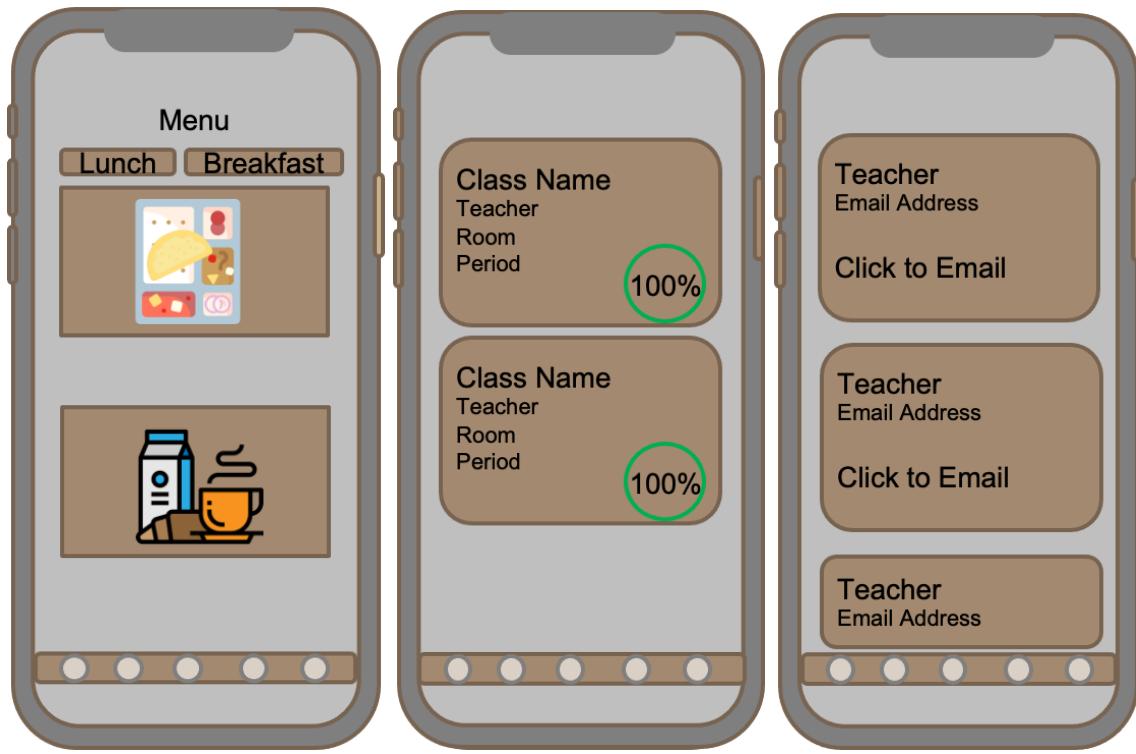
Improvements

Since then, we have added a grade calculator feature, improved UI, a bug reporting system, Gwinnett County Public Schools' Twitter, and light and dark mode.

Currently, our app's version is 1.0.9. To maintain the proper pace, we set deadlines for each team member to submit their specific task. Through this pacing method, we were able to efficiently maintain the schedule for pushing the app to the App Store and Play Store.

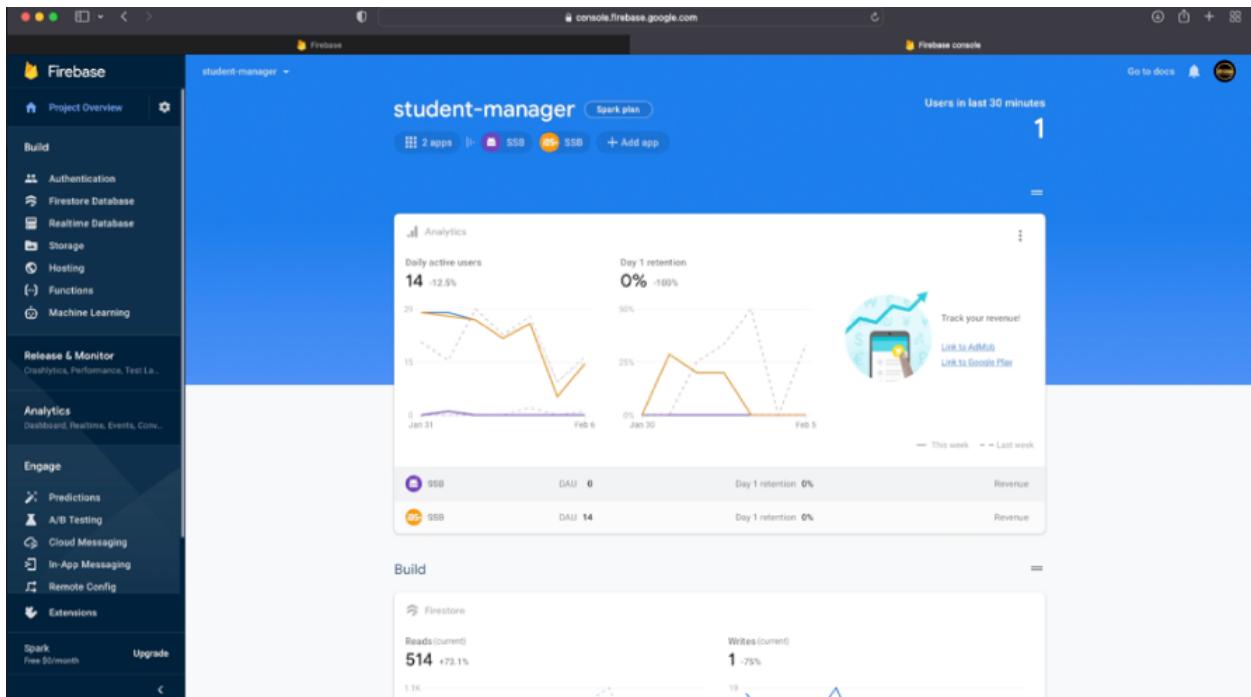
The mockups are shown below.





Firebase

For our backend server, we decided to use Firebase, a free Backend-as-a-Service (BaaS) app development platform by Google. Through Firebase, we are able to easily host many backend services such as authenticating users when they sign up/sign into the app, or if a user finds a bug within the app, the bug reporting system is also hosted by Firebase. Whenever a user reports a bug, their message is sent to that specific database, for us to review. Additionally, Firebase includes a realtime database allowing the application to immediately rerender in real time if any changes are made.



App Logo

The icon for Students Study Better includes the acronym "SSB" which represents the app's developers, Suraj, Shafil, and Benito, and the graduation cap, which represents GCPS students' academic achievements and motivation to study better.

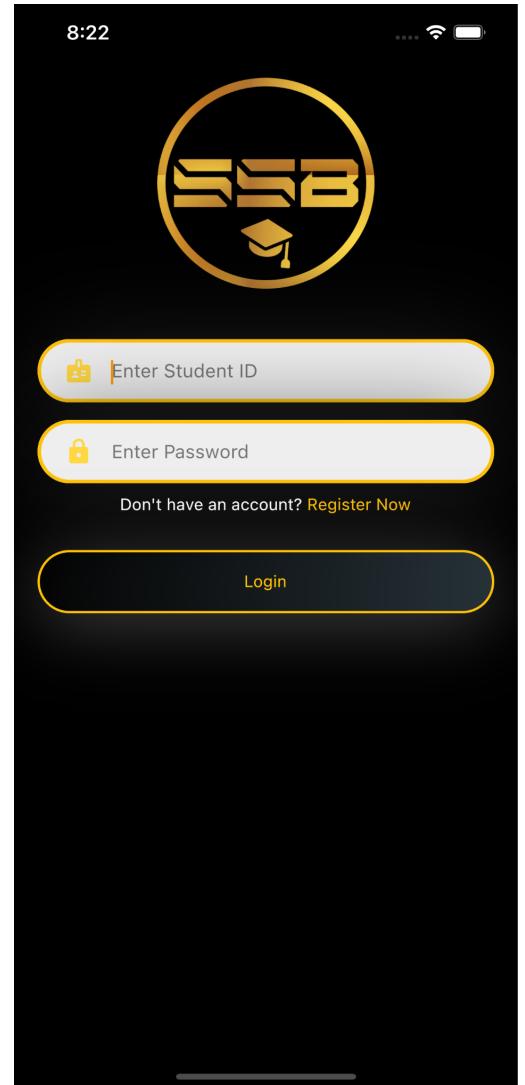


Screenshots

Login Page

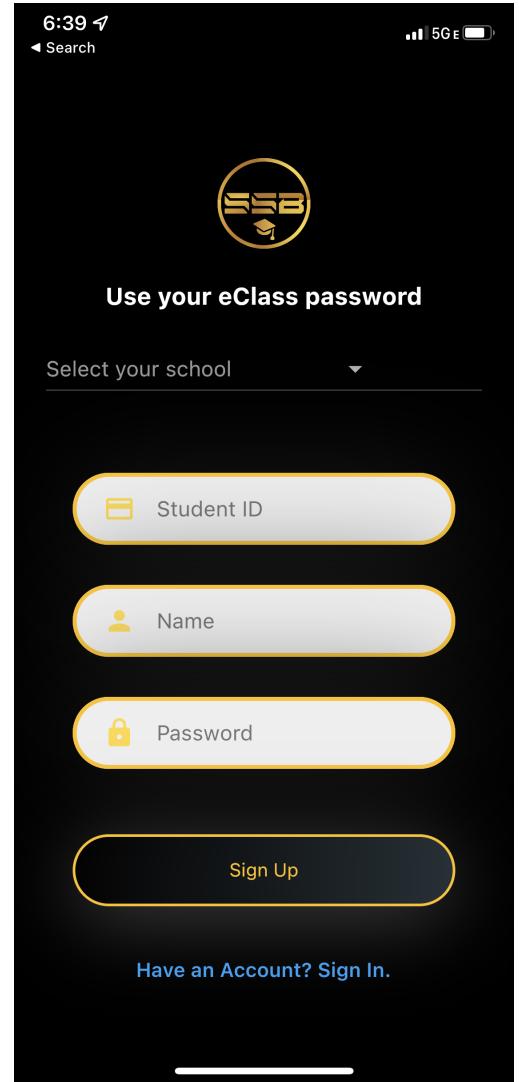
Once the user opens up the app, the user is then greeted by the Login Page. From there, users may input their login credentials and tap the “login” button to navigate to the Home page.

First time users can click on the “Register Now” button, at the bottom to navigate to the “Sign up” page.



Sign Up Page

On this page, first - users may sign up to create an account to join Students Study Better. After inputting all of their information, users can sign up by tapping the “Sign Up” button located at the bottom of the screen. If the users correctly input their information they will navigate to the home page. Each user’s information is stored in the backend database.



Home Page

Upon entering the information, the users will navigate to the home page. The user is then welcomed with the corresponding information. The home page has a dashboard including the Student ID barcode, the user's profile picture, User's ID, and high school. Along the bottom of the page a navigation bar is displayed to help the users navigate to the different screens of the app.



Events Page - Calendar

When the user lands on the Events

page, they will be greeted with the

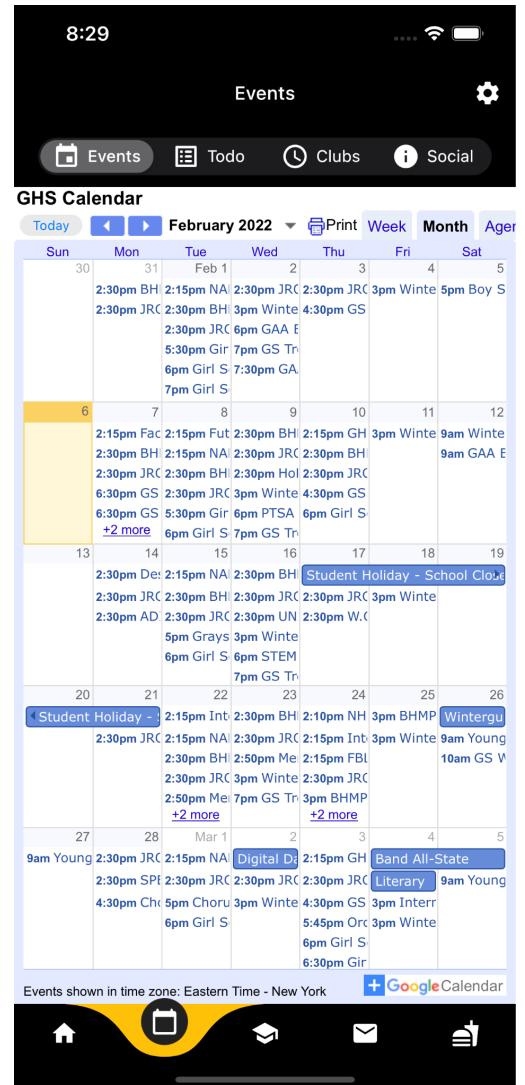
Calendar. The calendar page is

integrated into the app based on the

user's corresponding high school. On

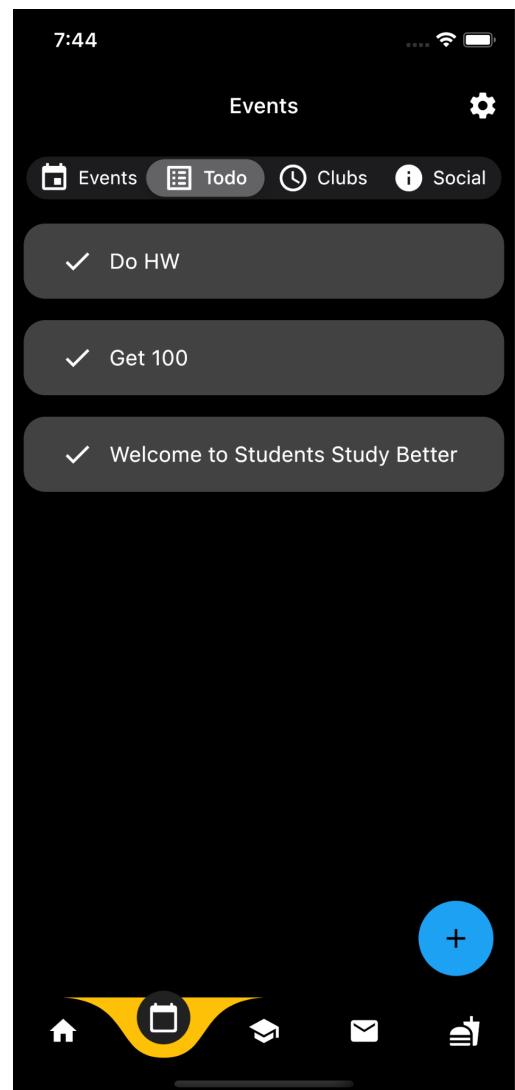
the calendar, users can see important

dates and events.



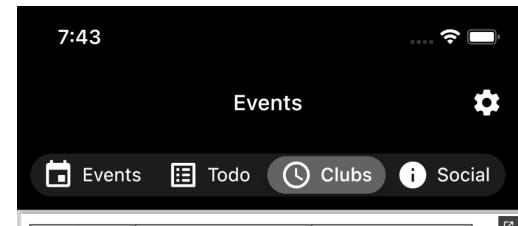
Events Page - To-Do List

The To-Do list is presented on the events tab of the app. The user can simply enter their class schedule and activities/assignments. By facilitating the user's awareness of what needs to be accomplished, the To-Do list serves the purpose of reminding them of what needs to be done.



Events Page - Clubs

The clubs page is added to the app because it helps the users view what extracurricular activities there are that the school has to offer.



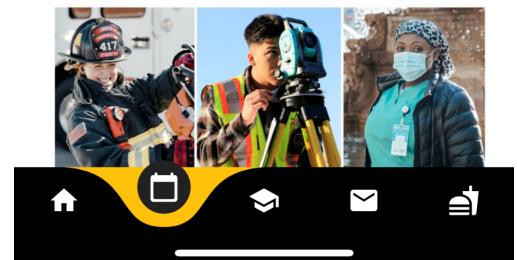
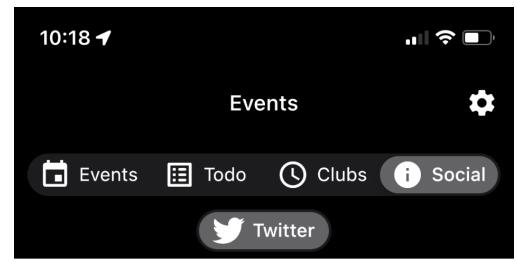
Club/Activity	Mission Statement	Sponsor(s)
Asian Diversity Club	The mission of the Asian Diversity Club is to create a community to advocate for Asian diversity, develop strong bonds between students, and spread awareness about the Asian experience.	Ashley Yoo
Best Buddies	A student-led movement that creates opportunities for people with disabilities, leadership development, and inclusive living for individuals with intellectual and developmental disabilities.	McKenzie Harrison, Tana Shackleton
Book	To develop a love of reading, appreciation for reading and learning.	Devine Wright
BETA	A student-centered organization promoting the ideals of character, service, and leadership. BETA rewards achievement, promotes scholarship, and encourages students to continue their education. Students must maintain a 3.25 GPA and complete 40 hours of BETA sponsored community service each year.	Jolly Shah, Lauren Horton
Certamen	To engage students in the specialties of ancient religion, literature, culture, and language, and to represent our school in interscholastic competition with Latin students from across the state.	Ariane Belzer
Claim Your Campus	A student-led organization that gathers students to pray weekly for their schools with the hope that students will grow in faith and love.	Hamika Cooper
Coding	To learn how to program, learn the basics of computer programming, gain problem solving and logical thinking skills, and make friends.	Wendy Dyer
Computer Science Honor Society	Encourage personal growth and success in computing courses, increase access and opportunity to computing in Grayson High School, and encourage student academic growth and promote service with the Grayson Community.	Wendy Dyer
Dance	Striving for excellence via movement	Sponsor TBA

DECA	To prepare emerging leaders and entrepreneurs for careers in marketing, finance, hospitality and management through the Marketing Management Pathway and Business Services Pathway.	Tara Gunter
Diamond Girls	To provide the Grayson Baseball program with all services associated with the concession stand and special themed game days. To provide a positive atmosphere at the baseball facility with a kind, positive environment as we interact with players, coaches, and spectators at all GHS baseball games.	Karen Bova
FBLA	To bring business and education together in a positive working relationship through innovative leadership, professional development, and networking.	Wendy Dyer
FCA	To lead everyone in a growing relationship with Jesus Christ and His Church and to see the world transformed by the love of Christ.	Teairdra Storey
FCCLA	To promote personal growth and leadership development through family and consumer sciences education, family involvement, and service to family, member, wage earner and community leader.	Philip Garrett, Margaret Beshiri
FGE	Encouraging personal growth by inviting, inspiring, and investing in our community.	Julie Blair
F.I.R.S.T. Robotics	For Inspiration and Recognition of Science and Technology	Shawn Merchant
French	Promote the French language and francophone culture through club and service activities, as well as fundraising for club, school and community needs.	Rachel Fowler
Freshman Mentors	To help ensure the academic and social success of our Freshmen.	Denise Hawkins
Fusion (formerly Poetic Flow)	A student-led safe space for creative people to come together, share, and promote themselves through art.	Victoria Powell



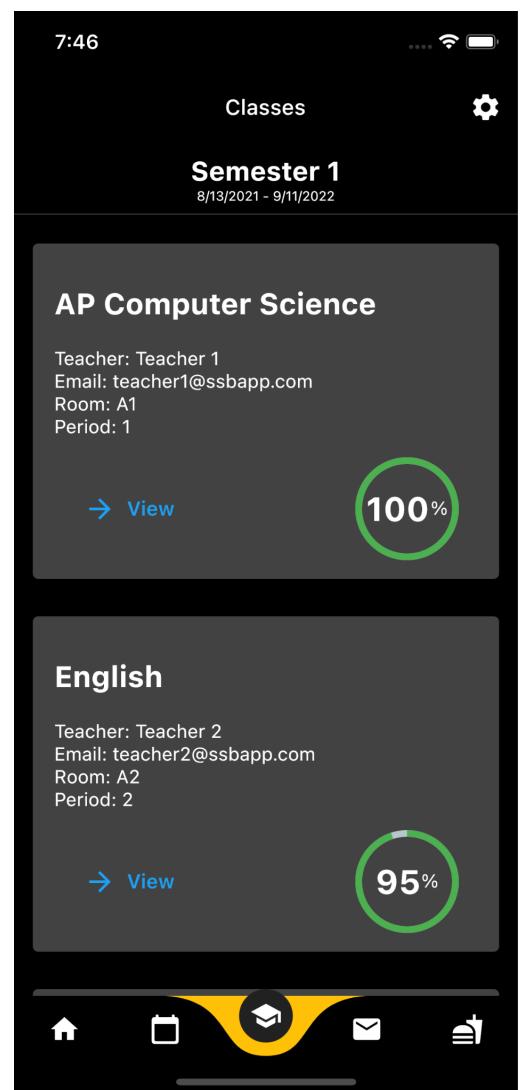
Events Page - Social Media

This page of the app shows a live feed of tweets from Gwinnett County Public Schools.



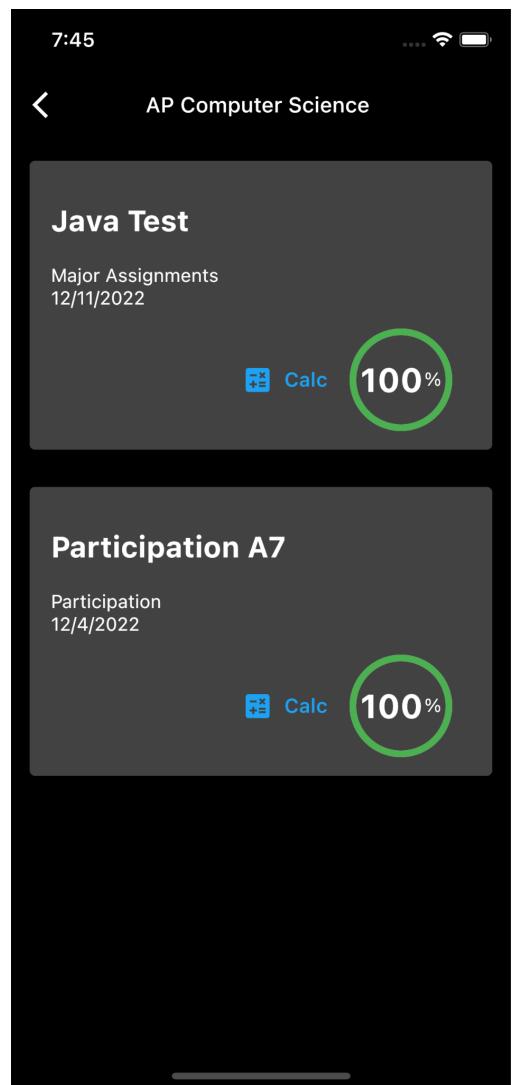
Grades Page

The Grades Page shows the user the grades for each class. The gradebook is designed to coordinate with the class schedule format of the user. In addition, it provides the teacher's name, room number, and email address.



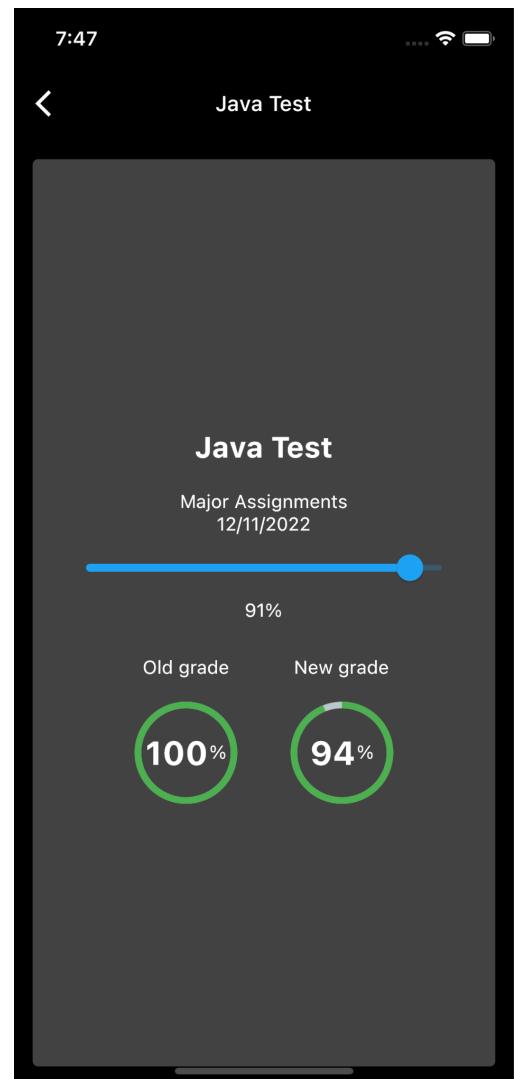
Grades Page - Assignments

If the user wants, they can view their different assignments from the Grades Page. Each assignment is displayed in chronological order, starting with the most recent. The user can use this to see how they did on a particular assignment.



Grades Page - Grade Calculator

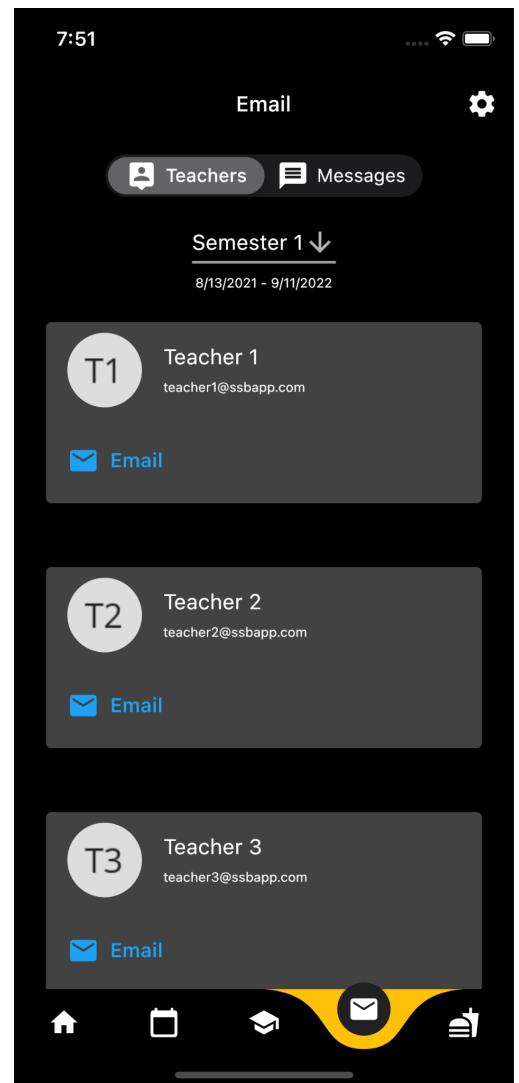
The user can check the cumulative grade average for each assignment by clicking on the "Calc" button. Simply dragging the slider allows the user to determine what grade they will need in the future to maintain their current grade average or to improve to achieve their respective class grade.



Email Page - Email

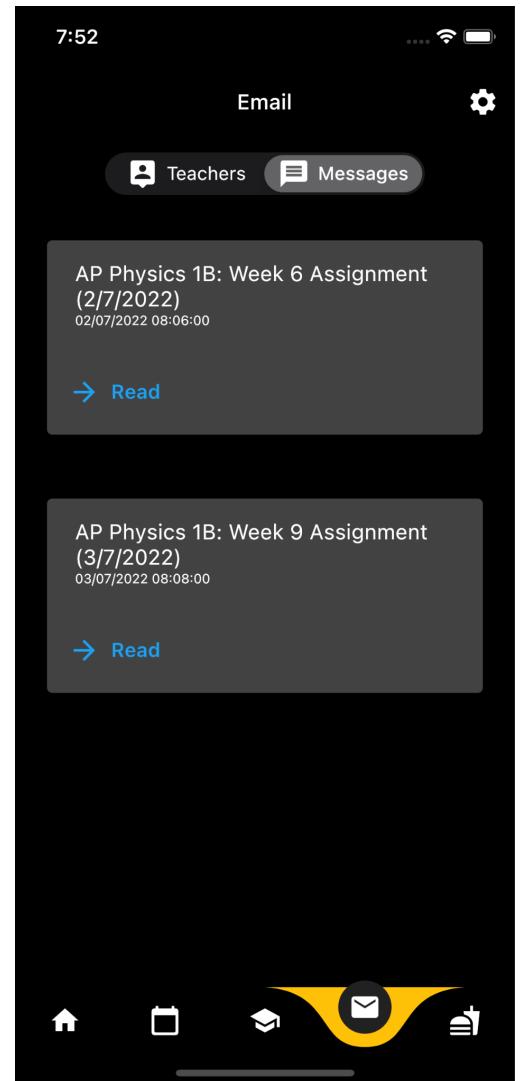
The Mailing tab, like the grade book the mailing tab is in a format of the users class schedule. The user then can click whichever teacher they want to email. When the user chooses who they want to email, the app then opens the user's native mail app.

The user then can send the email to their respective teacher.



Email Page - Messages

The Messaging tab, on the other hand, is where the user can view what emails or important messages their teachers have sent.



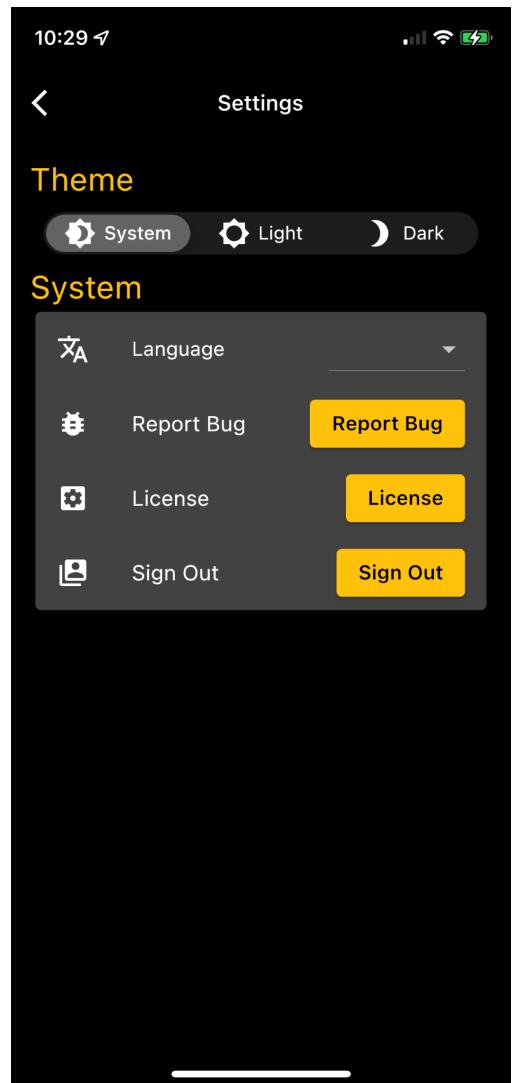
Menu

App users can view lunch and breakfast items for the day using the Menu tab. By clicking their respective buttons, users can change between breakfast and lunch. The user has the option of selecting the date that they want and view the available options.



Settings Page

In the settings page the user has the option to switch themes, light or dark, or by their system theme. The user has the ability to switch between different languages. The application has a bug reporting system where the user can report different bugs in the app and send it to the “Students Study Better” email. Underneath the Bug reporting system is the License tab where users can see what licenses and components were needed for this app. Lastly, the



settings page incorporates a “Sign Out” button where users are able to sign out of the app, navigating them to the Login Screen.