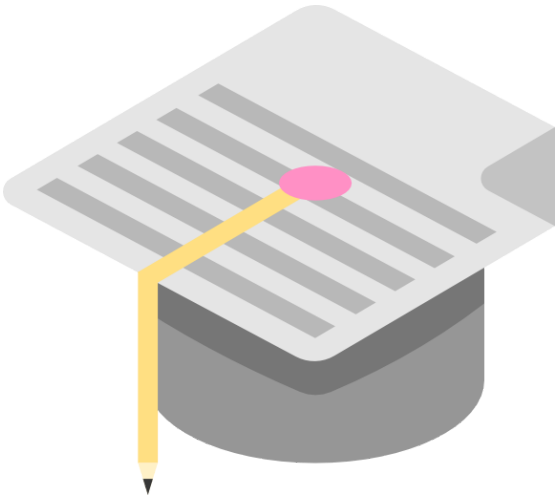

App Assist

Janani Ganesh, Lauren Crisostomo, Yuki Keung, Zach Richards

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Executive Summary

Students applying to college have to research many different colleges in order to be well informed through the application process. Our mobile application, App Assist, serves as a college admissions process guide for students. Our target audience for this application are high school and transfer students looking to apply for college.

Our competitors provide students access to college data based on different categories. We plan to include distinct features and enter into a market that provides for both schools and individual students. Based on competitor pricing, customer satisfaction, and revenue, the individual student plan will have two options. The first option will be free with limited features and the second option will be a premium version which includes all the features and will cost $13. The school plan will be based on the number of students and cost about $10 per student.

In order to get people to use our application, we will use the online digital advertising platforms Google Ads and Facebook Ads. We will also distribute flyers to promote our application in areas with a high volume of students applying to college such as SAT and ACT testing sites. App Assist will be made available on Apple's App Store and the Google Play Store in order to reach a large number of people. Our app will have to comply with the App Store and Google Play Store guidelines.

App Assist will go through hybrid app development. Our team will use the web technologies of HTML, CSS, and JavaScript which is then packaged into a native application that will be available for Android and iOS.

App Assist will have the following features to help students in the college application process: survey to find best fit colleges, list of colleges, to-do list, tips on essays including essay submissions for feedback, and a discussion forum. To help students decide on their final acceptance the app will have comparison charts and additional resources to finalize their college acceptance.

In order to process payments, BrainTree will be implemented into our application for a cost of 2.9% + $0.30 per transaction plus additional fees. After purchasing the application the invoice statements will be automatically generated and sent through email.

Our app will go through requirements, functional, compatibility, usability, performance, and security testing to ensure quality and safety.

Market Research

Competition and Intellectual Property

Competition

We are entering into a market competition with companies that include Niche, Hobson, and CollegeHunch. All three companies provide similar services that give students access to data on colleges. The data is categorized into accepted student percentiles, academics, professors, value, location, majors, diversity, and more. To separate us from competing services our app will include distinct features:

- Major/Program comparison for different colleges
- Tips and deadlines for college applications
- Feedback for college application essays

Niche offers College Rankings as a website and mobile application. Their service also includes Your Best Fit[BETA], a survey on student's preferences to create a personalized list of colleges. Adding the key features described above will help our app attract more students, but it will be more challenging to get colleges to promote and use our app. [15]

At Niche, colleges have the ability to claim their school for free, participate in advertising and partnership opportunities [12], and upgrade to premium to showcase their school. With the premium profile, colleges have access to what is described in the *Figure 1* below [15].

WHAT YOU GET WITH NICHE	Basic Profile Your school already has a presence on Niche for free!	Premium Profile Upgrade to get a **2-4x** increase in profile engagement.
Access to Update Data	✓	✓
Link to Your Website	✓	✓
Monthly Partner Insight Report	✓	✓
Custom Cover Photo	✓	✓
Apply, Visit, & Learn More Links		✓
"From the School" Message		✓
Spotlight Major		✓
Four Custom Links		✓
YouTube Video Highlight		✓
Instagram Integration		✓
Website Link on Read More Pages		✓
Enhanced Listing in Search		✓
No Banner Ads on Your Profile		✓
SEO Friendly Links		✓

Figure 1: Niche - Basic vs Premium Profile

Purchasing Niche Data starts at $5,000 and allows for market insights and gives schools the option to display data on their own site. Niche offers many opportunities for colleges to interact

not only on the website, but also with students. We must design different ways colleges can interact with our app and provide them an opportunity to advertise what makes their school unique and beneficial to prospective students.

Naviance, created by Hobson, is a college and career readiness service that guides students to prepare for the future [23]. Their key features include: Social Emotional Learning, Interpersonal Skills, Academic Skills, Career Readiness, College Knowledge, Transition Skills, and Analytics and Reporting. Naviance is distributed as a website subscription service that school districts can purchase for all their students to use. The pricing points for Naviance in 2017-2018 for Los Angeles Unified School District are shown in the table below [22].

Table 1: Naviance Pricing Points

	Site Based License Fees		
Description	Per Student Cost	Site Minimum*	Site Minimum Enrollment
Naviance Curriculum	$2.30	$2310	1004
Course Planner	$1.05	$1045	995
Career Key	N/A	$225	N/A
Alumni Tracker	$4.50	$425	878
Naviance SAT + ACT	$2.50	$3950	860
Naviance ACT WorkKeys	$2.50	$2150	500
X2VOL	N/A	$1250	N/A

**Naviance Configurable add-ons may require site minimum investment to satisfy license requirements – see site level enrollment requirements in last column*

CollegeHunch is a mobile application that provides data for 1,000 four year colleges and is capable of building spreadsheets for college comparison. CollegeHunch is the most accessible to the public because there are no premium upgrades or subscriptions through schools. There is only one optional cost of $2.00 for personalized spreadsheets to compare colleges. [28]

While Niche and CollegeHunch are available to the public, with the option of upgrading, Naviance is in a market directed towards K-12 schools, where the school district pays for accessibility for the students. In order to be competitive, we aim to enter both markets to accommodate individual students and schools.

Intellectual Property

Mentioned earlier, companies like Niche, Hobson, and CollegeHunch have already created a service that helps students apply and choose their college. The data on all three competing services are compiled from public databases, like the U.S. Department of Education and reviews [14]. We will also have access to the public databases for the features we share with our competitors. To attract more students and colleges to our app, we need to gather information from college websites.

Niche analyzes public data sets and over 100 million reviews/surveys to create their rankings. They also offer rankings for K-12 schools, places to live, and places to work. Niche offers more than college rankings, so users can be returning to Niche because of their positive experience using the other ranking services. [15]

Naviance was created by Hobson, a company that also offers Intersect for best-fit recruitment and Starfish for student success and advising. Gallup StrengthsExplorer® and AchieveWORKS® are trademarked and used within Naviance [23]. These features are assessments that identify students' strengths, personality types, learning styles, and more. We need to create our own college survey to avoid the legal issues involved with taking the name of their assessments.

CollegeHunch has a registered trademark logo and name, so it was for us important to strategically come up with our logo and unique name, App Assist.

Customers and Pricing

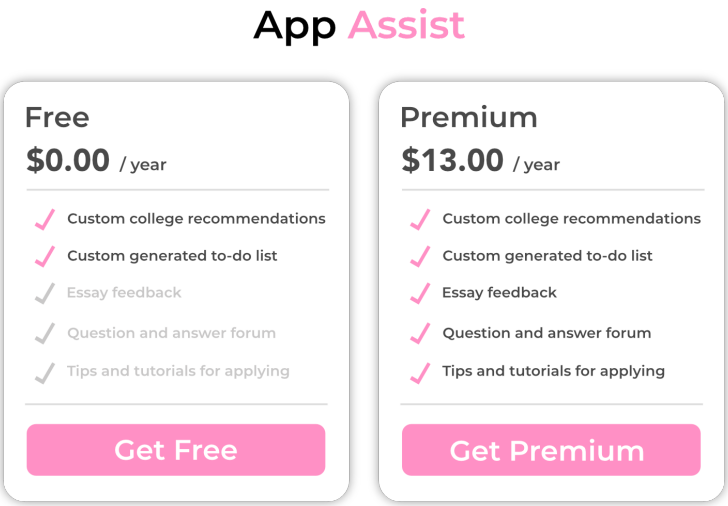


Figure 2: Free vs Premium Account

Customers

The application, App Assist, is designed for high school and transfer students (14+) in the US looking to apply for college. The app will provide data that is necessary, serving as a guide through the college application process. There are approximately 15.3 million high school students in America annually [21] and about 4.9 million transfer students annually. After taking into account the fact that some students prefer to take gap years, go into the army, take care of family, and more, at least 10 million students will be going through the college application process per year [1].

Pricing

The average cost to develop a basic database app is anywhere from $100k to $150k [19]. For the development of App Assist, React Native will be used to create the app for IOS and Android. The app will utilise public databases to find and provide the most recent information available to the customers. Public databases will be useful as they will not require cost for the information.

Table 2: Pricing for Number of Employees to Hire

Name of Position	Amount	Type of Position	Annual Pay Per Individual	Total Annual Pay
Software Developer (Mobile Developer & Backend Developer + 2 more)	4	Full Time	$70,000	$280,000

User Interface Designer (UI/UX)	1	Full Time	$90,000	$90,000
Development and Operations Specialist	1	Full Time	$95,000	$95,000
Data Analyst	1	Full Time	$62,000	$62,000
Experienced Writing Instructor	3*	Full Time	$70,000	$210,000
Software Application Tester	1	Full Time	$70,000	$70,000
Writing Tutor Interns	10*	Intern (Summer Interns - 35 hrs per week) or (Year Round Interns - 15 hrs per week) [17]	Summer Intern - $5250 Year Round Intern - $11,700	Max - $117,000 Min - $52,500
Advertising Interns	10	Intern (Summer Interns - 35 hrs per week) or (Year Round Interns - 15 hrs per week) [17]	Summer Intern - $5250 Year Round Intern - $11,700	Max - $117,000 Min - $52,500

* (subject to change depending on number of users)

Additionally, it is necessary to have at least two Software developers, a Mobile and Backend developer [18], to develop the app and two more to maintain the app [17]. A software developer's pay is approximately $70,000 annually and the total annual pay will be about $280,000. The next worker required would be a User Interface Designer [18]. Their job will be to design the interface that the customers will be interacting with. On average a User Interface Designer's annual salary is about $90,000. A Data Analyst and a Development and Operations (Devops) specialist will be required in order to find the most recent information to include in the app and update it in the application [18]. The annual pay for the data analyst and the devops specialist are $62,000 [5] and $95,000 [6], respectively. In order to test the application to evaluate it and ensure the safety and privacy of the customer's information, it is necessary to include a Software Application Tester who is paid about $70,000 per year [18].

Included with the premium features of the app, is the option to have a limited amount of college essays edited by experienced writers. An experienced writing instructor's salary is about $70,000 annually, and as three will be necessary for this app it adds up to a total annual pay of $210,000. Moreover, about 10 writing interns will also be hired, but the number will be subject to change depending on how many customers purchase the premium feature and utilize the essay feedback option. This will cost a maximum of about $117,000 if all interns are year round and a

minimum of $52,000 if all are summer interns [17]. In addition, advertising interns will also be hired in order to promote the application, hand out flyers, and send out emails to high school students. The pricing will be the same as for the writing interns [17]. During the development of the app, a website will also be created throughout the same time period, which will be covered in the app development costs.

Furthermore, there are costs associated with advertising and billing. For advertising, if the company were to print out flyers, for every 100,000 flyers the cost would be about $1,400. Additionally for advertising, the interns would be able to send out emails to high school students about the app, which would not cost money. For the processing and billing of the payments in the app, BrainTree will be utilized. There is an additional charge for the admins to pay of 2.9% + $0.30 for each payment made by the customers.

Pricing ranges of our competitors (Naviance, Niche, and CollegeHunch) indicated that the per student cost is about $10. Each of the platforms has their own type of service. Naviance is provided by the schools, while CollegeHunch and Niche are individually bought. It was determined that a student option and a school option together for the app would be best.

The student (individual) option would include a free version with limited features and include a premium version with all features costing approximately $13 per individual. Individuals will be given the option to input net family income which will be verified, and if it is less than $50,000, the student will be given a free premium account.

The school (group) option would include all the features a premium student account would include and cost about $10 per student. A public US high school contains an average of 526 students [1], so it would be a total package of about $5,260 for that high school. If a school wishes to purchase the package, they will be required to input certain data including the number of students which will determine the price for their package.

Aside from the cost of the app, another way to gain revenue would be to allow the colleges to advertise themselves on the app. The cost per mille, every thousand clicks, is an average of $3.50, which would result in additional revenue.

The first year will cost a maximum of about $1.2 million, and years after that about $1.1 million dollars. In order to make 150% revenue, income must be at least $1.8 million for the first year. After assuming (assumption based on revenue of competition [24]) about 10 million students are going through the college process and at least 2% of those students purchase the premium, there will be enough revenue and profit for success.

Distribution and Sales

Advertising

In 2019, 96% of adults in the United States owned a smartphone and this number has only grown until today. [10] Because of this, we are primarily using digital advertising, including Google Ads and Facebook Ads to make our product known.

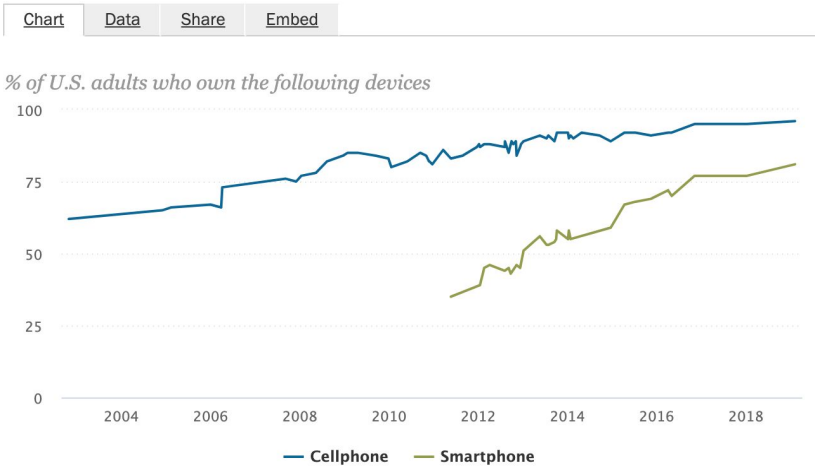


Figure 3: US Smartphone Ownership Graph

Online Digital Advertising

Google ads offers a few types of ads including ads that appear under relevant searches, YouTube videos and browsing websites that use Google adsense. [13] Facebook Ads is a similar service, however ads are shown on FaceBook's social media applications including FaceBook, Instagram, Messenger, and Audience Network. [2] With both services, there are also many options to customize the ads. This includes setting a budget, format, and audience that the advertisement is intended for. Because we are able to specify a budget for our application, we are able to spend whatever amount of money on digital advertising that we would like to. This means that we can either increase or decrease the spending depending on how much exposure we would like to receive.

Physical Advertising (Flyers)

Another advertising method we plan on using is printing and distributing physical fliers to people who are soon to graduate high school. We plan to distribute these flyers in areas where there

are high concentrations of pre-college high school students such as AP, SAT, and ACT testing sites in order to reach our target audience.

The article “The impact of store flyers on store traffic and store sales: a geo-marketing approach”[16] takes the findings of a few other research studies in order to determine how beneficial using flyers for advertisements really is and what can be done to increase the impact of the flyers. One strategy it mentions to be very effective is to offer “a large average price reduction” on the flyer in order to increase the traffic to your store. While our application is not a physical store, there is a good chance that this tactic would work on our flyers as well. By implementing some sort of coupon code, that gives the person for example, a month of free access to the premium version of our application, we are likely to get more users and thus generate more revenue.

There are many online services to have flyers printed, including one called UPrinting. The fliers on this site cost one to two cents depending on the number of fliers. (one cent for 35,000 or more flyers, two cents for less than 35,000 flyers). This seems to be a very cost effective strategy for getting the word out for our business. For 100,000 flyers it would cost $1,358.13 which is relatively small compared to the other expenses of developing this application. [9]

The only issue with choosing to advertise via physical media is finding means to distribute these flyers. Some areas with a large concentration of students applying to college include testing sites, high schools, and tutoring centers. It is difficult to get an exact estimate of how much it would cost to distribute all the flyers to each of these places. There are flyer distribution services, however, most are local to specific locations. One way to solve this is to post ads for people to distribute the flyers and work with them directly.

Distribution

Since our product is digital, this makes distribution fairly simple. Services such as the Google Play Store and Apple’s App Store allow us to easily share our app with the world by simply uploading it to their service.

The total revenue on the App Store was $21.4 billion while the total revenue on the Google Play Store was only $10.4 billion. This number is all revenue generated by each store including “advertising, in-app purchases, subscriptions and app purchases”. [4] The Google Play Store and App Store had 10.4 and 5.4 billion app downloads respectively. In order to maximize our profit and the exposure of our application, we will distribute our application on both the App Store and Google Play Store.

Once the app is fully developed and ready to be published the application needs to be submitted for review to be checked against Apple’s review Guidelines. Unlike Apple’s App Store, the Google Play Store does not require the application to be reviewed.

Both stores do take 30% commission however this falls to 15% commission on subscriptions services, like our own, after one year. This is a large price to pay, however having our apps on these stores will likely increase the exposure, ease of using our service, and overall have a large impact on the number of users our application sees. [3]

We also intend to create a web application to run on a website. Hosting our application on the web allows us to reach every platform with an internet connection without having to make custom applications for each platform.

There is also the possibility, depending on the complexity of our application, that it could become necessary to have a server running to communicate with the clients. This would also provide a lot of flexibility on how we could structure the application.

The price of hosting services can vary depending on the scale and complexity of the application. Services such as Amazon Web Services and Google Cloud Platform both offer solutions to host web applications. There are also features built into both that allow the service to scale depending on the amount of traffic being sent to the site.

Legal Requirements and Approvals

App Store and Google Play Store Guidelines

The guidelines for submitting an app to the App Store and Google Play are divided into five sections: safety, performance, business, privacy, and intellectual property [11],[20]. Below are the following guidelines that are relevant to our app.

Safety
Our app should not contain content that is offensive or insensitive. Examples include discriminatory content, content that encourages illegal use of weapons, and false information and features.

Performance
When submitting the app for review, it should be the final version with all necessary metadata and functional URLs included. We need to make sure to test the app for bugs and stability before submitting it.

Business
Our app can offer a free time-based trial period with the naming convention “XX-day Trial” before presenting a full unlocked version. For free trials, we will clearly describe the terms of the offer, including the duration, pricing, and description of accessible content or services. We will make sure to also let the users know when the free trial is over and whether it will be converted to a paid subscription. For subscriptions, the offer has to be explicit and includes the cost and the billing frequency.

Privacy
Our app must include a link to the privacy policy that clearly: identifies data the app collects, how the data is collected, and how the data is used; confirms that any data shared to third parties will provide equal protection of user data; explains the data retention and deletion policies. For Google Play, the privacy policy should be posted in the designated area in the Play Console and within the app itself. Our app must have user consent before collecting user data and should only request access to data that is relevant to the core functionality of the app. It must also respect the users and not attempt to manipulate or force people to consent to unnecessary data access. Unless permitted by law, we may not use someone’s personal data without first obtaining their permission. When dealing with personal data, there are laws such as the Children’s Online Privacy Act (COPPA), California Consumer Privacy Act (CCPA), and the California Online Privacy Protection Act (CalOPPA). COPPA does not apply to our business as our app is directed to high school students (14+).

CCPA gives consumers more control over their personal information that businesses collect about them [7]. California consumers have new privacy rights, including:

- The right to know about how a business collects personal information and uses it
- The right to delete personal information that a business has collected from them
- The right to opt-out of the sale of their personal information to third parties
- The right to non-discrimination for exercising their CCPA rights

However, the CCPA only affects business who satisfy any of the following requirements:

- Make at least $25 million in annual revenue
- Annually buy, sell, or receive more than 50,000 users' or devices' data
- Earn 50% or more of their revenue from selling consumers' personal information

Since we are just starting up our business, we are not sure whether these requirements will be met. However, many states, such as New York and Hawaii, have similar privacy laws, so it is best to comply with CCPA.

CalOPPA was drafted to protect the privacy rights of California residents [8]. It applies to any website or online service that collects personally identifiable information from users living in California. To follow the requirements of CalOPPA, our business must have a privacy policy on the website or mobile app. The privacy policy must be posted in an obvious location where it is easy to access. It should include the type of personal information collected, any third parties who may collect personal information, the effective data of the privacy policy, and include how the business responds to the "Do Not Track" requests from users. CalOPPA applies to our service because to create an account, the user has to input their first and last name and their email address.

Intellectual Property

Our app should only include content that we created or that we have a license to use. Generally, apps should not use third-party material, such as trademarks and copyrighted works without permission.

Terms and Conditions

Although a Terms and Conditions agreement is not required by law, it is highly recommended to avoid future legal issues. A Terms and Conditions is a legal agreement that includes the rules, requirements, restrictions, and limitations that the user must agree to when using our app/website [27]. Having one is important for protecting our business as it sets legally binding rules on how users can interact with the app/website, which limits our liability to users. These are some common clauses that are often included:

- Intellectual property protection
- Account/service termination
- Restriction on app abuses
- Disclaimer of warranties and liabilities

Design

App Development and Software

With the app concept and features described previously, to design our app we must follow the process of sketch, wireframe, mockup, prototype [6]. The sketch is the first step to visualizing our final product. Hand drawing the basic outline will help visualize our idea and brainstorm how to move forward. The next step is to create a wireframe to layout the user experience of our app. The wireframe is a mind map or flowchart of all the screens in the app [3]. Once the wireframe is completed and improved, the mockup, or user interface, will be created by an app designer. Logos, UI elements, fonts, graphics, colors, designs, and more are added in the mockup. Mockups are the “close-to-final vision” of our mobile app where we will test visual details. The first three steps are “static illustrations that show the structure and functionality” of our app without being able to interact with it. The last step, the prototype, is the interactive blueprint that tests out how the app will perform for our customers.

Once the design process is complete, our app developers and software engineering team will need to begin coding and programming the platform. For our app to grow and gain recognition, we want to be available to both iOS and Android users. We need to first decide on if we want to perform native or hybrid mobile app development. If we were to choose native, we would have to develop the entire app twice (once for iOS and once for Android) because native apps only work on one operating system. The only way to build native apps is to code which is a long process (for example, “it could take up to 985 hours to write code for an app that’s similar to Instagram”). [8]

The obvious choice is hybrid mobile app development. With the use of hybrid app development, there is a quicker development process, there are less complications with coding, it is more cost effective, and it is easy to maintain and update [5]. For hybrid app development, we will be using the web technologies of HTML, CSS, and Javascript [16].

A simple analogy CodeWall uses is “HTML is the skeleton, CSS makes the skeleton beautiful by adding clothes and makeup, JavaScript adds movement (functionality) to the skeleton”; all three elements work together [1]. During the HTML, Hypertext Markup Language, stage, our developer will produce the elements of buttons, images, texts, links, etc for the app. CSS, Cascading Style Sheets, helps design the HTML file with color, font, and display. Javascript gives the application functionality; from clicking a button to loading data. [4]

Once the code is completed from the three web technologies, the code will be “wrapped within a native application using open-source frameworks” [7]. Combining both web and native technologies, allows our mobile app to “run through each platform’s embedded browser instead of the web browser, which means they can be installed on mobile devices and submitted to app stores for sale, just like regular native apps” [7]. The single code hybrid development allows our app to run on multiple platforms rather than choosing between iOS or Android users. Since we

are using the web technologies of HTML, CSS, and JavaScript, our service has the opportunity to be a website as well. By creating a website, schools who purchase our service will be able to give students access on computers at school.

We will use the React Native framework to create our hybrid app. React Native helps developers create an iOS and Android app that is written in JavaScript and rendered with native code [15]. The single codebase will be shared across different platforms to create platform-specific versions without having to create a separate code for each.

Our software developers will be writing our UI elements and implementing college data from open sources. Some of the UI elements will include checkboxes for our to-do list, buttons to browse a different screen, and a search field to research a school. One public database we will be using is the United States Department of Education. Other information like major/minor program pathways, cost of attendance, campus statistics, etc. will be gathered from college websites as well. Data on colleges changes annually, so our data analyst and developer will continuously update the information we provide on our app. BrainTree, a payment service that is described later in this proposal, will also need to be implemented into our application.

College Application Process

Below are the features included in our app that will help students in the college application process.

Finding Best Fit Colleges
After creating an account, the user is given a choice to take a survey that determines their best fit colleges based on unweighted and weighted GPA, SAT/ACT scores, AP scores, and extracurricular activities.

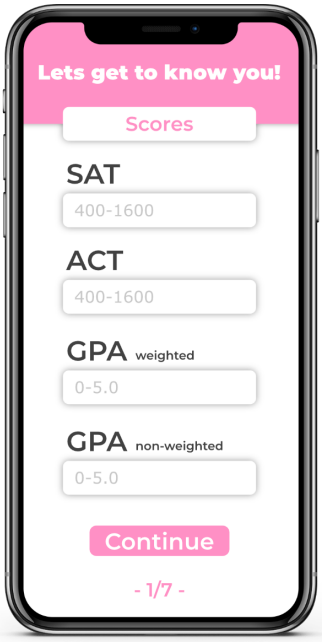


Figure 4: Getting to Know You Survey

List of Colleges
A list of colleges is provided where users can choose which colleges they are interested in and save those to their college list. If the user took the survey, each college will be labeled as reach, target, or safety college depending on their survey results.

Figure 5: College List

To-Do List

Users will have the ability to create a to-do list with different deadlines, such as college application deadlines (regular, early, rolling), deadlines to send high school transcripts and test scores, FAFSA deadline, etc. Users are given the option to enable push notifications for the app. If a deadline is approaching, users will receive a notification to remind them to finish the task. To complete a task, tap on the box to the left of the task you want to complete. If you accidentally complete a task, you can uncomplete the task by locating the task you want to uncomplete, and tap on the check mark to the left of the task.

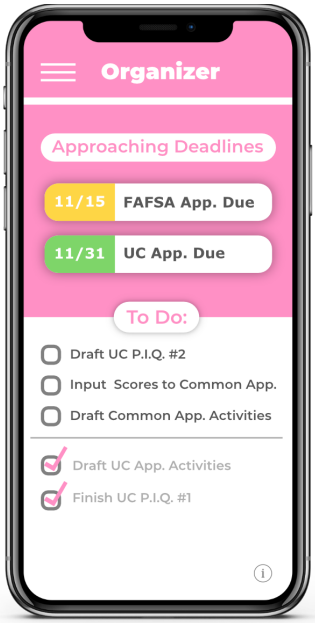


Figure 6: To-Do List

Tutorials

Tutorials will be included on how to get started with college applications, including guides on applying to public, private, and community colleges. A step-by-step guide on how to navigate and submit the Common App, Coalition App, CSU application, and the UC application will be included. In addition, the app will contain a guide on how to apply for financial aid and scholarships.

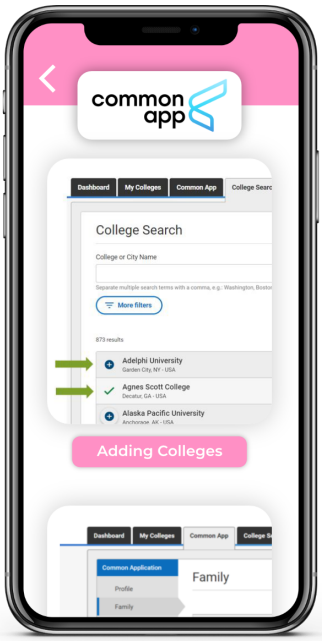


Figure 7: Common App Tutorial

Tips on Essays

Tips on how to write essays for college applications will also be included. Common App essay prompts, UC personal insight questions, and other college essay prompts will be included for people to view. Under each essay prompt, there will be example essays answering the prompt. Users can also submit their essays for feedback through our app. To prevent people from abusing this system, a limit will be placed on the number of essays submitted.

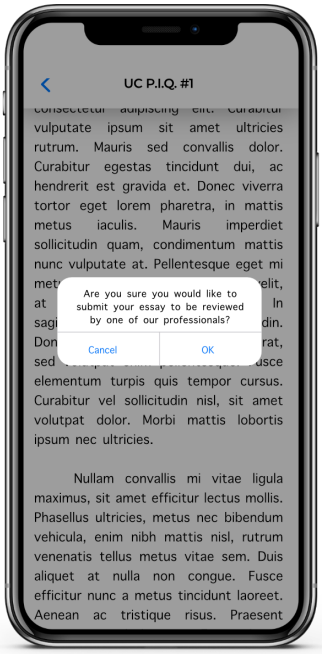


Figure 8: Essay Submission

Discussion Forum

A forum where people can ask questions and get answers will be included. We will have subforums for every college where college admissions officers can answer questions posted by users. Subforums for financial aid discussion and general discussion will also be included. Before users are allowed to post on the forum, they will be required to review the forum rules and posting guidelines. The forum rules and guidelines are to prevent users from using offensive and harmful language and spamming.

College Acceptance Process

After the students are accepted into certain colleges, they will be able to input their college admissions on a survey in the app. The app will allow the students to compare different aspects of each of the colleges such as: programs for their major, cost, location, student to professor ratio, clubs, research opportunities, etc. By doing so, each of the students will be able to narrow down the colleges, removing colleges from the list that they do not plan on accepting and finally choose which college they will accept their admission into.

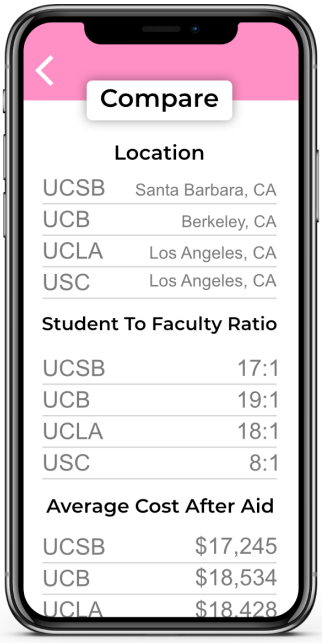


Figure 9: College Comparisons

In order to compare the programs at each of the different colleges, they will have the option to view pdfs and links of their selected programs, which will contain a flowchart/grid of the classes they will be taking in the future. Alongside this information, external links to explore clubs, research opportunities, and more will be provided.

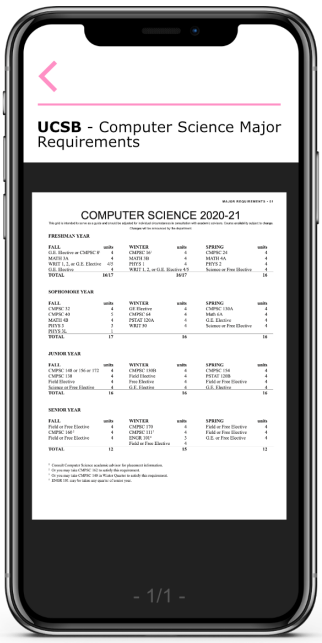


Figure 10: UCSB CS Major Comparison

The other information will be displayed in a chart. Each school will have a row displaying information about the college that will be compared including overall cost, geographic location, size, and student to professor ratio. When comparing the costs, students will have the option to input scholarships that they have received before viewing the chart.

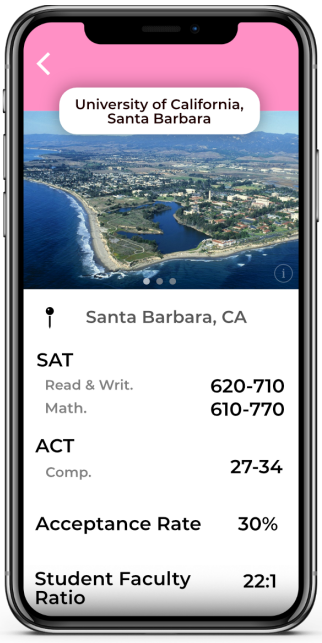


Figure 11: UCSB Profile

Processing

Our customers have the option to purchase a premium account or premium bundle for their schools. On the sign in page there will be an option to sign in as an individual or to sign in with a school. When an individual signs up, they can choose to use the free version or proceed to purchase our premium features. In order to purchase the premium bundle for a school, the school must go through our sign in page and input the necessary information to gather data about the price they will pay based on the number of students they have.

Schools and individuals will go through the same payment process. In order to process the payments we will implement BrainTree into our app and website [19]. The cost of using BrainTree is 2.9% + $0.30 per transaction, with additional fees for non-US currency, non-US credit cards, and chargeback fees [14]. Below (*Figure 12*) is a flowchart that describes the transaction process using BrainTree [14].

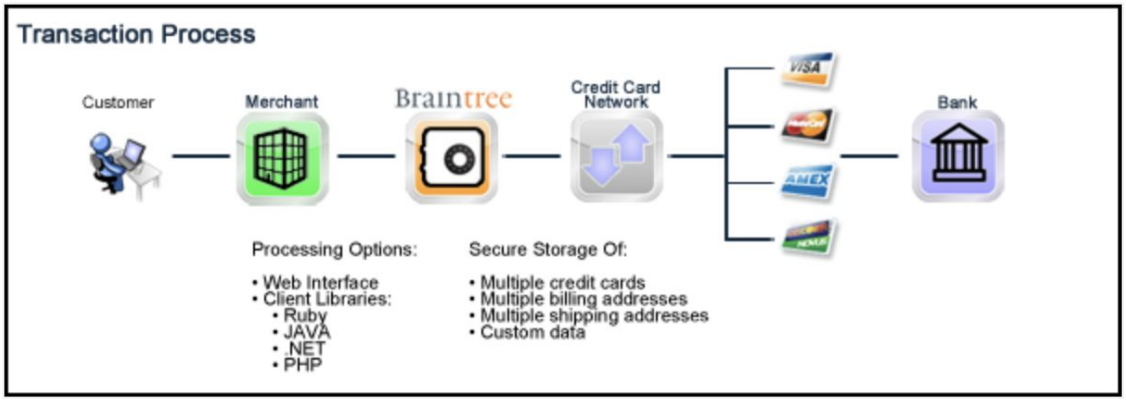


Figure 12: BrainTree Transaction Process

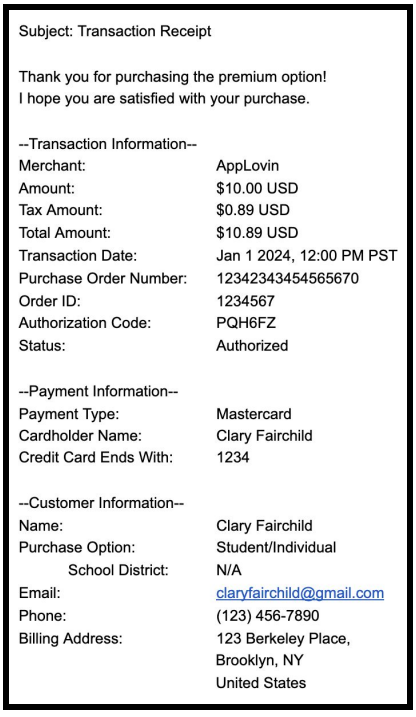
Billing

After purchasing the free app, the individual customers will have the option to additionally purchase the premium account, while schools will be able to purchase the premium bundle for their school. If the individual customers choose the premium option or the school decides to purchase the bundle, their orders will be processed through BrainTree.

The orders will be generated through the app itself. Schools that want to purchase the app will have the option to input key information (name, school district, number of students, email address), which will send an email to the admins of the company. The admins will provide a fitting price based on the number of students and the order will be processed through BrainTree. If the individual customers choose the premium account, there will be a bill for $13 for the individual. However, for underserved individuals purchasing their own account, the bill will be free. In order to determine whether the students are eligible for this discount, they will need to input their net family income into the app and if it is under $50,000 annually the customer will be eligible for a free premium account [17].

There is a small utilization and transaction fee of 2.9% + $0.30 per transaction [14], which will be paid by the admins. There are many payment methods that can be used on BrainTree, some of which include Paypal, Venmo, credit and debit cards, and Apple and Google pay [14]. The invoice statement and receipt will be automatically generated and emailed to the customers.

Mock BrainTree Email Receipt:



Subject: Transaction Receipt

Thank you for purchasing the premium option!
I hope you are satisfied with your purchase.

--Transaction Information--

Merchant:	AppLovin
Amount:	$10.00 USD
Tax Amount:	$0.89 USD
Total Amount:	$10.89 USD
Transaction Date:	Jan 1 2024, 12:00 PM PST
Purchase Order Number:	12342343454565670
Order ID:	1234567
Authorization Code:	PQH6FZ
Status:	Authorized

--Payment Information--

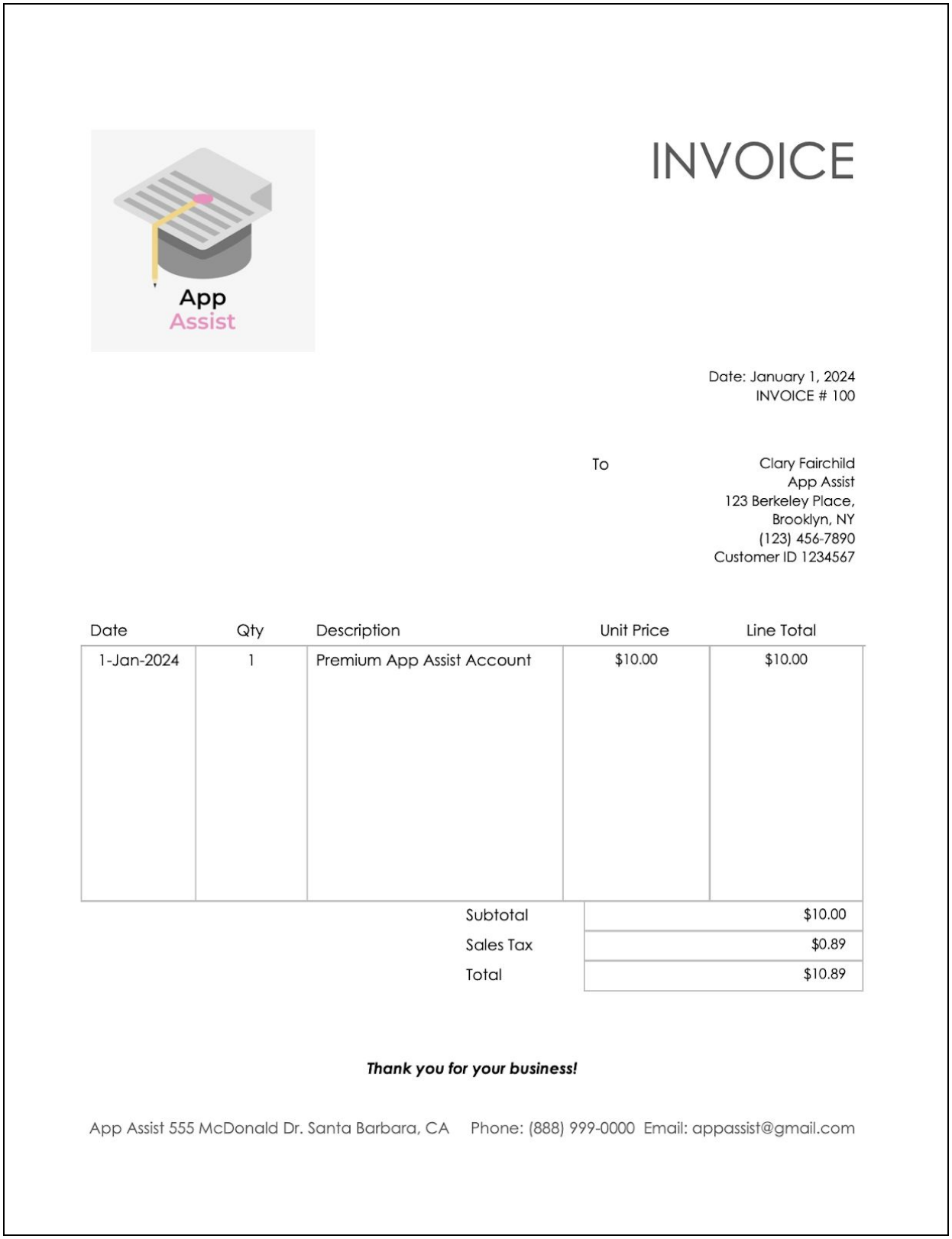
Payment Type:	Mastercard
Cardholder Name:	Clary Fairchild
Credit Card Ends With:	1234

--Customer Information--

Name:	Clary Fairchild
Purchase Option:	Student/Individual
School District:	N/A
Email:	claryfairchild@gmail.com
Phone:	(123) 456-7890
Billing Address:	123 Berkeley Place, Brooklyn, NY United States

Figure 13: BrainTree Email Receipt [10]

Mock Billing Invoice:



App Assist

INVOICE

Date: January 1, 2024
INVOICE # 100

To

Clary Fairchild
App Assist
123 Berkeley Place,
Brooklyn, NY
(123) 456-7890
Customer ID 1234567

Date	Qty	Description	Unit Price	Line Total
1-Jan-2024	1	Premium App Assist Account	$10.00	$10.00

Subtotal	$10.00
Sales Tax	$0.89
Total	$10.89

Thank you for your business!

App Assist 555 McDonald Dr. Santa Barbara, CA Phone: (888) 999-0000 Email: appassist@gmail.com

Figure 14: Billing Invoice

Testing, Quality Assurance, and Post-Sale Service

Testing and Quality Assurance

To test that our app ensures quality and safety, we will be testing our app through six different stages: requirements, functional, compatibility, usability, performance, and security testing [11]. We must test through these six stages before submitting our app to the App Store and Google Play Store.

1. Requirements test: During the requirements testing, we are checking to see whether our app complies with the App Store and Google Play Store legal requirements. We will make sure the privacy policy is included within the app itself. The privacy policy should clearly identify the data our app collects, how the data is collected, and how the data is used.

2. Functional test: Functional testing ensures that the application is functioning properly. This testing focuses on testing the main purpose and flow of the app, ensuring that all the features are responsive. Additionally, we are checking to see if the application installs and runs correctly. Users are able to sign-up and login to their accounts. Lastly, we will test to see if text boxes and buttons work properly.

3. Compatibility test: Compatibility testing is critical for ensuring that our mobile app works on different operating systems, devices, and network environments. We will check to make sure the app is compatible with different devices with varying screen size, data storage, and their various versions (iOS and Android).

4. Usability test: Usability testing checks to see how user-friendly the app is. We must ensure that our app is easy to use and provides a good experience to the users. We will make sure the app has a good layout, intuitive interfaces, and a short response time. To accomplish this, we will hire quality assurance testers. QA testers are great for capturing insight that mirrors actual users of the app. We will be able to identify bugs and find ways to improve customers' experience in the app. To optimize and manage software testing, we will provide QA testers with usability test scripts and feedback questionnaires.

5. Performance test: Performance testing checks how well the app performs under a particular workload. During this stage, we will check for device, network, and server performance [13]. For device performance, we will check how long it takes to start the app up, check battery usage while using the app, check memory consumption, test our app on different devices, and check for interference by testing our app while running other apps. For server performance, we will check the efficiency of data sent to and from the server. The app should not take too much time while loading data. For network performance, we will check for delays in receiving information on the network, packet loss, and network speed.

6. Security test: According to the leading digital and IT company, Dot Com Infoway (DCI), 29.6% of app uninstallations are due to security/privacy issues. This is why security testing is important. Since our app asks for user's personal information, we have to guarantee confidentiality, authenticity, and integrity of the app. In addition, we have to make sure there are no risks of accidental in-app purchases.

App testing is a critical part of the app development process. According to DCI, 62% of users uninstall an app due to software bugs, crashes, and freezes. Testing the app prevents users from uninstalling our app and results in a high-quality product. Customers who are satisfied with an app are more likely to recommend it to their friends, which leads to more people downloading and using our app. Figure 15 lists more reasons why apps should be tested before being released.

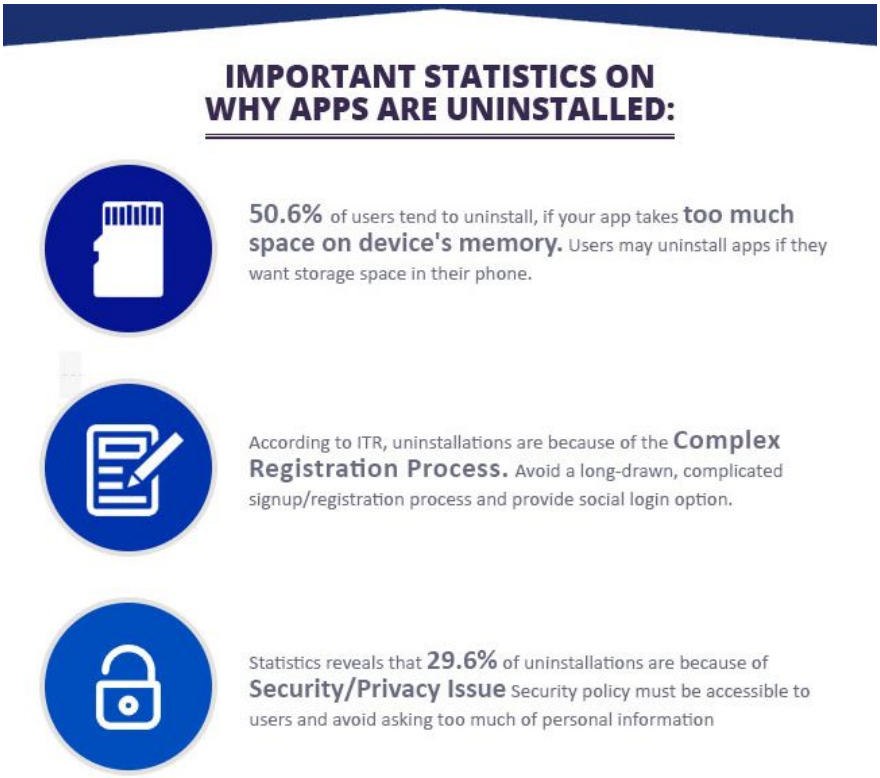


Figure 15: Reasons Why Apps are Uninstalled [9]

Post-Sale Service

We will interact with our customers post-sale by sending surveys through emails. Customers will have a chance to win a $30 Amazon gift card by answering our surveys. Surveys are great for gathering qualitative feedback. However, surveys are not always reliable as respondents may not give honest and accurate answers. As a result, we will make our surveys short. According to Survey Monkey, shorter surveys tend to have higher completion rates, which means they have overall better data quality [20]. In addition to surveys, we will look at the customer reviews on the App Store and Google Play Store. We will read through these reviews every week in order to identify and fix any bugs and also find recommendations on improving our app.

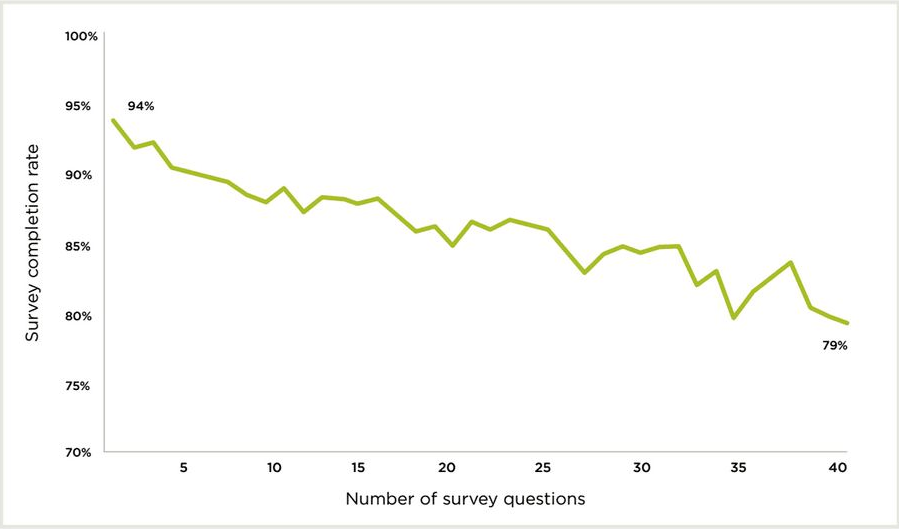


Figure 16: Survey Completion Rates Graph [20]

Here is an example of some questions our surveys can include:

How helpful is our app in helping you apply for colleges?

	1	2	3	4	5	
Not useful	○	○	○	○	○	Very useful

What price would you be willing to pay for the premium version of our app?

- ○ Free
- ○ $5 / year
- ○ $10 / year
- ○ $15 / year

Figure 17: Example Survey Questions

Conclusion

App Assist provides students with access to information when researching colleges. It is a convenient way to compare colleges, get essay feedback, and manage the entire application process. This service ensures students have access to enough information to find and select the best college for them.

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