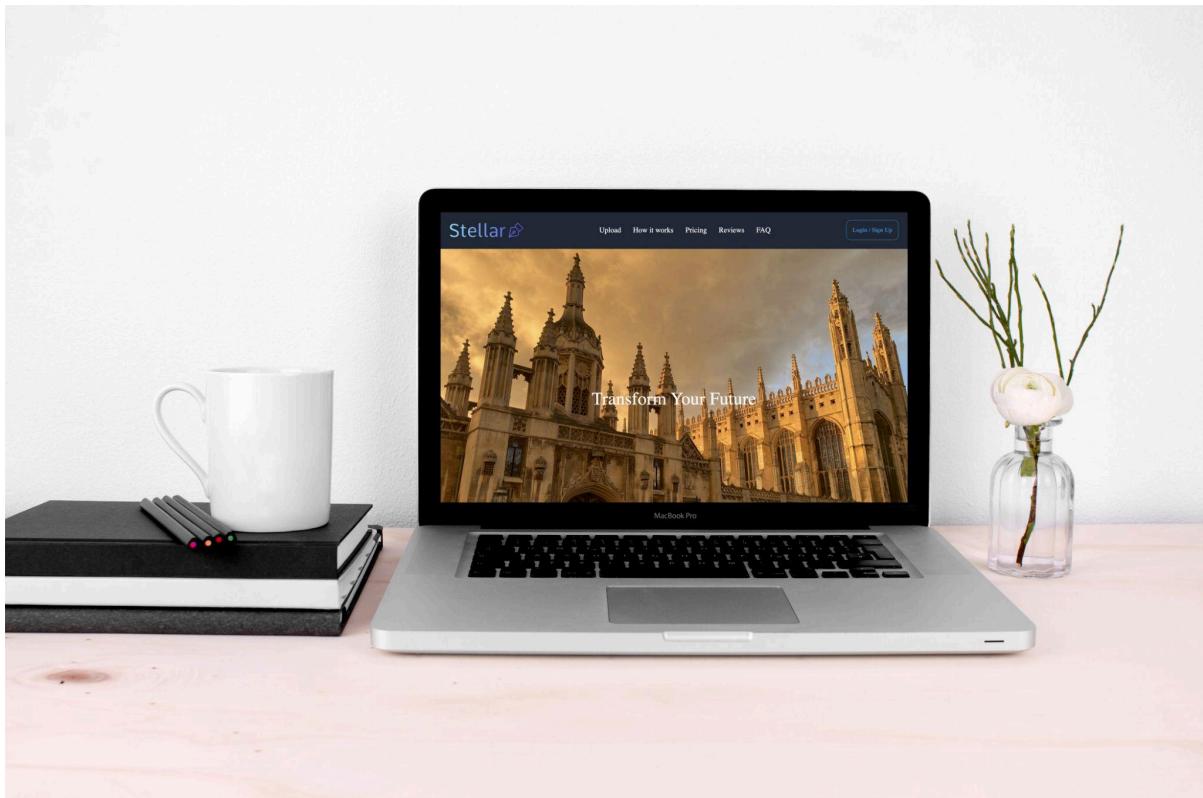




Your Oxbridge & Jardine application assistant

CS3216 Assignment 3 Final report

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Live site: <https://stellar-CS3216a3.com/>

Github repository: <https://github.com/nknguyenhc/CS3216-A3>

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Milestone 0: Introduction

Oxbridge (short for Oxford and Cambridge) are highly competitive universities. Both schools have very similar admission processes and criteria. Selection process involves a personal statement submitted to UCAS, a centralised platform for applications to all UK schools, and a technical interview specific to Oxbridge.

Jardine scholarship is a highly selective scholarship funded by Hong Kong-based Jardine company, for only specific colleges at Oxbridge. The scholarship is for specific countries in Asia, and is offered to only around 10 students per year. Selection process involves a personal statement, and 3 rounds of interviews.

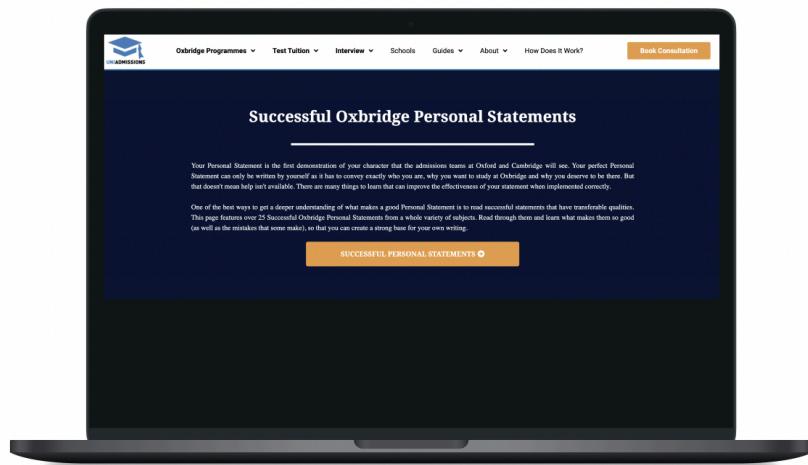
Singapore JC students applying for Oxbridge university and Jardine scholarship may not have the financial capability to book a consultation with an advisor. Moreover, even in elite schools in Singapore where consultations are provided, help is only provided for one personal statement per application cycle per person. With the gigantic amount of personal statements, especially for applications to US schools, students are left crafting and submitting the Oxbridge personal statement by themselves. Furthermore, consultation for Jardine scholarship application is limited, as there are not many successful cases that these schools can draw conclusions from. Consultation for interviews is unavailable within schools, given limited consultants and the huge number of students. Students usually resort to conducting mock interviews with one another, but they themselves do not have the expertise of what constitutes a good interview. Hence, there is limited help with personal statements and interviews.

Milestone 1: Competitors

Our application, which provides automated feedback for personal statements and interviews targeting Singapore JC students applying to Oxbridge, faces competition from companies and services offering similar support to enhance students' chances of admission. These competitors, primarily international platforms, specialise in Oxbridge admissions and typically provide personalised one-to-one consultations on personal statements, interview preparation, and comprehensive guidance for the entire application process.

UniAdmissions

UniAdmissions, our closest competitor, is the world's first Oxbridge preparation school, and was founded in 2013.

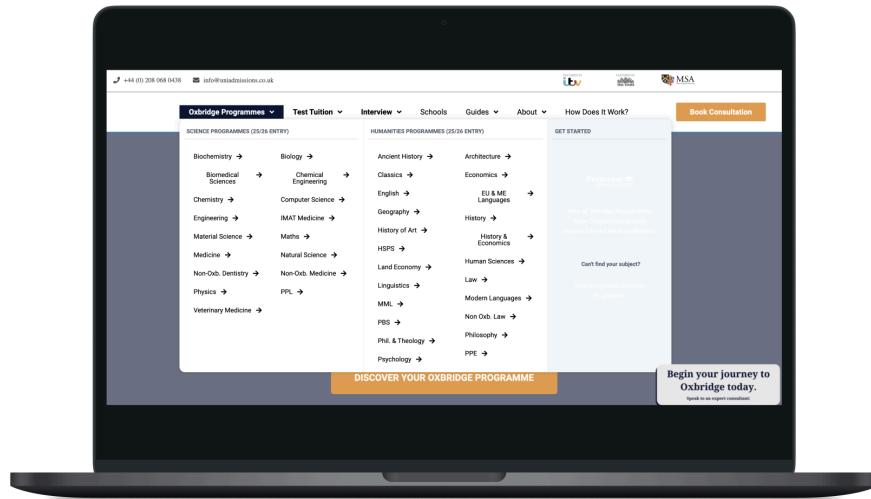


Pros

- Access to Successful Examples:** UniAdmissions offers 17 successful Oxbridge humanities personal statement examples and 12 successful Oxbridge science personal statement examples, all freely accessible without any paywall.
- Free Personal Statement Guide:** UniAdmissions offers a free 80-page personal statement guide that delves into common pitfalls. It also provides detailed

guidelines on how to write an effective personal statement for Oxbridge, which are helpful for students.

3. **Specialized Consultation Services:** UniAdmissions offers specialised, tailor-made courses for nearly all Oxbridge programs, rather than just generic consultation services. For instance, Chemistry has its own dedicated consultation service, distinct from the one offered for Law.

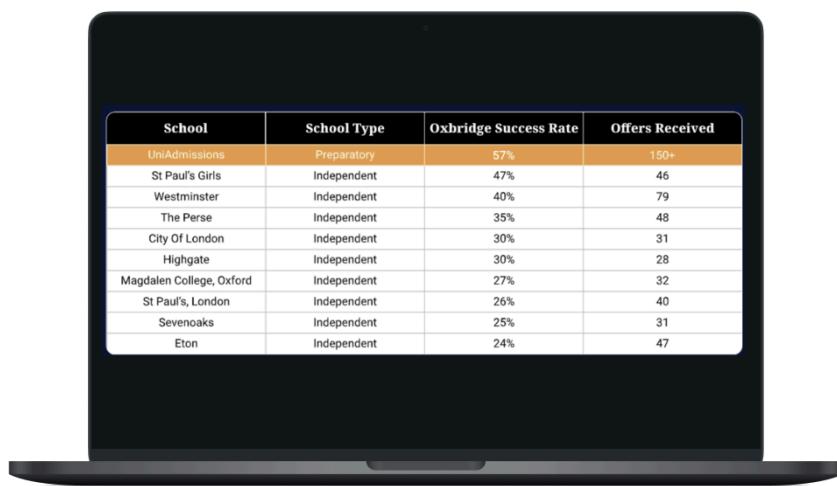


4. **Impressive Success Rate:** Compared to the average Oxbridge success rate of 16% and the 26% success rate of UK Top 50 schools, it boasts an impressive 57% 5-year average student success rate.
5. **Financial Support Initiatives:** UniAdmissions also offers 100% bursaries through their Foundation to students who cannot enrol in their programs due to financial constraints. They support hundreds of students each year and aim to achieve a 1:1 ratio of fee-paying clients to bursary recipients.

Cons

1. **High Program Fees:** UniAdmissions' program fees range from £4,000 to £16,000, which is extremely expensive. Not every student can afford these costs for an improvement in their chances of getting admitted to Oxbridge, especially since there is no guarantee of admission.

2. **Consultation Service Delays:** Their consultation service for personal statement feedback might not be immediate due to high demand and a limited number of advisors. With a waiting time of a few days, students facing last-minute submissions may find that UniAdmissions might not be able to assist them in time.
3. **Lack of Comprehensive Statistics:** The statistics provided, while impressive, do not include the success rate for Singapore JC schools.



The table shows the following data:

School	School Type	Oxbridge Success Rate	Offers Received
UniAdmissions	Preparatory	57%	150+
St Paul's Girls	Independent	47%	46
Westminster	Independent	40%	79
The Perse	Independent	35%	48
City Of London	Independent	30%	31
Highgate	Independent	30%	28
Magdalen College, Oxford	Independent	27%	32
St Paul's, London	Independent	26%	40
Sevenoaks	Independent	25%	31
Eton	Independent	24%	47

What sets us apart is our automated approach, which provides efficient, cost-effective feedback specifically designed for Singapore JC students, focusing on Oxbridge's rigorous requirements. This automation offers a clear advantage by delivering quick, accessible insights without the high costs or long wait times that typically come with human-led consultations.

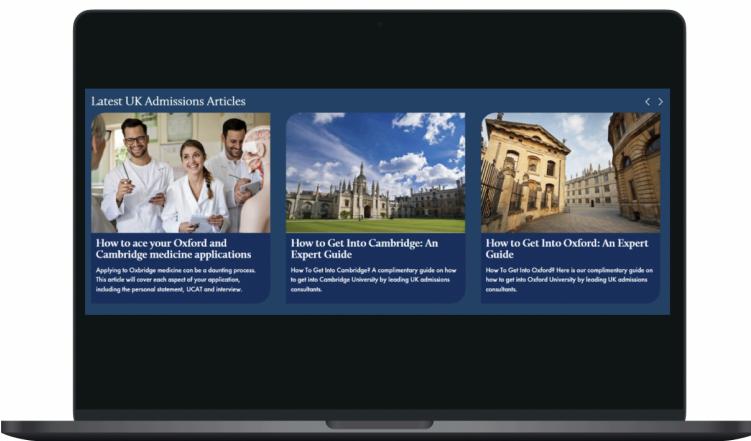
J&J Education

J&J Education offers consultancy services for admission to universities worldwide. It does provide consultancy services for applications to UK schools, including Oxbridge.



Pros

1. It offers a holistic and personalised support for applications to universities, with support for application profile and personal statement.
2. It offers 1:1 consultation with consultants from leading UK universities.
3. It offers extensive resources for Oxbridge applications, including guides on how to make a successful application, what are the do's for the applications. It also offers a reading list that helps students increase their chances of admission to these schools.

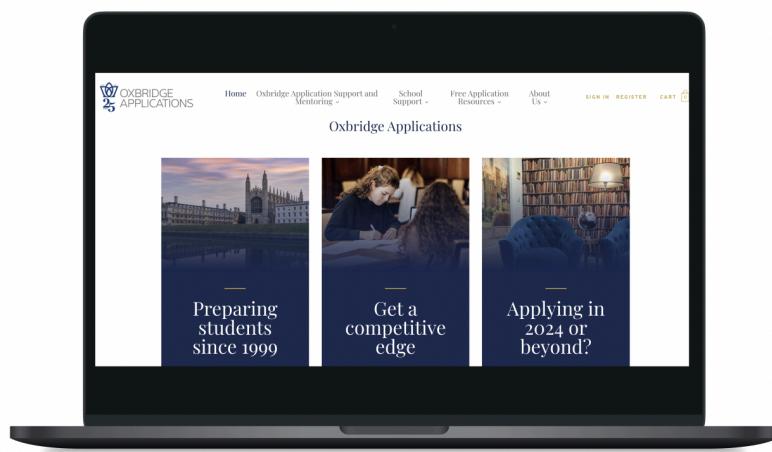


Cons

1. While its statistics of general university application success rate is impressive, with 94% getting admitted to their top university choices, it does not show its success rate particularly for Oxbridge applications, which tend to be much lower.
2. It does not offer clear pricing. Only when users are signed up do they know the pricing of the consultancy service.
3. As they offer access to the highest-quality consultants, who are graduates from top UK schools, the number of consultants is limited, which can cause delays for the huge number of students applying for Oxbridge.

Oxbridge Applications

Oxbridge Applications provides paid consultancy services as well as free resources for Oxbridge interviews. Similar to J&J Education, it serves UK schools but focuses specifically on Oxbridge preparation.



Pros

- **Comprehensive Application Support:** Oxbridge Applications offers a full range of services for the application process, including assistance with personal statements, admission tests, and interview preparation.
- **1:1 Online Consultation:** The platform features an online video call service that connects students one-on-one with professionals who have experience with the Oxbridge application process, ensuring personalised guidance.

- **Free Resources:** They provide a detailed guidebook on the Oxbridge application process at no cost, making valuable information accessible to all students.

Cons

- **Geographical Limitations:** The personal statement assistance involves multiple stages, specifically four, with two of these being face-to-face meetings. This requirement effectively excludes Singaporean JC students and others outside of London who are interested in their services.
- **High Consultation Fees:** The private/international consultation service, despite featuring notable alumni and professionals involved in Oxbridge admissions, costs €395, which may be prohibitively expensive for some students.
- **Lack of Transparency in Success Rate:** Oxbridge Applications does not disclose specific success rates for their services, leaving potential clients without concrete evidence of effectiveness.
- **Instructor Overlap:** Some instructors are involved in multiple aspects of the Oxbridge admission process for the company. This may lead to a lack of focus and specialisation in specific areas, such as personal statement writing, potentially affecting the quality of guidance provided.

Our product

We capitalise on our low cost of production, as we use AI to power our feedback algorithms, which is much cheaper than human consultants. We therefore can offer our product of essay feedback at a much more competitive price.

Meanwhile, our domain knowledge of the essays ensures that our algorithm returns feedback that is of quality no lower than that of the consultant services. This is done by ensuring that all modules run accurately, with prompt engineering techniques to ensure the accuracy of the responses received from LLM. Furthermore, we release our application to those currently in Oxbridge and those with Jardine scholarship, who also have domain knowledge on the application process, to give feedback on how well our app does.

Our application also provides automated feedback for Jardine scholarship application personal statements and interviews, targeted towards Singapore JC students. With our thorough search of the web, we could not find any consultancy office offering guidance

on Jardine scholarship application. This is due to the low success rate of the scholarship itself, which means the consultancy centres cannot offer a guarantee of high success rate. This means that our application has a first-mover advantage, consequently we can capture our market share more effectively. With our domain knowledge and prompt engineering skills, we can ensure that users can improve their essays to increase their chances of getting the scholarship.

Milestone 2: Application Description, Objectives & User Stories

Description & Objectives

Our application tackles the ***problem of high prices of consultancy services and feedback delays***, by providing personalised guidance on personal statements, conducting mock interviews and reviewing mock interviews for Oxbridge applications and Jardine scholarship applications. ***Our carefully-crafted prompts ensure that the feedback provided is no less effective than human-provided feedback.***

- Students can upload their personal statement, and they can instantly get feedback for their personal statement. We make use of LLM to provide feedback, to reduce the need for human consultants, thereby reducing cost and time.
- Students can conduct mock interviews on our platform, where they can get instant feedback. We make use of LLM to generate questions for the interviews, to reduce the need for human consultants to conduct the mock interviews.

User Stories

Objectives	User stories
Provide feedback for Oxbridge/Jardine application essays.	As a student, I want to obtain feedback for my personal statement to Oxbridge/Jardine, so that I can improve on the essay.
Provide mock interviews for Oxbridge/Jardine application.	As a student, I want to conduct mock interviews, so that I can better prepare myself for the real Oxbridge/Jardine interviews.
Provide feedback on mock interviews for Oxbridge/Jardine application.	As a student, I want to get feedback on my mock interviews, so that I can improve myself before the real Oxbridge/Jardine

	interviews.
Accommodate the students on a budget looking for cheap resources to enter Oxbridge/Jardine.	As a student on a budget, I want to receive feedback on my Oxbridge/Jardine personal statement and interviews, so that I can improve my application without spending too much money.
Accommodate busy students.	As a busy student, I want to receive feedback with minimal effort, so that I can focus on my studies and manage my time effectively.
Accommodate students who prefer online services without meeting with consultants face-to-face.	As a student who prefers online services, I want to access resources and support without in-person meetings, so that I can efficiently get the help I need.

University admissions are changing, how are you sure your app is still relevant, especially when a user can simply input the personal statement into LLMs such as Claude or ChatGPT?

We have done research on the use of ChatGPT in personal statements, and found that they are not very good at writing PS. ChatGPT [cannot get into Harvard](#) according to a news article by Washington Post, and [UCAS stance is clear](#): GenAI can be used as an assistive tool, but is not very good at generating entire personal statements, or even giving suggestions specific to what an admission team is looking out for. This shows that personal statements are here to stay, and will be part of the admission for a long period of time.

Admittedly, Singapore (SMU in particular) is [moving away from personal statements](#) because of ChatGPT. However, the requirement of the “personal” aspect in the personal statement for UCAS is much higher. Furthermore, for Oxbridge, there is a technical

interview, in which their images they present must corroborate with what they wrote in the personal statement. For Jardine, there are 3 rounds of interviews, where the interviews expand on what the applicants say in their personal statement. This means that personal statements for Oxbridge and Jardine are here to stay.

Users cannot simply put their essays into ChatGPT and expect it to give quality feedback.

First, ChatGPT does not know the exact requirements of a personal essay to Oxbridge. It may suggest the user to add reasons why he wants to apply for Oxbridge, which is not necessary for a personal statement to the schools.

Second, even if users give the requirements to ChatGPT, possibly by pasting the essay questions, ChatGPT still cannot fully understand the requirements as it has its own interpretation of the requirements. Moreover, students do not understand the depth of each argument that they need to give, something that simple prompting to ChatGPT does not cover.

Why don't we do a generic personal statement/interview evaluator?

The argument is the same for both cases, personal statement and interview. Below is our justification for targeting only Oxbridge & Jardine applications.

We decided to target Oxbridge and Jardine applications specifically, because we have domain knowledge of these applications. With personal statements for other purposes such as US application, we have no way to verify whether a personal statement would pass the admission process.

This raises the question of whether our app is generalizable. The answer is no: we crafted our prompts that are specifically tailored to Oxbridge & Jardine applications. In the case that our prompt is generalizable, we would have to provide less details that are specific to Oxbridge & Jardine application, which means our prompts would perform worse.

Furthermore, if the user has to provide the requirements of the essay, there is less value in our app. ***The value in our app lies in our deep understanding of the requirement that Oxbridge and Jardine are looking out for in personal statements, which GPT cannot simply infer from the description.*** Refer to our [Milestone 8](#) for more details.

Milestone 3: Our Secret Sauce

Our advantages

- **Competitive pricing:** we have significantly lower cost of operation, because we are using GenAI, which is much cheaper than hiring consultants.
- We have the **first-mover advantage** with our technology, because no one has used GenAI for Oxbridge university application consultancy before. We also have the first-mover advantage for Jardine scholarship application consultancy, because no one has ever provided consultancy on Jardine scholarship before.
- We have a **significant economies of scale advantage** as our application operates without the need for human consultants. Unlike our competitors, which require checking the availability of consultants, our platform supports simultaneous usage by many users. This allows us to serve a large number of users efficiently, providing an advantage over competitors who rely on human resources.
- We can integrate our service for Jardine scholarship with our service for Oxbridge application to create a more personalised feedback for Jardine scholarship essay.

To prevent others from cloning our app/features

- **Embed our domain knowledge in the prompts to LLMs.** Combination of prompt engineering knowledge and domain knowledge on Oxbridge and Jardine application is something others do not have, which allows us to automate crafting feedback that is directly relevant to and useful for Oxbridge and Jardine application.
- **Our prompting to LLMs is specifically crafted for feedback on Oxbridge and Jardine personal statements and interviews.** This is not something that a generic prompting would do, and performs way better than a generic prompt. Our feedback is detailed to every sentence made in the personal statements.

Milestone 4: Target user



Student writing personal statement. Generated by Midjourney.

User profile

- Singapore JC student
- Applying for Oxbridge, optionally Jardine scholarship
- Have limited financial capability to make use of any consultancy service
- Does not have help from school for Oxbridge and Jardine personal statements
- Currently wants to use well known AI tools such as ChatGPT
- Seeks quick feedback.
- Does not want to go through the tedious process of booking slots and meeting with consultants just to get feedback.
- Does not want to travel overseas to meet consultants in person.
- Wants a website that allows the user to upload the personal statement to get feedback

Even in elite schools like Hwa Chong Institution (HCI), Raffles Institution (RI), NUS High School of Mathematics and Science (NUSH), where help is provided for personal statements, they do only provide feedback only on one personal statement. With the gigantic number of personal statements one has to write especially for applications to US schools, students are left to work on Oxbridge personal statements by themselves.

Furthermore, schools do not usually help with Jardine scholarship essays. This is because schools are not confident of their understanding of what the scholarship board is looking out for.

These students tend to perform well in their academics, and hence are concentrated in elite schools (HCI, RI, NUSH).

Since one of us (Nguyen) is from HCI, with multiple connections from these schools, we can spread the application through word of mouth to these schools. Nguyen will be personally reaching out to his connections, teachers and students from those schools, about the app. With our effectiveness, the application can be passed on through generations of students from these schools, thereby building our credibility through word of mouth.

Why do we prioritise marketing through word of mouth? It is because our market is relatively niche, and our app does not fit the general population. Hence, marketing via social media platforms takes a longer time to reach the target market.

While social media profiles and campaigns are not our primary means of marketing, we plan to use it to support our spread through word of mouth. We will build our Instagram, Facebook and Twitter page, where we post our regular updates about our app. In this way, our app can spread through word of mouth more easily, as users share posts from our social media profiles. These profiles also serve as one point of contact for our users, besides our email (stellar3216@gmail.com). These profiles will also be published on our product website, so as to make them even more visible.

Milestone 5: Features in our MVP

MVP

We decided on our features based on what are necessary for our app to function, and for our app to demonstrate its capability.

The following features are necessary for our app to work:

- User authentication
- Save user profile
- Save user essay submissions
- Allow user to view previous essay submissions
- Submitting an essay only when the user is logged in
- Submitting an essay only when upload count is greater than 0
- Get good comments by highlighting the relevant sentence
- Get bad comments by highlighting the relevant sentence
- Receive a general comment for the entire essay
- Entire backend workflow ([Milestone 7](#)) for generating specific and general comments for Oxbridge or Jardine personal statements
- Landing page explaining the purpose of the website
- 3 initial free essay uploads for logged-in users
- Purchase essay upload for Oxbridge
- Purchase essay upload for Jardine
- Purchase a plan only after logging in
- Navigate to purchase section when user is logged in but no upload count left

These features ensure that our app is personalised to each user, and that users can refer to their past attempts and the associated feedback. Meanwhile, premium plans ensure that our users can continue using our platform without disruption, while supporting our business model. For user authentication and to enhance the user experience, we believe [Google OAuth](#) is essential, so we have included it in our MVP as well.

Between interviews and personal statements, we decided to include features relevant to personal statements. It is because personal statements are easier to tackle, ensuring that we can complete our MVP on time. Feedback on personal statements also has a

more tangible effect on students. Planning for the technical interview tends to take only a few weeks, while planning for the personal statement can take months. Our features relevant to personal statements are:

- Text editor to paste their personal statements
- Feedback for Oxbridge application
- Feedback for Jardine application

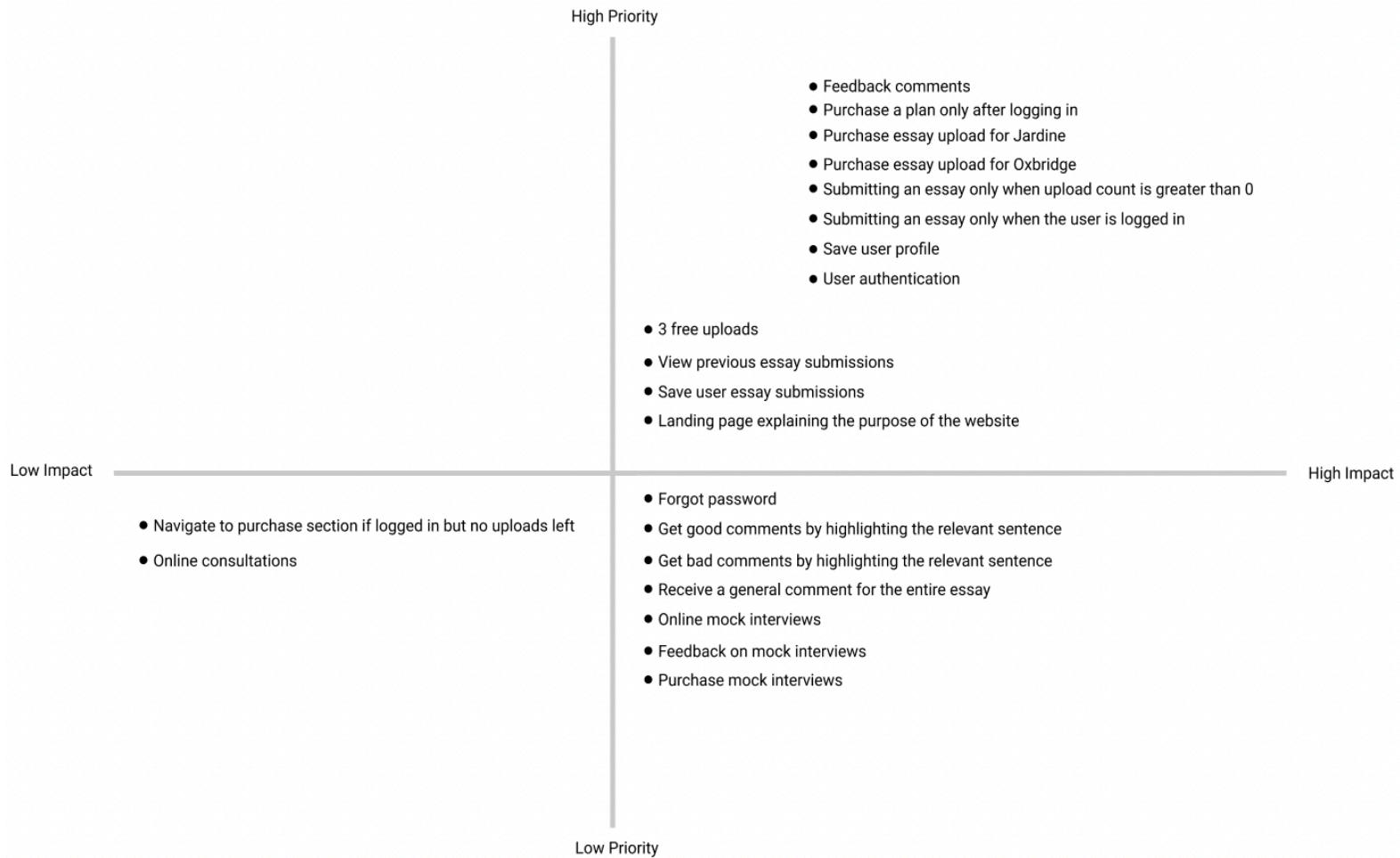
Future plans

In future, we plan to complement these features with features to aid students with interviews. These features allow our app to further aid students in their applications extending our secret sauce to interviews.

- Mock interviews for Oxbridge technical interviews and Jardine interviews (both automated and in-person).
- Feedback on mock interviews on the platform.
- Plans for purchasing mock interviews for Oxbridge & Jardine.
- Consultations for students who do not understand the feedback provided by our website or strongly disagree with the comments.

Feature Matrix

We have summarised all the MVP features, along with future plans, in the feature matrix below to visually represent the high-impact, high-priority, low-impact, low-priority scale for each feature.



Milestone 6: Business Model

Personal Statement Feedback Pricing

We have developed two distinct plans: one for Oxbridge essays and another for Jardine essays. Each user will initially receive three free uploads for either Oxbridge or Jardine. Once these free trials are exhausted, users can opt for a one-time upload fee of \$10 for Oxbridge or \$15 for Jardine.



Personal Statement Review
Oxbridge

Provides feedback on their Oxbridge personal statement.

\$10 /upload

What's included

- Constructive feedback on key sentences.
- Overall Feedback
- Feedback within 5 minutes

[Proceed to Checkout](#)



Personal Statement Review
Jardine

Provides feedback on their Jardine personal statement.

\$15 /upload

What's included

- Constructive feedback on key sentences.
- Overall Feedback
- Feedback within 5 minutes

[Proceed to Checkout](#)

The rationale behind offering three free uploads is to enable users to make significant improvements to their submissions by effectively utilising our feedback. This approach allows users to arrive at a polished personal statement. We aim to strike a fair balance between attracting customers who genuinely benefit from our product and ensuring that less engaged users, who may only make minimal changes, contribute to our business.

Pricing Based on Competition

While our pricing may initially appear higher, it is essential to note that our competitors charge exorbitant fees for their services. For example, UniAdmissions charges between €4,000 and €6,000. In comparison, our prices are significantly lower, making our offerings more accessible.

The question arises as to why we chose not to set our prices in the triple digits, similar to our competitors. The primary reason is that we do not provide consultation services, which typically justifies higher fees. Furthermore, by adopting a competitive pricing strategy, we can position ourselves effectively in this market. Our approach aligns with a **predatory pricing** strategy, allowing us to establish a foothold in a highly competitive environment while still offering substantial value to our customers.

Revenue stream

We have integrated Stripe into our live Stellar website. This means that when a user wants to purchase an Oxbridge or Jardine personal statement upload, they will need to enter their card details to complete the transaction. Rest assured, this process is not handled by us; we are simply using the Stripe API. All authentication, encryption, and security measures are managed by Stripe, a reputable and trustworthy company.

G Pay

Or pay with card

Email

Card information

1234 1234 1234 1234

MM / YY CVC

Cardholder name

Full name on card

Country or region

Singapore

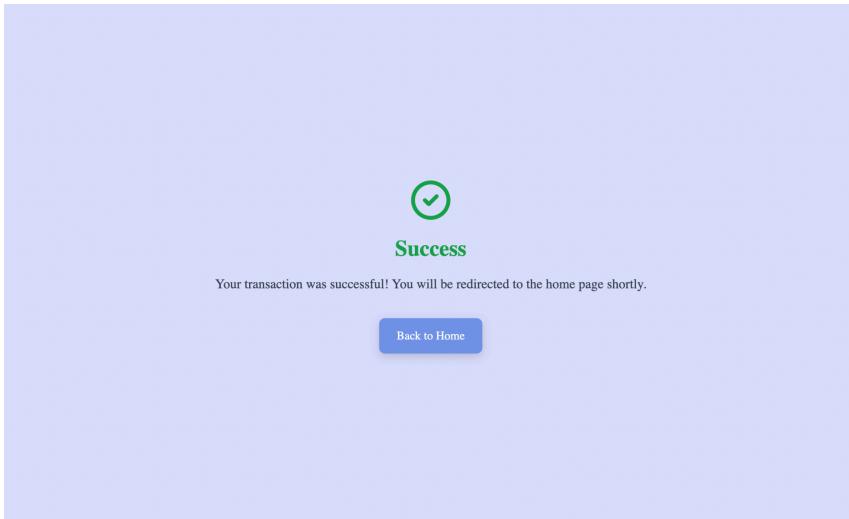
Securely save my information for 1-click checkout
Enter your phone number to create a Link account and pay faster on Oxbridge & Jardine and everywhere Link is accepted.

8123 4567 Optional

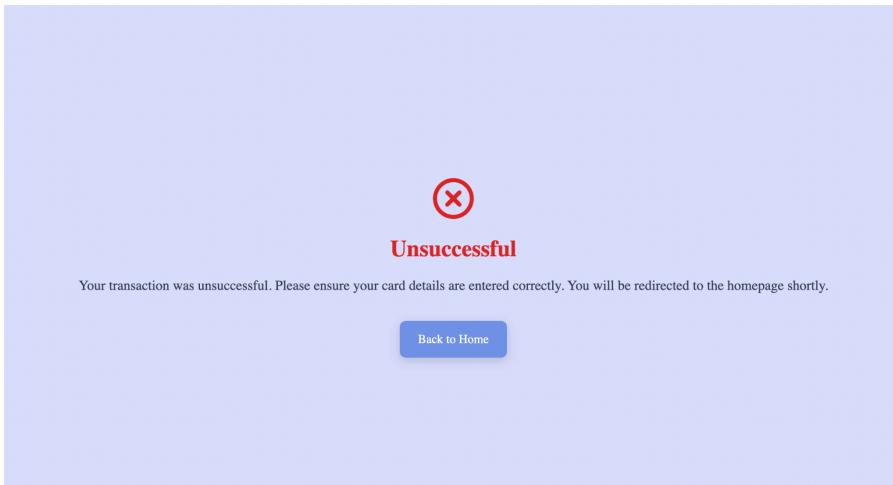
link

Pay

After the user enters their payment details, if the payment is successful, they will be directed to a confirmation page and then automatically redirected to the homepage.



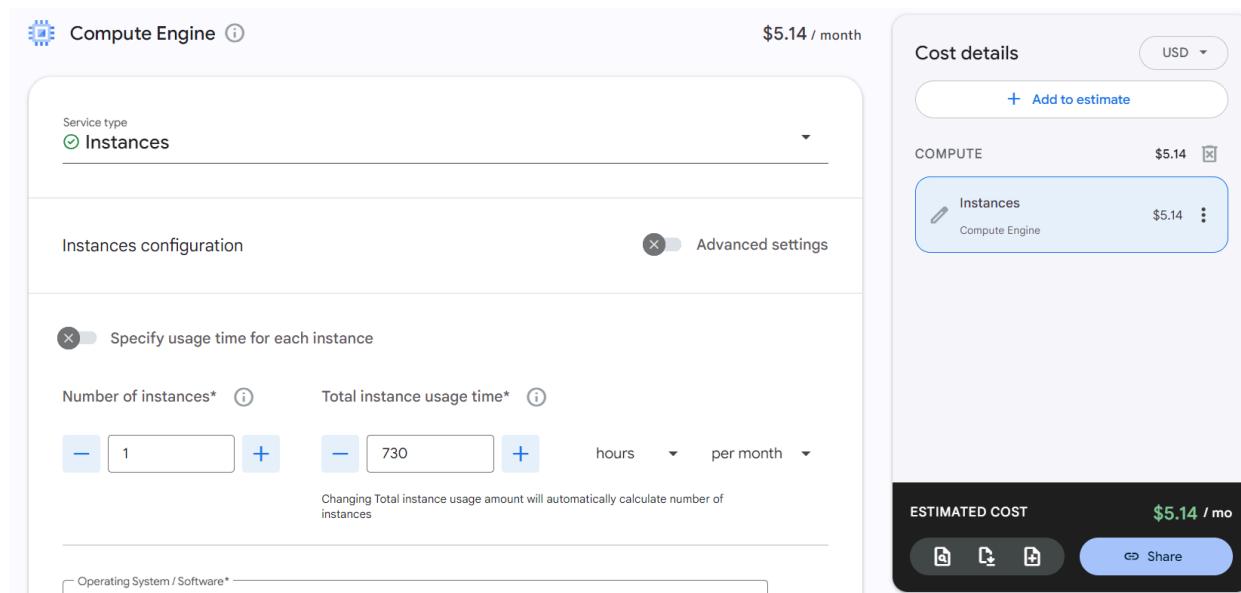
Similarly, if the payment is unsuccessful, the user will be directed to a failure page and then redirected to the homepage to try again.



Production costs

GCP Virtual Machine (VM)

During off-peak seasons of the year, i.e. not during the application cycle, between Jan - Jun and Nov - Dec, we plan to use the smallest-size VM. This is because our page only needs to display the landing page, for marketing purposes. Using [cost estimation from GCP](#), cost per month is \$5.14.



The screenshot shows the Google Cloud Platform Compute Engine cost estimation interface. On the left, there's a configuration panel for a single instance. It specifies a service type of 'Instances' and shows a configuration for one instance. The instance has a usage time of 730 hours per month. On the right, a summary panel displays the total estimated cost of \$5.14 per month for the Compute category, specifically for Instances.

Category	Description	Cost
COMPUTE	Instances (Compute Engine)	\$5.14
ESTIMATED COST		
		\$5.14 / mo

During peak seasons of the year, i.e. during the application cycle, between Jul - Oct, we plan to use standard-size VM. We expect more users to visit our page, and hence would need a more powerful VM to handle the traffic. Using [cost estimation from GCP](#), cost per month is \$30.38.

The screenshot shows the Google Cloud Platform Cost Estimator interface. On the left, there's a configuration panel for a Compute Engine instance. It includes fields for Boot disk type (Standard persistent disk selected), Boot disk size (10 GiB), and options like Add sustained use discounts (checked) and Add GPUs (unchecked). A Region dropdown is set to Singapore (asia-southeast1). On the right, a summary panel titled 'Cost details' shows a total estimated cost of \$30.38 / month for COMPUTE instances. At the bottom, there's a 'Share' button.

Our [.com domain costs \\$12 per year](#).

On average, our monthly cost for hosting on GCP is:

$$(\$5.14 \times 8 + \$30.38 \times 4 + \$12) / 12 = \$14.55$$

Each API call to OpenAI currently costs between \$0.3 - 0.4 per essay.

- ~\$0.007 per API call (our prompt lengths are approximately the same)
- ~50 API calls per essay

With the number of users we can acquire, and our future plan for ads below, this production cost is only a small fraction of our revenue.

Ads Revenue (Future plan)

Display Ads (e.g., Google AdSense)

- Monthly Traffic: **100 visitors**
- Page Views: **500**
- CPM: **\$5**
- Estimated Revenue: $\text{Revenue} = (500/1000) \times 5 = \2.50

Sponsored Content

- Charge per Post: **\$200**
- Posts per Month: **2**
- Estimated Revenue: $\text{Revenue} = 200 \times 2 = \400

Total Estimated Monthly Revenue

- Display Ads: **\$2.50**
- Sponsored Content: **\$400**

Total Revenue = $\$2.50 + \$400 = \$402.50$

Mock Interview Pricing (Future plan)

As for our mock interview services, which we plan to expand once our business, Stellar, gains traction, we aim to maintain competitive pricing. We will continue offering Oxbridge mock interviews at \$10 per session and Jardine mock interviews at \$15 per session. This pricing is extremely affordable compared to our competitors, who charge significantly higher fees for similar services. For example, some competitors charge as much as €395 per session or even up to €6,000 for comprehensive packages.

Given that our target audience consists of students from elite schools, we want to remain budget-friendly. This allows students to benefit from valuable Oxbridge or Jardine mock interviews without the financial burden that typically comes with such services.

Consultation Services Pricing (Future plan)

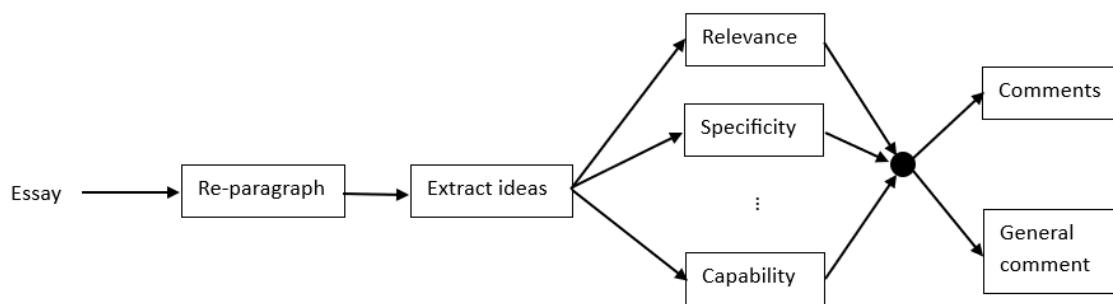
Regarding consultation services, we anticipate high demand, which may strain our current team of three. To manage this, if a student has difficulty understanding the feedback generated by our LLM or disagrees with the output, they will need to contact us via email. Only after a mutual agreement is reached regarding the student's concerns will we proceed with a consultation session. These sessions will be priced the same as our mock interviews and essay uploads, which is \$10 per consultation for Oxbridge and \$15 per consultation for Jardine.

We are confident in Steller's potential for success. As our business grows, we plan to expand our team by bringing on board talented individuals from our network, including alumni and friends from Hwa Chong Institution (HCI), Raffles Institution (RI), and NUS High School. Additionally, in the event that other companies approach us for partnerships, we are open to collaborating and sharing resources. This could include engaging qualified mentors who have direct experience with Oxbridge admissions to help refine our business strategies and enhance our quality of services.

Milestone 7: Use of LLM

Overall, processing the personal statement requires understanding of what is written inside the personal statement, making LLM an excellent candidate for the task. LLM is required to understand the idea written in the personal statement, while our prompts make sure that it understands the requirements of Oxbridge and Jardine personal statements, and evaluate them accordingly.

LLMs are extensively used in our app. When a user uploads an essay, it goes through 4 stages:



1. Re-paragraph

Given an input essay, the LLM outputs an essay that has equal or better paragraphing. In most cases where paragraphing in the essay is sound, the LLM outputs the same essay without change. In some cases with poor paragraphing, the LLM outputs the same essay with the same order of sentences, but with paragraph divisions at different points. This helps with better idea extraction at the next stage.

LLM is good for this task, as it can understand the sentences and shift paragraph splits around efficiently.

2. Extract idea

Given each paragraph, the LLM outputs 1 - 3 main arguments of the paragraph. Each argument consists of:

- Idea: the main point of the argument
- Evidence: evidence to support the claim, or elaboration on the main point
- Explanation: a link of the argument to the person's intended field of study

The output of the LLM should keep the same wording as it is in the personal statement. This is so that frontend knows which part of the essay should each comment be attached to.

With the correct prompt, LLM is an excellent tool for this task, as it identifies the main arguments effectively, allowing us to identify points accordingly.

3. Evaluate

We use different criteria to evaluate an argument. Each criterion is evaluated by the LLM, and the LLM outputs either a yes or no, with explanation on its answer. These tasks require understanding of the main argument, which means LLM is an excellent candidate for the task.

- Relevance: whether the argument is relevant to the intended field of study. For example, an argument relevant to Mathematics is when it talks about Mathematics concepts, Mathematics application, or an experience where the argument draws links to Mathematics.
- Specificity: whether the argument provides enough details. If talking about the intended field of study, the argument must talk about technical details that laymen cannot give. If talking about personal experience, the argument must talk about details that another person only knowing about the event is unable to talk about.
- Capability: whether the argument shows that the person has technical capability for the field of study. This usually involves knowledge taught outside schools, in personal commitments.
- Interest: whether the argument shows the person's interest in the field of study. It is usually shown by expressing strong emotion, or personal engagement with the argument.
- Leadership: whether the argument shows that the person has exercised leadership skills. The leadership skill should be explicitly spelled out by the user, cannot be implicitly implied.
- Aspiration: whether the argument shows the person's aspirations. This means stating clear career goals.

- Contribution to community: whether the argument shows the person's past contribution to community, and potential to contribute to community in future. This means actions that make an impact on a large group of people around him.

The yes/no output, together with the explanation, is then used to craft comments. The explanation is also used to ensure that the LLM reasoning makes sense, and that our prompt is correct. For example, if the answer is wrong, and the explanation does not make sense, we rewrite our prompt so that the LLM does not fall into that line of reasoning. Even when the answer is correct but the explanation does not make sense, we also rewrite our prompt so that the LLM reasoning is robust.

Oxbridge and Jardine look for different criterias, hence we use different criteria for evaluation. For Oxbridge personal statements, we use relevance, specificity, capability, and interest. For Jardine, we use relevance, specificity, capability, leadership, aspiration, and contribution to community.

4. Craft comments & general comment

Each comment is attached to an argument, while a general comment is attached to an entire personal statement. Arguably, a comment can be hard-coded with logic statements. However, such comments are generic, while comments that are directly relevant to the arguments are better at helping the students improve their essays.

For comments, LLM is used to comment on the merits and points for improvements of the argument. LLM is also used to pose questions to help the writer think more about the argument. We first use our application logic to determine the type of argument, and the corresponding type of comment it should give, based on the evaluation of the argument. We then use a prompt specifically crafted for each type of argument, to craft a corresponding comment.

For general comment, we categorise the personal statements based on the number of merits and number of improvements that can be made. A simple prompt is then used to create a comment that summarises the strengths and weaknesses of the essay. The general comments allow the users to take note of aspects that they should improve on their personal statements.

Future plans

We plan to enhance the evaluation of personal statements. We plan to point out:

- Unwanted attitudes in the essay, where the writer expresses arrogance, entitlement, or vulgarities.
- False facts in the essay, where the writer talks about concepts that are false, or are non-existent.

These, although rare, may exist in some personal essays that are worth pointing out, as these points can significantly decrease the quality of the personal statement.

As of now, we only evaluate the personal statements point by point, without considering the links between points. Although it is not necessary, some personal statements make use of links between various points, for example, only providing evidence to an idea in a much later part of the personal statement. These outliers can make our comments less effective as it may mark down the arguments without evidence. In future, we can consider the links between arguments, so that we do not miss out on such cases.

Handling opening and closing paragraphs are also something we hope to tackle in future. Opening and closing paragraphs do not require much detail. The opening paragraph must give a strong impression of oneself, while the closing paragraph should be as short as possible. These requirements are currently missing from our evaluation, hence evaluation of opening and closing paragraphs are not as effective.

Milestone 8: Our Prompts

Example 1: To evaluate whether an argument shows capability

System Prompt

You are an expert at evaluating an argument in a personal statement. The personal statement is written by a person applying for {field_of_study}.

The argument is taken directly from the wording in the personal statement.

An argument consists of the following:

- * Idea: What the idea is about.
- * Evidence: Evidence to support what the person is claiming.
- * Explanation: A link back to {field_of_study}.

The fields will be given by the user.

Determine whether the argument demonstrates that the person has capability in {field_of_study}.

Capability is demonstrated when the person talks about the knowledge in {field_of_study}, explaining specific concepts that only scholars in {field_of_study} understand.

You are to first output a letter, either "T" or "F", where "T" means the argument demonstrates capability, and "F" means the argument does not demonstrate capability.

You are not to format the letter in any way.

On the next line, you are to give a short explanation of your answer.

User Prompt

```
<idea>  
{idea}  
</idea>  
  
<evidence>  
{evidence}  
</evidence>  
  
<explanation>  
{explanation}  
</explanation>
```

The user prompt is simply a copy-and-paste of the argument, divided into idea, evidence, and explanation.

Explanation

We first provide the context under which the argument was extracted from. We also state the field of study that the personal statement was meant for. In this way, capability is constrained only to the indicated field of study.

The definition of capability is also given. Initially, when we do not provide the definition of capability, the LLM tends to say yes more, even when the knowledge is in the textbook, or when the knowledge can also be discussed by laymen. However, for Oxbridge application, capability goes beyond that, and must be demonstrated by discussing technical details that laymen are incapable of discussing.

The final paragraph indicates the output format that the LLM should follow. Asking it not to format in any way is so that it does not bold or italicise the letter by putting star '*' or underscore '_' character in front. This is so that our application can programmatically extract the answer from the response.

This prompt serves as the system prompt. The person's argument is given as the user prompt, which is a simple copy-and-paste from the argument. This is so that we can effectively separate user input from our prompt, which decreases the chance of prompt injection attack.

Example 2: To evaluate a person's contribution to the community, including past contribution and potential of contribution in the future

System Prompt

You are an expert at evaluating an argument in a personal statement.
The personal statement is written by a person applying for
{field_of_study}.

The argument is taken directly from the wording in the personal statement.

An argument consists of the following:

- * Idea: What the idea is about.
- * Evidence: Evidence to support what the person is claiming.
- * Explanation: A link back to {field_of_study}.

The fields will be given by the user.

Contribution to community means working towards the greater good of a large group of people,
such as the neighbourhood, the city, or worldwide.

Contribution to the greater good of a small group of people, such as friend group,

does not count as contribution to community.

As long as what the person mention has an impact on the community,
it counts as contribution to community, regardless of whether the motivation is individualistic.

Evaluate the following, giving your reason of your decision:

1. Determine whether the argument demonstrates that the person has done something to contribute to the community.
2. Determine whether the argument demonstrates the person's potential to contribute to the community in the future.

The person must explicitly state or describe his desire to contribute to community,
do not make the inference yourself.

You are to output in the following JSON format:

```
{ {
```

```
"has_contribution_to_community": a boolean, answering question 1,  
"reason_has_contribution_to_community": "your justification for  
question 1",  
"will_contribute_to_community": a boolean, answering question 2,  
"reason_will_contribute_to_community": "your justification for  
question 2"  
}}
```

User Prompt

```
<idea>  
{idea}  
</idea>  
  
<evidence>  
{evidence}  
</evidence>  
  
<explanation>  
{explanation}  
</explanation>
```

The user prompt is simply a copy-and-paste of the argument, divided into idea, evidence, and explanation.

Explanation

The prompt follows the same structure as example 1. First, we provide the context under which the argument was extracted. This helps LLM account for the case that the person contributes to the community via his field of study.

Contribution to community is also explicitly defined. Without such definition, LLM tends to hallucinate more, as it attributes even actions only for personal achievement as contribution to the community. Even when the person does not explicitly state his intention to contribute to the community, LLM makes the inference itself. Hence to fight against those, we explicitly instruct LLM to follow our definition of contribution to the community, and avoid making inference by itself.

The final paragraph instructs the LLM to output in JSON format. This allows our application to parse the output programmatically to obtain the answers.

Example 3: Crafting comment to improve quality of argument for Jardine scholarship essay

This prompt makes use of the results of the evaluation modules, in the case that the argument provided by the user shows neither capability, leadership, aspiration, or contribution to community (otherwise, other prompts are used). The reasoning given by the LLM in the evaluation modules is fed in as part of the prompt to craft a comment tailored to the argument made by the writer.

System Prompt

You are an expert at evaluating an argument in a personal statement. The personal statement is written by the user, who is applying for {field_of_study}.

The argument is taken directly from the wording in the personal statement.

An argument consists of the following:

- * Idea: What the idea is about.
- * Evidence: Evidence to support what the person is claiming.
- * Explanation: A link back to the person's field of study.

The argument will be given by the user.

For an argument to be a good argument, it must convey one of the following:

- * Capability: demonstrated when the person talks about the knowledge in {field_of_study}, explaining specific concepts that only scholars in {field_of_study} understand.
- * Aspiration: aspirations related to {field_of_study}. The aspiration must be a concrete career goal, and is something that is not easily achievable.
- * Leadership: Leadership qualities can only be demonstrated through examples of how the person exercise leadership skills in group work context.

* Contribution to community: Contribution to community means working towards the greater good of a large group of people, such as the neighbourhood, the city, or worldwide. It can be contribution to community in the past, or a potential to contribute to community in future.

The argument given by the user conveys none of the above. The reason why the argument does not convey each of the above is below.

```
<no_capability_reason>
{no_capability_reason}
</no_capability_reason>
```

```
<no_aspiration_reason>
{no_aspiration_reason}
</no_aspiration_reason>
```

```
<no_leadership_reason>
{no_leadership_reason}
</no_leadership_reason>
```

```
<no_contribution_to_community_reason>
{no_contribution_to_community_reason}
</no_contribution_to_community_reason>
```

```
<no_potential_to_contribute_to_community_reason>
{no_potential_to_contribute_to_community_reason}
</no_potential_to_contribute_to_community_reason>
```

You are to craft a comment to help the user improve, by following these steps:

1. Determine 1 – 2 aspects of capability, aspiration, leadership, or contribution to community.
2. Provide comments based on the reasons given above, to tell the user why the argument does not fulfil the selected aspects.
3. Ask questions to users to help them think of how to improve their argument to show the aspect determined in step 1.

Your comments and questions must be related to the argument provided

by the user, such that the user has to do minimal changes from the argument to achieve such aspect. Do not suggest improvements by yourself. Craft the comment as if you are talking to the writer of the argument. The comment should be kept within 4 sentences.

You are to respond only with the comment. You are not to format the comment in any way.

User Prompt

```
<idea>  
{idea}  
</idea>  
  
<evidence>  
{evidence}  
</evidence>  
  
<explanation>  
{explanation}  
</explanation>
```

Explanation

First, similar to previous prompts, we give the LLM the context under which the argument was made. This ensures that the LLM makes a comment relevant only to a personal statement for the specified field of study.

Next, we provide what constitutes a good argument, together with a brief definition of capability, aspiration, leadership, and contribution to community. This ensures that the questions crafted prompt the user into the correct direction. For example, since leadership means demonstration of leadership skills in group work contexts, the question crafted would ask the user to show specific examples where the user demonstrates leadership skills.

The reasoning from the evaluation modules are also fed in, to ensure that the comments crafted by the LLM at this stage addresses the concerns raised by the output from evaluation modules. For example, if the reason for lack of leadership skills is lack

of specific examples, the questions would prompt the user to show more examples of demonstrations of leadership skills.

Arguably, the reasoning from the evaluation modules should also be put in the user prompt instead of system prompt. However, the LLM tends to repeat the user less, and hence does not make use of the reasoning effectively. We found that putting the reasoning in the system prompt makes the comment more relevant.

We also provide the steps that guide the LLM on how to craft a comment. It should only mention 1 - 2 aspects that the user can demonstrate more. Moreover, it should not suggest improvements by itself, but only pose questions to help the user think of improvements. This reflects how consultants should help students in real life: the ideas must be authentically from the students, and the consultants' job is only to help the students think of the ideas.

Other prompting techniques we have tried

We have tried few-shot prompting, where we provide examples of how comments can be crafted given the user's argument. However, we found out that it barely improves the quality of the comments. Rather than adding on to the length of the conversation, we decided to improve the system prompt by including the reasoning from the evaluation modules in the system prompt, which means the system prompt is tailored to the argument made by the user.

Milestone 9: Our Choice of LLM

We decided to use GPT-4o for all of our LLM needs. Initially, we will compare our provider, OpenAI, with various other providers. Following that, we will justify our choice by comparing OpenAI's LLM models with other LLMs within OpenAI.

API vs Hosting

Before delving into comparisons with other LLMs, it's important to explain why we opted for using APIs with Stellar instead of developing, fine-tuning, and deploying a custom LLM on platforms like AWS for production.

Stellar is specifically designed for the niche market of Oxbridge and Jardine personal statement applications. While this market is smaller compared to larger platforms like social media, it still has enough potential for Stellar to be profitable. Given the specialised nature of Stellar, we anticipate a request volume of no more than 1,000 requests per day. At this volume, using OpenAI's API is cost-effective. However, if our request volume were to scale to millions of requests per day, the cumulative costs of OpenAI's API might become prohibitive. In that case, hosting an open-source LLM on AWS would be a more affordable option.

To further illustrate this, let's compare hosting our own LLM versus using APIs. PaLM 2, for example, is Google's most advanced LLM. It is capable of reasoning, coding, performing calculations, translating, answering questions, and generating natural language. PaLM 2 is available in four sizes—Gecko, Otter, Bison, and Unicorn—each offering different capabilities. Its versatility allows for fine-tuning across a wide range of business applications, and it even has the ability to run on mobile devices with offline functionality.

Now, let's break down the costs: using AWS SageMaker would cost around \$5 to \$6 per hour, or approximately \$150 per day. Additionally, Lambda pricing and API Gateway costs would be around \$10 and \$1 per million requests, respectively. Therefore, hosting an open-source LLM on AWS would cost \$150 per day for 1,000 requests and roughly \$160 per day for 1 million requests.

In comparison, assuming 10,000 requests per month using the GPT-4o API, the total cost would be around \$94 (as seen in Table 1)—much lower than the \$150 per day it

would cost to host a model on AWS for 1,000 requests. **For lower volumes of requests, using the API is clearly the more cost-effective solution.**

However, as the request volume increases, API usage becomes significantly more expensive. For instance, if we have 100,000 interactions per month, using API calls could amount to \$4,256 (as seen in Table 1,) whereas hosting our own LLM for 1 million requests per day would remain at just \$160.

In summary, while open-source LLMs come with higher upfront costs (CAPEX¹), they become more economical in the long run for handling large volumes of requests due to economies of scale. In contrast, **API offers a more affordable solution for smaller projects or startups with limited traffic (OPEX²), making it the better choice for Stellar at our anticipated scale.** At Steller's current stage, the steps required to deploy, maintain, and manage LLMs in production (referred to as LLMOps) would likely be neglected due to the high costs, which could critically impact the application's success.

Table 1: GPT-4 API Pricing Overview – The cost is based on the number of input and output tokens, which includes words from both prompt engineering and retrieval-augmented generation (RAG).

Input text (in words)	Output text(in words)	Total monthly interactions	Total cost per month
100	200	10K	\$94
100	200	100K	\$931
200	1K	10K	\$426

¹ Capital expenditures

² Operational expenditures

200	1K	100K	\$4256
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OpenAI vs Mistral

One of the reasons we chose OpenAI over Mistral primarily due to cost. As shown in the diagrams below, taken from [Vercel Playground](#), OpenAI's pricing is more affordable compared to some of Mistral's API calls.

 OpenAI / **gpt-4o**

GPT-4o from OpenAI has broad general knowledge and domain expertise allowing it to follow complex instructions in natural language and solve difficult problems accurately. It matches GPT-4 Turbo performance with a faster and cheaper API.

Context	128,000 tokens
Input Pricing	\$5.00 / million tokens
Output Pricing	\$15.00 / million tokens

[Model Page ↗](#) [Pricing ↗](#) [Website ↗](#)

 Mistral / **mistral-large**

Mistral Large is ideal for complex tasks that require large reasoning capabilities or are highly specialized - like Synthetic Text Generation, Code Generation, RAG, or Agents.

Context	32,000 tokens
Input Pricing	\$8.00 / million tokens
Output Pricing	\$24.00 / million tokens

[Model Page ↗](#) [Pricing ↗](#) [Website ↗](#)

Admittedly, while Mistral offers cheaper options for many of its API calls, this alone is not a strong justification for our choice of the OpenAI API. To provide a more comprehensive evaluation, we can refer to an industry-standard benchmark developed by [HuggingFace](#), a well-known open-source model catalogue. Hugging Face has created a [leaderboard](#) that tracks, ranks, and evaluates open-source LLMs and chatbot applications. Specifically, the [LMSYS Chatbot Arena leaderboard](#) compares OpenAI's GPT models with open-source alternatives across various benchmarks. OpenAI has also published its own evaluation results, as illustrated in the image below.

6	GPT-4o-2024-05-13	1285	+3/-3	90695	OpenAI	Proprietary	2023/10
7	GPT-4o-mini-2024-07-18	1273	+3/-3	30434	OpenAI	Proprietary	2023/10
7	Claude_3.5.Sonnet	1269	+3/-3	62977	Anthropic	Proprietary	2024/4
7	Gemini-1.5-Flash-Exp-0827	1269	+4/-4	22264	Google	Proprietary	2023/11
7	Grok-2-Mini-08-13	1267	+4/-5	22041	xAI	Proprietary	2024/3
7	Gemini_Advanced_App_(2024-05-14)	1267	+3/-3	52218	Google	Proprietary	Online
7	Meta-Llama-3.1-405b-Instruct-fp8	1266	+4/-4	31280	Meta	Llama 3.1 Community	2023/12
7	Meta-Llama-3.1-405b-Instruct-bf16	1264	+6/-8	5865	Meta	Llama 3.1 Community	2023/12
8	GPT-4o-2024-08-06	1263	+4/-3	22562	OpenAI	Proprietary	2023/10
12	Gemini-1.5-Pro-001	1259	+3/-3	80656	Google	Proprietary	2023/11
14	GPT-4-Turbo-2024-04-09	1257	+3/-2	92973	OpenAI	Proprietary	2023/12
17	GPT-4-1106-preview	1251	+2/-3	97378	OpenAI	Proprietary	2023/4
17	Mistral-Large-2407	1250	+4/-4	27285	Mistral	Mistral Research	2024/7

As shown, GPT clearly outperforms many of Mistral's proprietary LLMs. Given that Hugging Face's leaderboard is a well-known and established resource, we chose to use the OpenAI API instead of Mistral.

OpenAI vs Claude

In this comparison, we will use the MMLU (k-shot) benchmark to provide a more quantified assessment of OpenAI's GPT versus Anthropic's Claude, rather than simply weighing the pros and cons arbitrarily.

[MMLU \(k-shot\), or Massive Multi-task Language Understanding](#), is an evaluation benchmark designed to assess a language model's accuracy across multiple tasks and

domains. It includes 57 tasks covering topics such as elementary maths, U.S. history, law, computer science, and more. The dataset consists of 15,908 questions, divided into a few-shot development set, a validation set, and a test set. You can view the ranking of popular foundation models like GPT-4, LLaMA 2, Gemini, PaLM 2, and Mistral 7B on the [MMLU leaderboard](#). This benchmark primarily tests the breadth and depth of an LLM's knowledge, along with its problem-solving abilities, making it particularly useful for generalisation tasks. Models can be analysed based on coherence, relevance, clarity, and detail.

1	Gemini Ultra ~1760B	90	×	Gemini: A Family of Highly Capable Multimodal Models		2023	self-consistency
2	GPT-4o	88.7	×	GPT-4 Technical Report			2023
3	Llama 3.1 405B (CoT)	88.6	×	The Llama 3 Herd of Models			2024
4	Claude 3 Opus (5-shot, CoT)	88.2	×	The Claude 3 Model Family: Opus, Sonnet, Haiku			2024
5	Claude 3 Opus (5-shot)	86.8	×	The Claude 3 Model Family: Opus, Sonnet, Haiku			2024
6	Leeroo (5-shot)	86.64	×	Routoo: Learning to Route to Large Language Models Effectively			2024
7	GPT-4 (few-shot)	86.4	×	GPT-4 Technical Report			2023
8	Llama 3.1 70B (CoT)	86.0	×	The Llama 3 Herd of Models			2024
9	Gemini Ultra (5-shot)	83.7	×				5-shot

As shown in the diagram from the MMLU leaderboard (inserted above for reference), GPT (GPT-4o) outperformed Claude 3 Opus. This indicates that GPT offers superior coherence, relevance, clarity, and detail compared to Claude's subset models, which is why we chose GPT for our needs.

Proponents of Claude may argue that Claude 2 could be a viable alternative to OpenAI models. Anthropic's Claude 2 is currently a strong competitor to GPT-3 and GPT-4. It excels in coding, mathematics, and logical reasoning, scoring 71.2% on the Codex HumanEval, a test designed to evaluate Python coding skills. Furthermore, Claude 2 handles PDF tasks efficiently, an area where GPT-4 sometimes struggles.

However, for our application, **there is no coding or PDF processing involved**. Since Stellar is focused on assisting with personal statement essays, **the advantages Claude has over GPT are not relevant in this context**. Therefore, we believe the MMLU benchmark offers a fair comparison that demonstrates GPT's superiority for our specific use case. While Claude may have strengths in other areas, they do not apply to Stellar's needs.

GPT4 vs GPT 3.5

Now that we have compared different providers, we will compare various LLM models. Below is a comparison using industry-standard benchmarks, such as the aforementioned MMLU and [ARC](#). As seen, GPT-4 scored 86.4% on the MMLU benchmark, compared to GPT-3.5's score of 70.0%. For the ARC benchmark, GPT-4 achieved a score of 96.3%, while GPT-3.5 scored 85.2%. Given that GPT-4 consistently outperforms GPT-3.5 across various benchmarks, we decided to opt for a variation of GPT-4 instead of using GPT-3.5.

Benchmark	GPT-4 Evaluated few-shot	GPT-3.5 Evaluated few-shot	LM SOTA Best external LM evaluated few-shot	SOTA Best external model (includes benchmark-specific training)
MMLU Multiple-choice questions in 57 subjects (professional & academic)	86.4% 5-shot	70.0% 5-shot	70.7% <u>5-shot U-PaLM</u>	75.2% <u>5-shot Flan-PaLM</u>
HellaSwag Commonsense reasoning around everyday events	95.3% 10-shot	85.5% 10-shot	84.2% <u>LLAMA (validation set)</u>	85.6% <u>ALUM</u>
AI2 Reasoning Challenge (ARC) Grade-school multiple choice science questions. Challenge-set.	96.3% 25-shot	85.2% 25-shot	84.2% <u>8-shot PaLM</u>	85.6% <u>ST-MOE</u>
WinoGrande Commonsense reasoning around pronoun resolution	87.5% 5-shot	81.6% 5-shot	84.2% <u>5-shot PALM</u>	85.6% <u>5-shot PALM</u>
HumanEval Python coding tasks	67.0% 0-shot	48.1% 0-shot	26.2% <u>0-shot PaLM</u>	65.8% <u>CodeT + GPT-3.5</u>
DROP (f1 score) Reading comprehension & arithmetic.	80.9 3-shot	64.1 3-shot	70.8 <u>1-shot PaLM</u>	88.4 <u>QDGAT</u>

Figure 1. GPT-4 evaluation.

GPT4o vs GPT 4

Similarly, using a comparable benchmark approach, we assessed GPT-4 against GPT-4o using various industry-standard benchmarks. As shown in the table below, GPT-4o outperformed GPT-4 on the MMLU benchmark. Consequently, we ultimately decided to choose GPT-4o for all of our models.

Model	Prompt	MMLU	GPQA	MATH	HumanEval	MGSM	DROP (F1,3-shot)
OPENAI GPT4s							
gpt-4o	chatgpt ^[1]	88.7	53.6	76.6	90.2	90.5	83.4
gpt-4o	assistant ^[2]	87.2	49.9	76.6	91.0	89.9	83.7
gpt-4-turbo-2024-04-09	chatgpt	86.5	49.1	72.2	87.6	88.6	85.4
gpt-4-turbo-2024-04-09	assistant	86.7	49.3	73.4	88.2	89.6	86.0
gpt-4-1106(-vision)-preview	chatgpt	84.6	42.1	64.1	82.2	86.5	81.3
gpt-4-1106(-vision)-preview	assistant	84.7	42.5	64.3	83.7	87.1	83.2
gpt-4-0125-preview	chatgpt	84.8	39.7	64.2	88.2	83.7	83.4
gpt-4-0125-preview	assistant	85.4	41.4	64.5	86.6	85.1	81.5

Model Settings

Temperature

Since our application focuses on evaluating personal statements rather than generating creative responses (similar to generative AI image applications), we generally achieved similar results with both lower and higher temperature settings. As illustrated in the example below, the comments yielded nearly identical feedback. Therefore, we decided to forgo customising the temperature and opted to use the default setting in the API call.

Temperature 0.1: Great job highlighting your passion for Mathematics! Your argument effectively links your enjoyment of logical reasoning and complex puzzles to essential skills in the field, demonstrating genuine passion and capability.

Temperature 1.0: Well done on demonstrating interest in Mathematics through your argument. The explanation effectively links interest in puzzles and logical reasoning to critical and systematic thinking, which are crucial skills in Mathematics. This portion of your evidence highlights competence by showing how engaging in activities like Sudoku and logic games enhances critical thinking, pattern recognition, and systematic problem-solving skills essential for mathematical studies.

Top_p parameter

To clarify, the top_p parameter, also known as nucleus sampling, allows the model to consider a subset of possible tokens based on their cumulative probability. A higher top_p value means the model includes more potential tokens in its sampling, which can lead to varied and potentially more creative outputs.

However, similar to our findings with the temperature settings, the comment outputs showed little variation when testing different top_p values as seen below. (Industry standards generally recommend controlling either the temperature or top_p at any given time.) Therefore, we ultimately decided to stick with the default top_p parameter as well.

Top_p 0.5: Excellent work showcasing your enthusiasm for Mathematics! Your argument successfully connects your love for logical reasoning and intricate puzzles to the crucial skills required in the discipline, reflecting both genuine passion and competence.

Top_p 0.9: Great job showcasing your interest in Mathematics! Your explanation links your passion for puzzles and logical reasoning to the critical and systematic thinking essential in the field. This evidence effectively demonstrates how activities like Sudoku and logic games enhance crucial skills such as critical thinking, pattern recognition, and systematic problem-solving for mathematical studies.

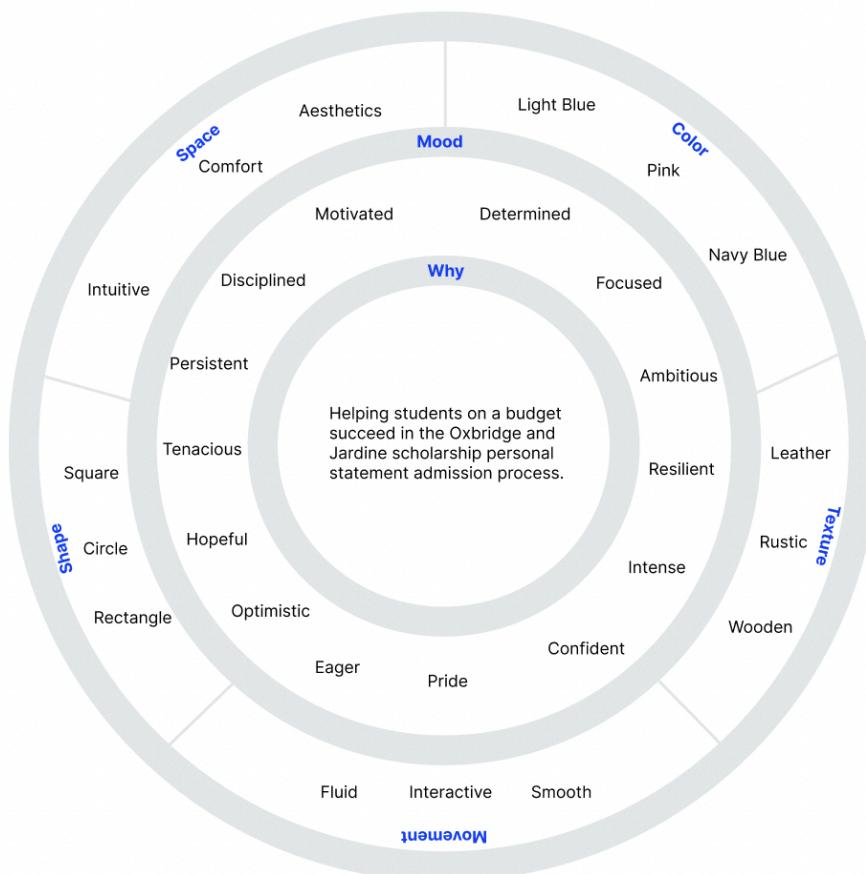
Milestone 10: Name & Logo

Brand Identity

UI research

At this point in the design process, we had gathered sufficient insights to begin sketching ideas. However, we chose to concentrate on the branding aspect of the application. Our goal was to enrich our design process and develop a more robust concept.

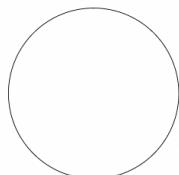
To initiate our branding exploration, we created a design inception worksheet centred around the question "WHY." This document enabled us to summarise the core purpose of the product and its visual context using relevant keywords.



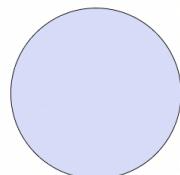
Mood board

Gathering these insights instilled a strong sense of positivity and motivation. The prevailing mood among students applying for Oxbridge and Jardine scholarships is one of ambition, discipline, determination, focus, hope, and optimism.

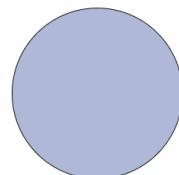
To embody these qualities, we chose a light blue colour palette. This shade not only reflects the drive and determination of our users but also fosters a sense of comfort and reassurance. Light blue evokes feelings of openness and freedom, creating an inviting atmosphere where students feel supported on their journey. It symbolises trust, an essential element for a platform dedicated to helping driven individuals navigate the often-challenging application process. Furthermore, the calming nature of light blue helps alleviate anxiety, allowing students to focus on their goals with clarity and confidence.



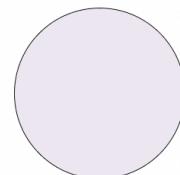
FFFFFF



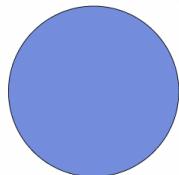
D8DCFC



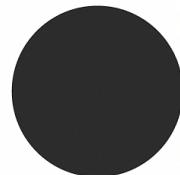
ADBBDA



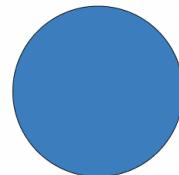
EDE8F5



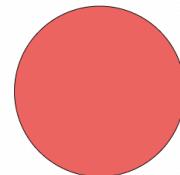
7091E6



2D2D2D



1982C4



FF595E

In terms of typography, we selected **Roboto** for its formal yet approachable tone. This font strikes a balance between professionalism and friendliness, creating a seamless reading experience. Its clean lines and modern design contribute to a welcoming atmosphere on our website for Oxbridge and Jardine personal statement application assistance.

Roboto

ABCĆČDDEFGHIJKLMNOPQRSŠTUVWXYZŽ
abcccddefghijklmnopqrsštuvwxyzžĂĒÔӮ
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®©\$€£¥¢;;,.*

The non-slanted cuts create a more formal effect for the Oxbridge and Jardine personal statement website.

Roboto

Friendly and open curves create a comfortable and seamless reading experience.

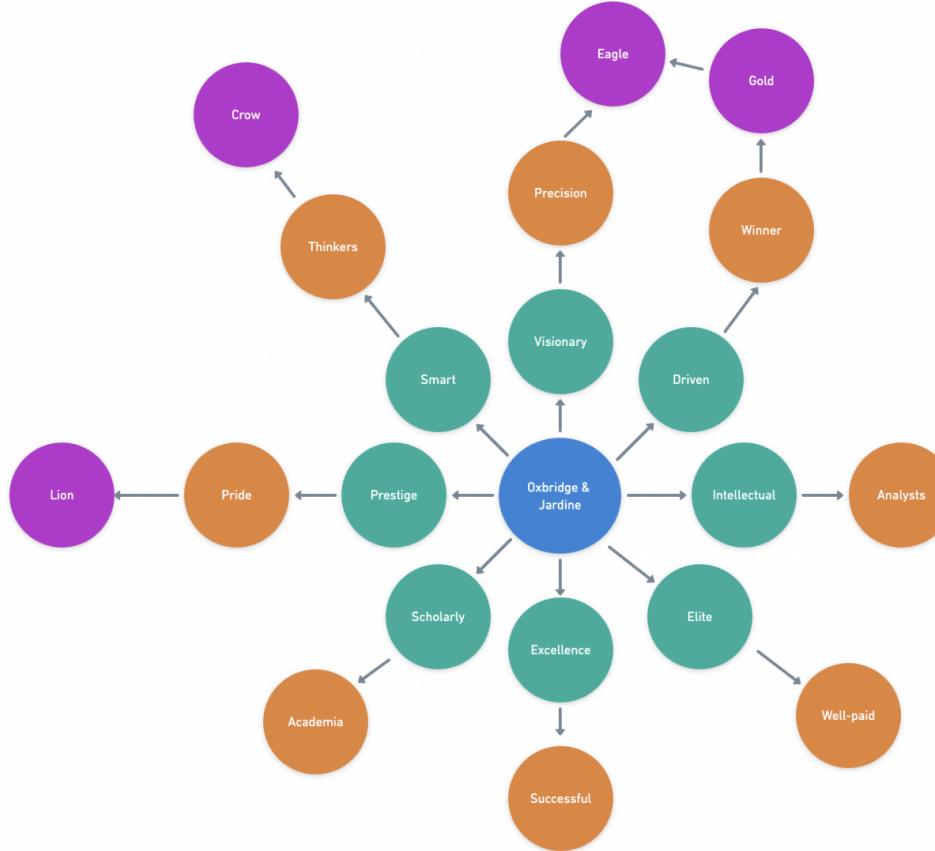
To complete our mood board realisation, we have also chosen some imagery. Our selection is based on keywords we captured on the design inception worksheet. Here are the keywords we have used to build our mood board: success, knowledge, prestige, and aspiration.



Roboto

Product Naming

After establishing the visual environment, we shifted our focus to developing a name for our application. We first brainstormed common terms and concepts associated with students applying to Oxbridge and the Jardine scholarship. This led us to conduct a mind-mapping exercise, which allowed us to explore various terms related to the applicants. We started with the foundational terms "Oxbridge" and "Jardine," using them as a springboard to generate a list of potential names that resonate with the aspirations and journeys of these bright students.



We discovered a strong connection between Oxbridge, Jardine, and animals linked to these terms in our mind map. To give our application a unique identity, we wanted a mascot, and have a unique name instead of just calling it a personal statement assistant. So, we decided to explore the traits of certain animals—specifically, the Lion, Crow, and Eagle—along with other animals commonly associated with them. This way,

we could find a name and character that truly reflects the ambition and spirit of students applying for these prestigious opportunities.

We ended up with 5 animals: Lion, Crow, Eagle, Wolf, and Hawk. We came up with a diagram that shows the animals as well as the common words associated with the respective animal in the column header.

Lion	Eagle	Crow	Wolf	Hawk
Pride	Gold	Thinkers	Driven	Focus
Prestige	Precision	Smart	Teamwork	Visionary
Power	Visionary	Curious	Perseverance	Determined
Leadership	Focus	Resourceful	Strategic	Territorial
Majestic	Nobility	Cunning	Stealthy	Manipulative
	Tenacity	Shrewd		
	Foresight	Playful		
	Independence			

We decided to choose a name associated with the eagle because it carries the most positive connotations for students applying to Oxbridge and the Jardine scholarship, embodying qualities such as focus, tenacity, and foresight. While other animals have some similarities to the traits of these students, they also come with negative associations. For instance, hawks are often viewed as manipulative, and crows are seen as playful. By selecting the eagle, we aim to highlight the admirable characteristics that resonate with students applying to Oxbridge and the Jardine scholarship.

An eagle named Stellar

We chose the name "Stellar" for our application primarily because it references the Steller's sea eagle, a remarkable bird celebrated for its strength and majestic presence. Just as this eagle soars to great heights, we aspire for our users to reach their academic goals and excel in their Oxbridge and Jardine scholarship applications. The

name encapsulates the essence of ambition and determination, reflecting the journey our users undertake in their pursuit of excellence.

Moreover, the term "Stellar" evokes notions of outstanding performance and exceptional results—qualities that resonate deeply with students aiming for prestigious opportunities. By naming our application Stellar, we emphasise our commitment to helping students achieve remarkable outcomes in their personal statement processes.

Additionally, "Stellar" is derived from the Latin word "Stella," which means "star." This further reinforces our mission, as stars illuminate the night sky, guiding aspiring students on their paths. Our application aims to shine a light on their journeys, helping them navigate the competitive landscape of Oxbridge and Jardine admissions with confidence.

Logo

We chose a more intuitive logo that conveys a professional tone. Since Stellar operates in the academic industry and specifically targets hardworking students, we opted for a logo featuring a pen writing, symbolising students taking notes while studying. We believe this design is both intuitive and professional, reflecting Stellar's focus on the academic field.

For the colour scheme, we selected a blue gradient to match the application's overall [colour theme](#). The finalised logo features our application name, 'Stellar,' accompanied by the pen-writing symbol."



Milestone 11: Our choices of technologies

Backend: Django

We are familiar with Django and its MVC framework. Django can also be run with Gunicorn, which automates handling API requests, scaling, and error handling.

Alternatives like ExpressJS and FastAPI are too bare-bone, while Django already implements various features for us, including authentication, security measures.

Moreover, Django object relational mapping resembles object-oriented programming better, and is much easier to use compared to other libraries like SQLAlchemy, Sequelize.

Django's admin panel is unparalleled, as it allows developers to debug the database, where one can easily add and modify objects in the database. This is something other backend frameworks do not offer.

The screenshot shows the Django administration interface. At the top, a dark blue header bar reads "Django administration". Below it, a light blue banner says "Site administration". The main area is divided into several sections:

- AUTH TOKEN**: A table with a single row "Tokens" and buttons for "+ Add" and "Change".
- AUTHENTICATION AND AUTHORIZATION**: A table with two rows: "Groups" and "Users", each with "+ Add" and "Change" buttons.
- MODULES**: A table listing various modules with their descriptions and "Add" and "Change" buttons:
 - Argument evaluations
 - Arguments
 - Aspirations
 - Capabilitys
 - Comments
 - Contribution to communities
 - Fact checks
 - General comments

On the right side, there are two sidebar boxes: "Recent actions" (empty) and "My actions" (empty, with a note "None available").

Database: PostgreSQL

SQL is already integrated with Django, our choice of backend.

Furthermore, PostgreSQL can be pulled from docker hub and self-managed, which does not cost any extra.

NoSQL databases do not offer the ability to query by any column, an advantage of SQL that is well-integrated in Django. Furthermore, spinning up even a small NoSQL database may incur costs.

Frontend UI: ReactJS & Typescript

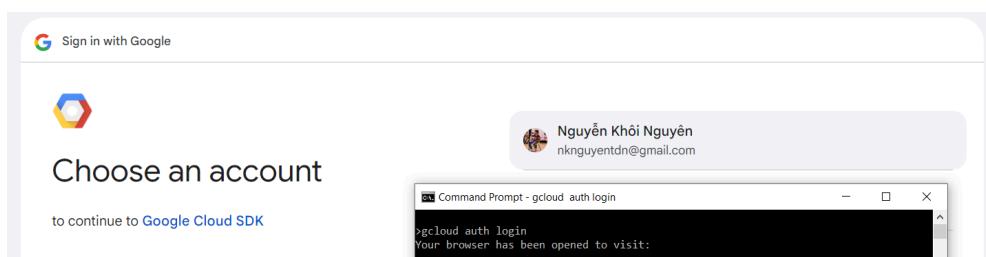
We are familiar with React & its ease of development. As compared to Angular, React has a lower learning curve, allowing us to develop the frontend more rapidly.

Typescript enhances our development experience. As compared to pure javascript, typescript raises problems when types are incompatible. Given the complex structure of data that we need to store, typescript is a more appropriate choice, as it raises compilation errors early. It takes more time to fix runtime errors in React, as React error logs tend to be more difficult to trace.

Hosting: Google Cloud Web Hosting (GCP)

GCP provides us with the Virtual Machines (VMs), and domain purchase to set up our hosted website. With a new account sign up, GCP provides [\\$300 of free credits](#), which means the cost of setting up our website is zero.

Alternatives: AWS, Azure. AWS and Azure authentication is more complicated to set up, especially to run command-line tools. Meanwhile, GCP command-line authentication is integrated with Google authentication, which makes GCP much easier to use.



We have run out of Azure student subscription, hence deploying on Azure even when using minimal infrastructure still costs.

AWS smallest VMs, which are the only VMs available at free tier, tend to be unstable and have poor internet connection.

Authentication: Django authentication & Google authentication.

We also made use of Google authentication, so as to support our business logic of limiting free uploads: the person has to use his Google account to sign up for our app.

Django authentication is readily available in the framework, we simply made use of it.

Currently, authentication is used to enforce the limit on the number of uploads, by limiting the number of uploads per account. In future, we plan to enforce the limit via other means as well, such as by IP address.

Milestone 12: Three Common Workflows

Workflow 1: Submitting a personal statement for feedback

- **Description:**
 - **User action:** Users are required to signup and login first. Users paste their personal statement into the app and submit it.
 - **System response:** The app calling API from chatGPT to analyses the submission and provides feedback based on our prompts with the following features:
 - **Reparaphrasing:** Automatically restructures the essay into more coherent paragraphs, improving readability and flow.
 - **General comments:** Overview feedback on the overall structure and quality of the statement.
 - **Specific comments:** Each idea in the statement is highlighted with comments attached. Users can click on these highlights to reveal detailed feedback.
 - **Colour coding:** Ideas are colour-coded to visually differentiate between strong (positive) and weak (negative) points.
- **Reason for choosing this workflow:**
 - **Privacy and user control:** Requiring users to login first helps them to understand the process and have control over their submissions as well as protecting their information.
 - **Improved readability:** Reparaphrasing the essay helps users see how their content can be better structured, enhancing the overall clarity and impact of their statement.
 - **Clarity and focus:** Highlighting specific ideas and using colour coding helps users quickly identify areas of strength and weakness, making feedback easy to understand and act upon.
 - **Interactive experience:** Allowing users to click on highlighted sections for more information provides a dynamic, engaging way to explore feedback in context, improving comprehension and retention.
 - **Alternatives considered:** Providing only general comments or plain text feedback without interactivity would limit the user's ability to pinpoint exact areas for improvement.

- **Overall user experience:**

- **Enhanced structure:** Users receive immediate, actionable suggestions to improve both the content and structure of their essays, making revisions more straightforward and effective.
- **Engaging interaction:** The combination of reparagraphing, interactive comments, and visual cues creates an immersive feedback experience that supports deeper learning and better outcomes.

This workflow ensures that users receive comprehensive, easy-to-navigate feedback, enhancing their ability to improve their personal statements effectively.

Workflow 2: Viewing and managing previous submissions

- **Description:**

- **User action:** User logs in, navigates to the "My Submissions" section, and accesses their previous submissions.
- **System response:** The user can:
 - Sort submissions by the number of comments to prioritise those with the most feedback.
 - Use a search bar to find specific submissions by title.
 - Sort submissions by creation time to view the most recent or oldest submissions first.
- **System response:** The user selects a specific submission to view detailed feedback and has options to delete or archive it.

- **Reason for choosing this workflow:**

- **Enhanced usability:** Providing multiple sorting and searching options helps users quickly locate relevant submissions, enhancing navigation and reducing time spent searching for specific documents.
- **Flexibility:** Users can organise their submissions based on different criteria (comments, title, or time), giving them more control over how they view and manage their data.
- **Alternatives considered:** A single sorting option or no search functionality would make it difficult for users to efficiently find specific submissions, particularly as their submission history grows.

- **Overall user experience:**

- **Improved navigation:** Advanced sorting and search capabilities streamline the process of finding and reviewing past submissions, making it easier for users to focus on improving their work.
- **Efficient management:** Users can efficiently manage their feedback history, enabling them to prioritise which submissions to revise or reference based on feedback intensity and relevance.

This refined workflow ensures that users can easily navigate their submission history and access the most relevant information, improving overall user satisfaction and engagement.

Workflow 3: Free trials and purchasing a premium plan

- **Description:**

- **User action:** User logs in and navigates to the purchase section on the landing page.
- **System response:** The user selects a plan based on the number of attempts allowed and completes the purchase to access premium features.
- **Free uploads:** Users have 3 free uploads before they need to purchase a premium plan, allowing them to explore the app's features and value before committing to a paid plan.

- **Reason for choosing this workflow:**

- **User engagement:** Offering 3 free uploads encourages users to try the service, experience its benefits, and become familiar with its features, which can increase the likelihood of converting to a paid plan.
- **Simplicity:** The workflow provides a clear path from using the free version to upgrading, with minimal steps and friction in the process.
- **Alternatives considered:** Limiting free access without uploads or implementing a shorter trial period could reduce user engagement and retention.

- **Overall user experience:**

- **Try before you buy:** The 3 free uploads give users a risk-free opportunity to assess the app's value, enhancing user satisfaction and trust.

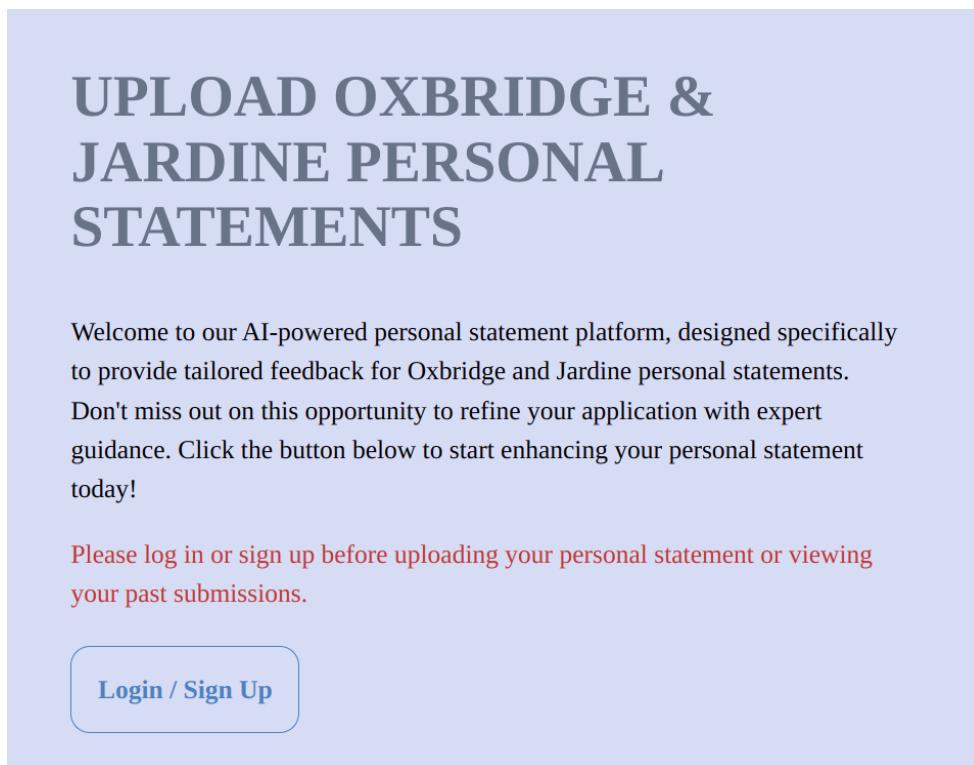
- **Easy upgrade path:** A straightforward purchase flow, combined with the initial free experience, ensures users can transition smoothly to premium services when ready.

This workflow leverages a freemium model to build user trust and engagement, ultimately driving conversions to premium plans.

Milestone 13: User Interface

Here are some special UI made for an AI app.

- We require users to log in before uploading their statements to ensure they understand the process and have control over their submissions. Our authentication system also ensures that only the user and our team can access their personal statements.



- The landing page, specifically the 'How It Works' section, emphasizes transparency with clear instructions on how to use the platform. You can visit <https://stellar-cs3216a3.com/> to explore the landing page further.
- The 'Our Advantages' section emphasizes confidentiality and authenticity, reassuring users about data privacy and the platform's commitment to providing genuine feedback. This instills confidence in users regarding the ethical and confidential use of their data.

Our advantages



100% confidentiality

We aim at providing academic writing services as confidential as possible



100% authenticity

Focused on providing honest and constructive insights to help you genuinely improve your Oxbridge and Jardine personal statements



Immediate feedback

Get instant feedback on your Oxbridge and Jardine personal statements with no need for booking



Personalized approach

Every feedback is specifically designed to enhance your chances of success.

- To ensure ethical practices and user consent, we have integrated two checkboxes into the user interface. The first checkbox requests user consent for utilising AI and human reviewers to provide feedback on personal statements. The second checkbox confirms that users understand how their data will be managed, promoting transparency and respecting user autonomy. These additions reinforce our commitment to ethical data usage and empower users to maintain control over their information.

I consent to the use of AI and human review for feedback on my personal statement.

By uploading, you agree to our use of AI for analysis and acknowledge that human reviewers will access your statement.

 Get your feedback

- We have included the disclaimer, 'AI comments are suggestions and should be reviewed critically. Your final decision matters most,' on the comments page to emphasise that AI feedback is advisory, not authoritative. This encourages users to exercise their judgement and autonomy, enhancing transparency and promoting the ethical use of AI-generated content.

AI comments are suggestions and should be reviewed critically. Your final decision matters most.

- Our feedback system enables users to provide feedback on the website at any time, making this feedback visible to others. This transparency allows users to see how previous suggestions were received, fostering trust in the system. By continuously collecting and displaying feedback, we can refine the AI and offer improved, personalised suggestions over time, creating a more effective and user-centred experience.

WHAT OUR CLIENTS SAY

★★★★★

"Thanks to this platform, I finally got accepted into Oxford! It streamlined my application process."



Ava Johnson
Freelance React Developer

★★★★★

"The service was fantastic! I couldn't have asked for better guidance for my Cambridge application."



Robin Thompson
Web Designer

★★★★★

"I love how easy it was to get started. Thanks to this platform, I secured the Jardine Scholarship!"



Sophia Lee
Project Manager

★★★★★

"Great value for money! This service helped me prepare my application for Oxford effectively."



Ethan Clark
Software Engineer

★★★★★

"Absolutely brilliant service. I couldn't have prepared better for my Cambridge interview."



Liam Harris
UX Designer

★★★★★

"I've seen a huge improvement in my workflow, allowing me to focus on my Jardine Scholarship application!"



Noah Robinson
Marketing Specialist

★★★★★

"The interface is user-friendly and intuitive. It really helped me in my Oxford application."



Isabelle Martinez
Content Writer

★★★★★

"It has everything I need to manage my projects efficiently, especially for my Cambridge scholarship application."



Chloe Wilson
Data Analyst

★★★★★

"Highly effective tools that have made my application process for the Jardine Scholarship so much easier!"



Grace Taylor
Product Designer

FAQ

How many free attempts are provided? ▼

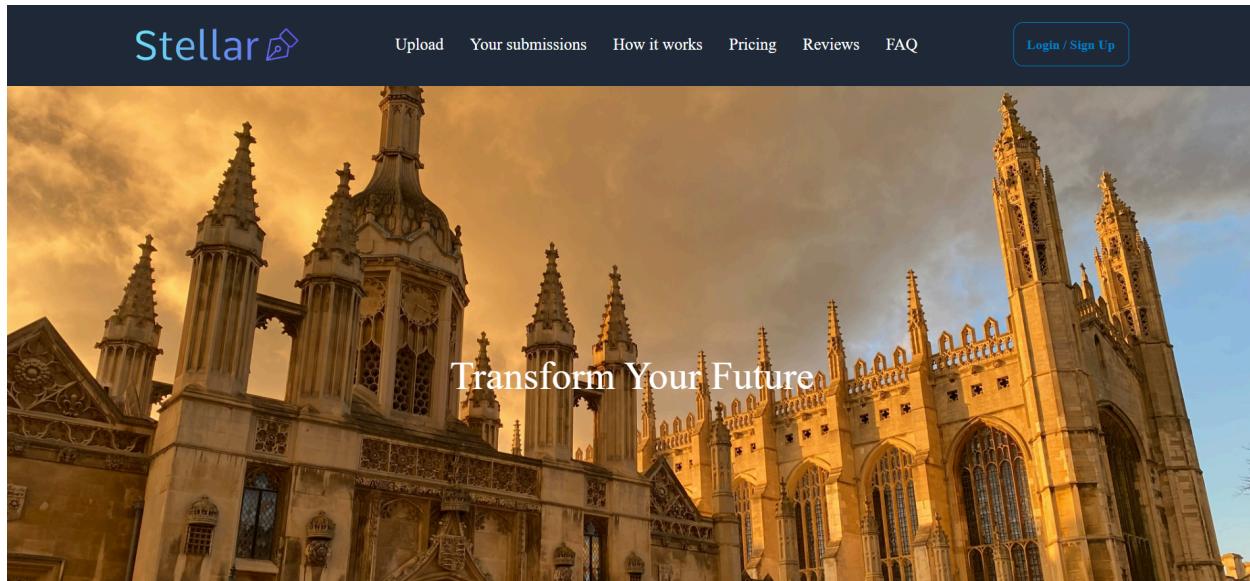
What are the payment options? ▼

How can I leave feedback? ▼

Milestone 14: Landing Page

Visit <https://stellar-cs3216a3.com/> for the full landing page.

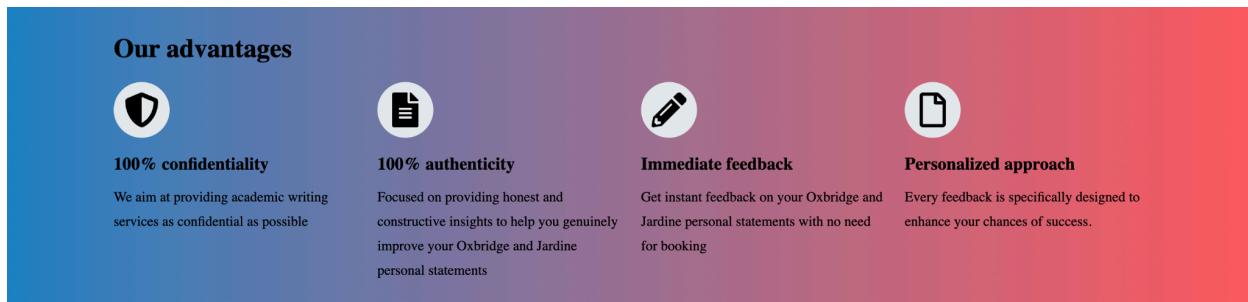
Hero section



Upload section

The upload section has a light purple background. In the center, there is a large, bold heading that reads "UPLOAD OXBRIDGE & JARDINE PERSONAL STATEMENTS". Below this heading, there is a paragraph of text: "Welcome to our AI-powered personal statement platform, designed specifically to provide tailored feedback for Oxbridge and Jardine personal statements. Don't miss out on this opportunity to refine your application with expert guidance. Click the button below to start enhancing your personal statement today!" At the bottom of this text block, there is a note in red: "Please log in or sign up before uploading your personal statement or viewing your past submissions." To the right of the text, there is a large, high-quality photograph showing a panoramic view of the Radcliffe Camera in Oxford, with its iconic dome and surrounding buildings. At the very bottom left of the section, there is a "Login / Sign Up" button.

Advantages section



Features section

This image shows a payment form interface. At the top, there is a "Google Pay" button and a link to "Or pay with card". Below this, there are fields for "Email" and "Card information" (showing placeholder numbers and icons for VISA, Mastercard, etc.). There is also a field for "Cardholder name" and dropdown menus for "Country or region" (set to Singapore) and "City" (set to Singapore). A "Securely save my information for 1-click checkout" checkbox is present, with a note about creating a Link account. At the bottom, there is a "Pay" button and links for "Powered by stripe", "Terms", and "Privacy".

1. FILL IN THE PURCHASE ORDER FORM

Fill out the payment form after selecting whether you'd like to receive feedback on your Oxbridge or Jardine personal statement.

This image shows a form for uploading a personal statement. At the top, there are fields for "Enter your title" and "Enter your field of study". Below this is a large text area labeled "Type or paste your personal statement here". Underneath the text area, it says "Character Count: 0 / 4000" and provides "Paste Text", "Copy", and "Delete" buttons. At the bottom, there are two checkboxes: "I consent to the use of AI and human review for feedback on my personal statement" and "By uploading, you agree to our use of AI for analysis and acknowledge that human reviewers will access your statement". A "Get your feedback" button is located at the very bottom.

2. UPLOAD YOUR PERSONAL STATEMENT

While economics is rooted in the world around us, with all its fascinating, messy complexities, mathematics derives its beauty from its abstract nature. It is unique in that it can lead us to an answer that is not merely the right one, but is true in an absolute sense. This was emphasised by G. H. Hardy in "A Mathematician's Apology", where he spoke of a mathematical reality distinct from the ordinary one, of which we can only ever hope to produce a "partial and imperfect copy". Another of the appeals of mathematics is its breadth of application. I was able to explore this over the past three years in a series of Royal Institution master classes covering topics from graph theory to the mathematics of juggling. My decision to continue with mathematics was confirmed when I undertook the AEA; I found it challenging but immensely satisfying to be able to use simple concepts from the A-level core modules to solve even the most daunting problems. Over the past year, I have mentored two students in mathematics. Explaining concepts to them helped deepen my own understanding and led me to explore proofs behind theorems I had previously accepted. In addition, acting as a primary school classroom assistant inspired me to set up my own volunteering scheme, in which I and other students help children learn to read. I have enjoyed competing in the UKMT Mathematics Challenge, in which I won a medal at Olympiad level, and the UK Linguistics Olympiad, in which I twice progressed to the selection round for the national team. I have also represented my school in the Hans Woyda competition, and am excited to be doing the same in the Target 2.0 challenge later this year.

Comments

Great introduction highlighting the contrast between economics and mathematics.

3. READ SPECIFIC COMMENTS

Click on the highlighted text to read the specific comments. If it is green, it indicates a positive comment, while red indicates a negative comment.

4. READ GENERAL COMMENTS

The general comment is meant to provide a general idea of the overall state of your current personal statement.

General Comment

Your personal statement does a commendable job of outlining your interest in the field of study by highlighting relevant experiences and activities that sparked your passion. It is evident that you have a genuine enthusiasm for this area, and your specific examples help to convey that effectively. However, to strengthen your application, I would suggest providing more detailed arguments or experiences that explicitly demonstrate your capability in the field. While your interest is clear, further elaboration on your skills, achievements, and practical experiences will help to paint a more comprehensive picture of your readiness to excel in this discipline. Balancing these two aspects will greatly enhance the overall impact of your personal statement.

Pricing section



Personal Statement Review
Oxbridge

Provides feedback on their Oxbridge personal statement.

\$10 /upload

What's included

- Constructive feedback on key sentences.
- Overall Feedback
- Feedback within 5 minutes

[Proceed to Checkout](#)



Personal Statement Review
Jardine

Provides feedback on their Jardine personal statement.

\$15 /upload

What's included

- Constructive feedback on key sentences.
- Overall Feedback
- Feedback within 5 minutes

[Proceed to Checkout](#)

Reviews section

WHAT OUR CLIENTS SAY

★★★★★

"Thanks to this platform, I finally got accepted into Oxford! It streamlined my application process."

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UX Designer

★★★★★

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 **Noah Robinson**
Marketing Specialist

FAQ section

FAQ

How many free attempts are provided? ▾

What are the payment options? ▾

How can I leave feedback? ▾

Contact Us section

CONTACT US

We'd love to hear from you! Reach out to us:

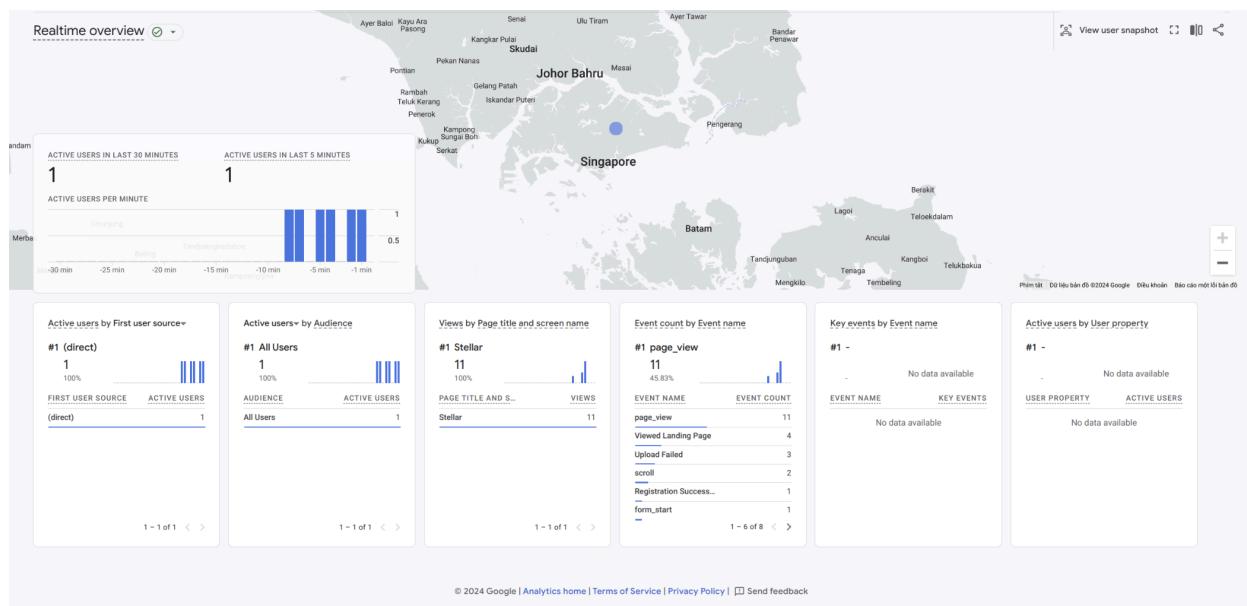
Send Message

 Facebook  Twitter  Instagram  Google+

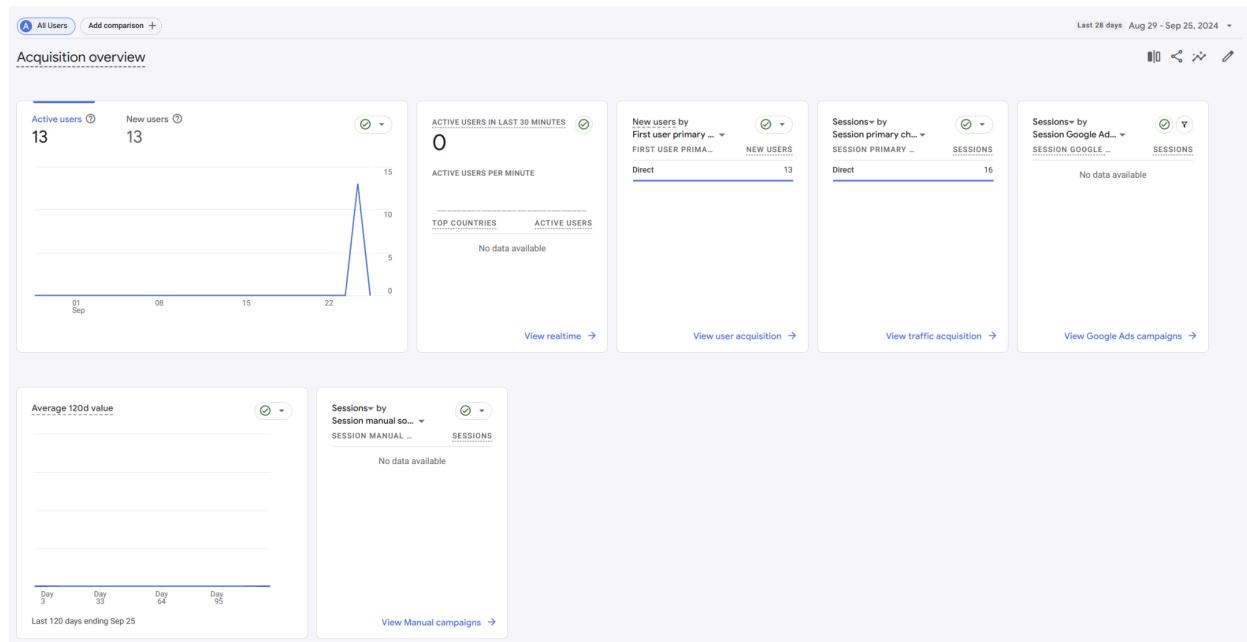
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Milestone 15: Google Analytics

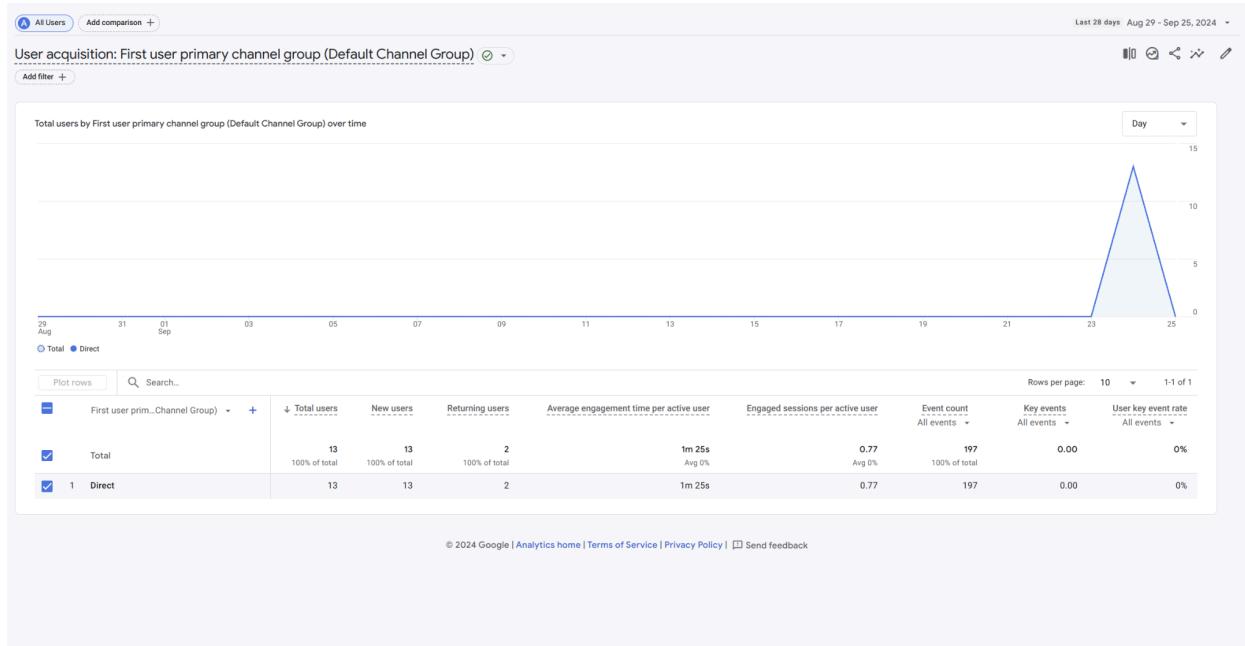
Real Time overview report



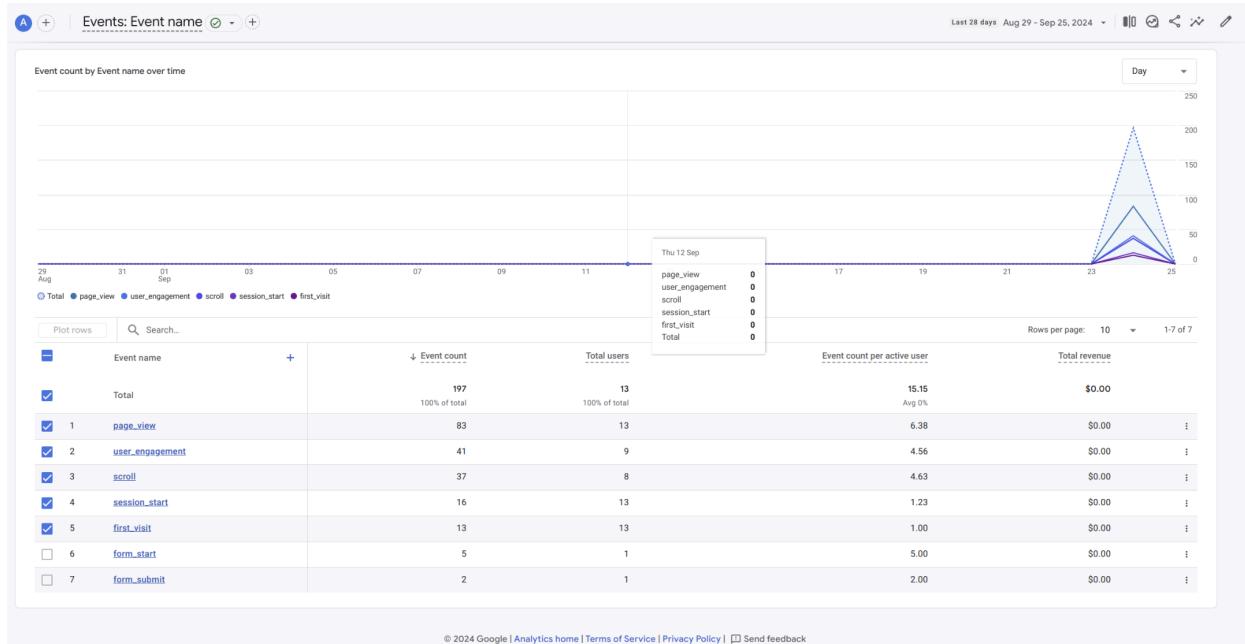
Acquisition overview



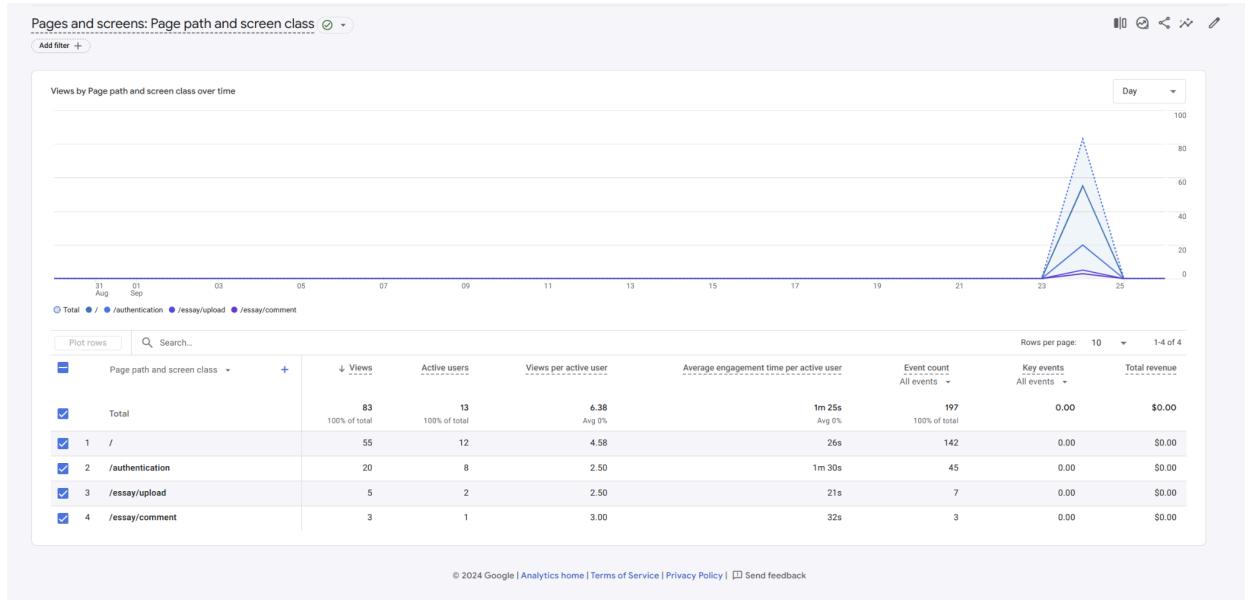
User acquisition



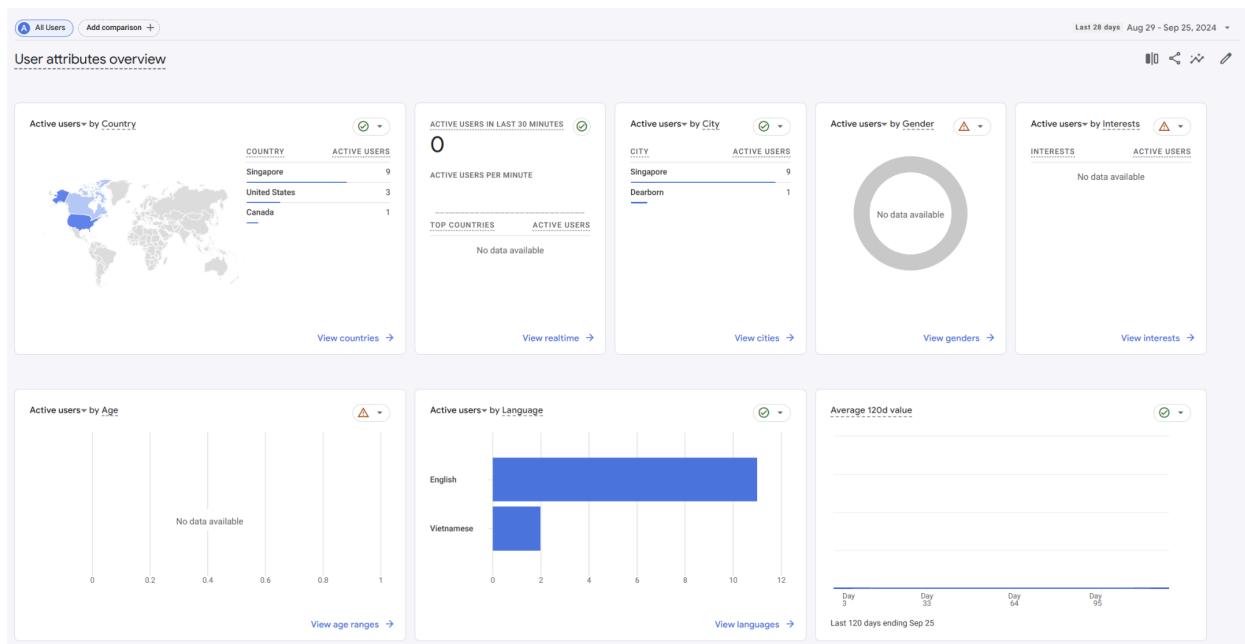
Events



Page view



User attributes overview



Milestone 16: Product Hunt Launch

Following the guideline from [how to post a product on Product Hunt](#), here are the materials:

- URL: <https://stellar-cs3216a3.com/>
- Name: Stellar
- Tagline: Your Oxbridge & Jardine application assistant
- Topics: [Virtual Assistants](#), [Artificial Intelligence](#)
- Thumbnail:



- Pricing tag: Free 3 initial uploads. Afterwards, \$10 per upload for Oxbridge personal statement, and \$15 per upload for Jardine personal statement.
- Status: Beta

- **Gallery:**

A ball colliding with a line of balls causes a seemingly magical transfer of energy, as only the ball at the other end flies up, and the rest, including the colliding one, stay stationary.

This was a problem posed in the Singapore Young Physicists' Tournament (SYPT) 2019. The phenomenon, Newton's cradle, opened my eyes to what Physics really is. Although I only managed to fully analyse the behaviour, theoretically and experimentally, for the case of two balls, I fell deeply in love with Physics.

I have since taken active steps to deepen my understanding of theoretical Physics. I competed in the Singapore Physics Olympiad (SPhO) and the Singapore Junior Physics Olympiad, ranking amongst the top 30 to win gold medals in both. Through these competitions, I learned many new Physics concepts and tackled many difficult problems. Revisiting Newton's cradle, I modelled the balls as Hertzian springs and obtained a more accurate simulation of their behaviour: the line of balls does not stay perfectly motionless. The power of physics to model and rationalise the world around us thus deepened my curiosity of Physics. In my own time, I took online Coursera courses in quantum mechanics and particle physics. The latter exposed me to the broad world of subatomic particles and their interactions, which can be illustrated by Feynman diagrams. Passionate in applying theory into real-life phenomena, I participated in SYPT again in 2021. Through rigorous research, I was exposed to the complex world of Physics which underpinned each problem. By seeking to make the phenomenon of the Wilberforce pendulum more observable in my experiment, I gained clearer insights into the system's nature of resonance. When the team was struggling to gain ground on either the theoretical or experimental aspects of the problem, I stepped forward to direct the team and coordinate work to ensure progress. The competition gave me a taste of what research work is like, compelling me to contribute to Physics research in future.

Motivated by my passion for Physics, I wish to pursue a Doctor of Philosophy degree, in hopes of one day being able to make contributions to the scientific community and to the advancement of our understanding of Physics.

Comments

Your argument is particularly strong because you provide detailed personal involvement and technical understanding. You describe your participation in the SYPT 2021 and the specific experiment with the Wilberforce pendulum, illustrating your research and insights into resonance. Furthermore, you demonstrate both leadership qualities through directing and coordinating your team during challenging times, and a clear aspiration to contribute to Physics research in the future. This combination of concrete personal actions, technical concepts, and career goals makes your argument compelling.

General Comment

Your personal statement effectively highlights your capability in Physics by discussing your deep understanding of specific concepts that only a scholar in this field would grasp. This evidence of your academic prowess is essential in

[Feedback page](#)

Upload your personal statement

Select Your Focus

Jardine Scholarship

Oxbridge

Upload your personal statement

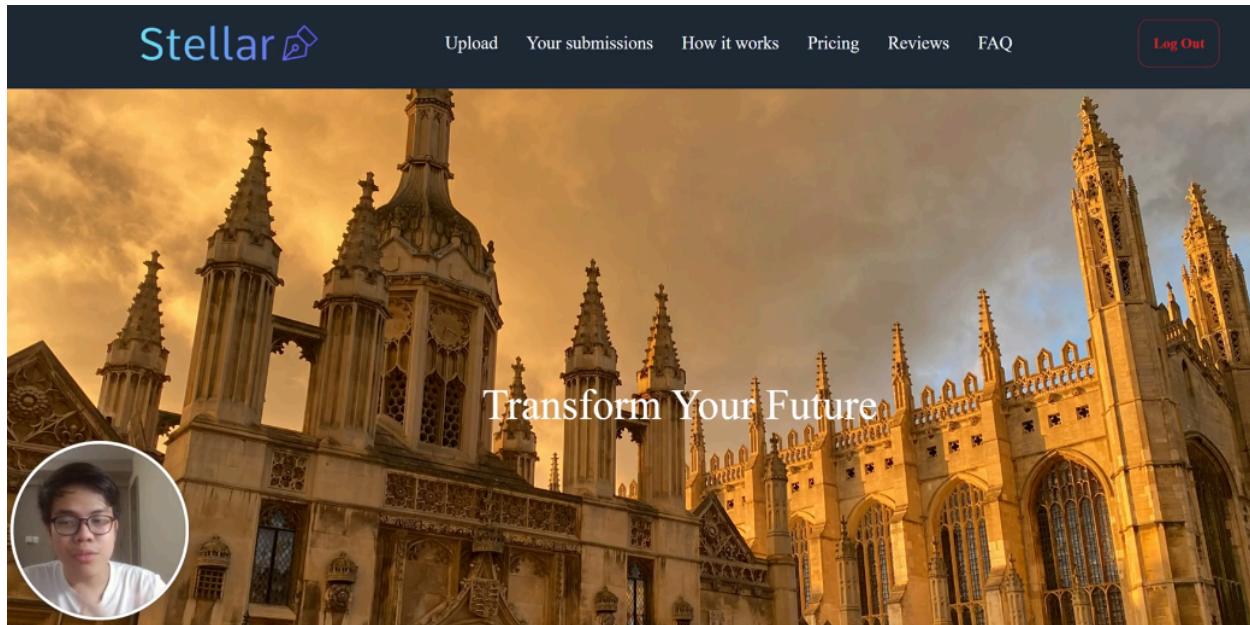
Enter your title

Enter your field of study

Type or paste your personal statement here

[Upload page](#)

- Demo: <https://app.arcade.software/share/d08hHeAOUS1TtJqsu8jz>



- Description:

Your Oxbridge & Jardine application assistant is capable of:

- Review your personal statement, for Oxbridge schools & Jardine scholarship
- Feedback on specific parts of your personal statement
- General comment on your personal statement

Coming up soon:

- Mock interviews
- Feedback on mock interviews
- Consultations

- First comment:

Hey Product Hunt folks!

We are super excited to share Stellar, your Oxbridge & Jardine application assistant!

Have you or your children ever wanted to apply to Oxbridge, and even Jardine scholarship? But you don't know where to get feedback from, and how to improve your personal statements? Consultancy services are too expensive?

Fret not! We are here to help you! Powered by AI, our app provides you feedback on your personal statements immediately! Simply sign up for an account, upload your personal statement, fill in your field of study, and you are ready to receive feedback.

Once feedback is ready, you can view comments on specific parts of your essay, and overall comment on how your essay fares, all to help you improve your personal statements.