GEYS4010B

College Senior Seminar

CU Exchange App

Group 7

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Background information

We have observed that CUHK students commonly seek second-hand items on platforms such as the online marketplace Carousell and social media platforms like Gööp and Dcard. However, transactions on these platforms may lack protection, leading to potential risks of fraud and scams. To address these issues, we aim to develop a reliable trading platform exclusively for the CUHK community.

Additionally, we have noticed a large volume of emails being sent to students from different departments and centers every day. While these emails offer valuable information and services, the overwhelming volume of daily information overload can decrease students' willingness to engage with and carefully review emails, potentially causing them to miss important information. Therefore, we also plan to implement an automatic email classification feature in our application to assist students in filtering and prioritizing emails based on their preferences and interests.

Objectives

- Creating a secure platform for transaction
- Delivering updated information of CUHK
- Creating a service platform for offering student-oriented services
- Facilitating sale, renting, and exchange of second-hand items

To ensure the security of our platform, users will be required to log in with their CUHK email. This measure aims to establish a reliable and trustworthy site where users can buy, sell, rent, and exchange second-hand items without any concerns.

The proposed application will serve as a dynamic information hub for CUHK students, delivering real-time updates on a range of essential topics, including scholarships, job opportunities, campus services, and more. Moreover, it will act as a central resource for student engagement, providing detailed information on student helper recruitment and volunteer programs. Our platform will filter content according to the user's settings and deliver instant notifications for new announcements.

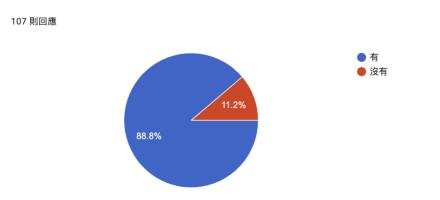
Survey & Result

We conducted a questionnaire in November through Instagram and WhatsApp. In total, 107 responses from CUHK students were collected.



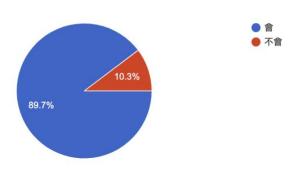
Important findings in the survey

3. 你有沒有因收到過多與自己不相關的中大電郵而忽略中大電郵,導致錯失一些重要的資訊?



5. 在Carousell/ Goop/ Dcard 購買二手的中大課本/source/體育服時,你會擔心受騙嗎?

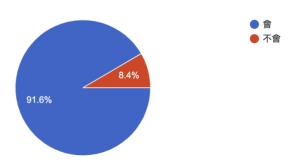




The survey reveals several key issues regarding the CUHK emails and information faced by CUHK students. A significant majority (88.8%) of the respondents have found themselves overwhelmed by irrelevant emails and have thus missed important information. Nearly 90% of the respondents also worry about potential fraud when trading second-hand items on existing platforms, highlighting trust concerns.

11. 你會因網上中大的資訊比較分散,而導致花費比較多的時間去尋找想知道的中大資料嗎?

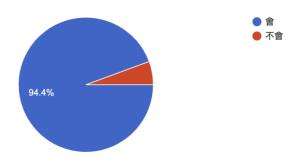
107 則回應



Additionally, an overwhelming majority have spent excessive time searching for scattered details about internships, scholarships, and extracurricular activities, reflecting the demand for better access to student-related information and resources in order to optimize efficiency.

12. 如果有一個可以過濾不相關的中大電郵、提供不同中大、實習、比賽、獎學金、 課外活動等資訊和交易二手中大物品的平台,使用者需要用中大電郵去註冊才可以使 用這個平台。你會想使用這個平台嗎?

107 則回應



Over 90% of the respondents expressed interest in a platform that filters emails, consolidates information and facilitates trading. This indicates a strong need to develop a centralized system to streamline communication, reduce inefficiencies, and improve students' access to opportunities and services, ultimately enhancing their overall experience in CUHK.

After analyzing the data, some drawbacks of the current CUHK emails and information and trading of second-hand CUHK items were found.

• Unreliable second-hand trading platforms



騙徒利用Carousell新功能呃錢!港女墮陷阱賣陳皮反被騙走\$26萬!平台提醒:提 防假冒管理員

 ^{1}An

example of fraud on second-hand trading platforms

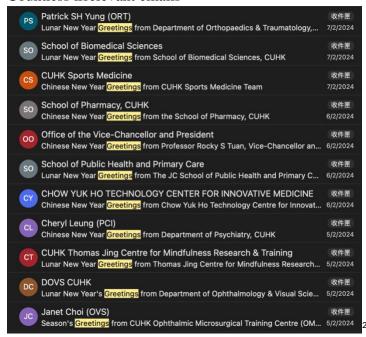
• Time-consuming

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https://hk.ulifestyle.com.hk/topic/detail/20049417/%E7%B6%B2%E4%B8%8A%E8%B3%A3%E9%99%B3%E7%9A%AE%E5%8F%8D%E8%A2%AB%E9%A8%99%E8%B5%B0-

^{26%}E8%90%AC%E5%85%83-%E9%A8%99%E5%BE%92%E7%9F%AD%E8%A8%8A-%E9%9B%BB%E8%A9 %B1%E7%8B%82%E5%82%AC%E7%B4%A2%E5%8F%96%E4%BF%9D%E5%AE%89%E7%B7%A8%E7%A2 %BC-%E5%B9%B3%E5%8F%B0-%E6%8F%90%E9%98%B2%E5%81%87%E5%86%92%E7%AE%A1%E7%9 0%86%E5%93%A1

Countless irrelevant emails



Students receive emails with repeated content from different departments.

• Diverse information



Students can look for different information, such as student helpers, extracurricular activities and courses by mass mail. However, the information is diverse and requires time for students to look for the information they want.

² CUHK Email

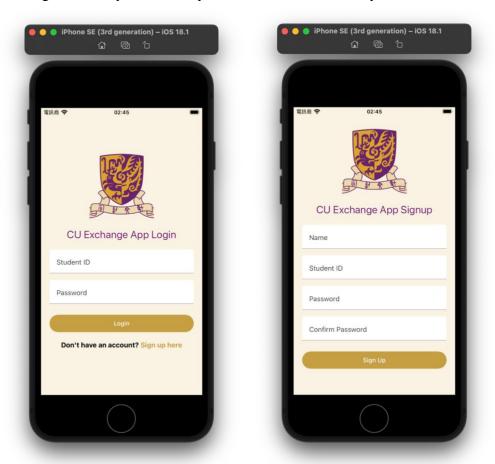
³ CUHK Email

App Features

1. User Authentication and Profile Management

• Authentication:

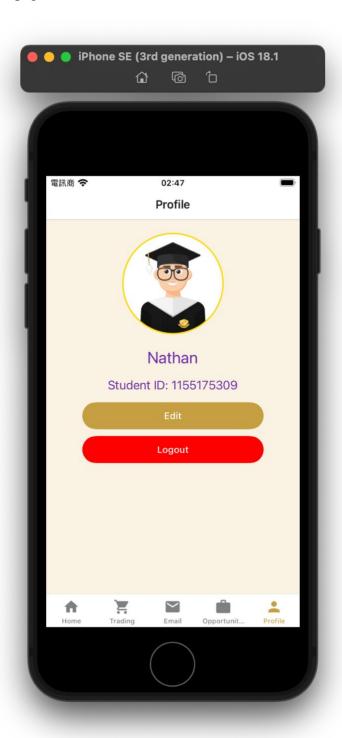
 Students are required to log in using their CUHK student ID and credentials, ensuring exclusivity and security for the CUHK community.



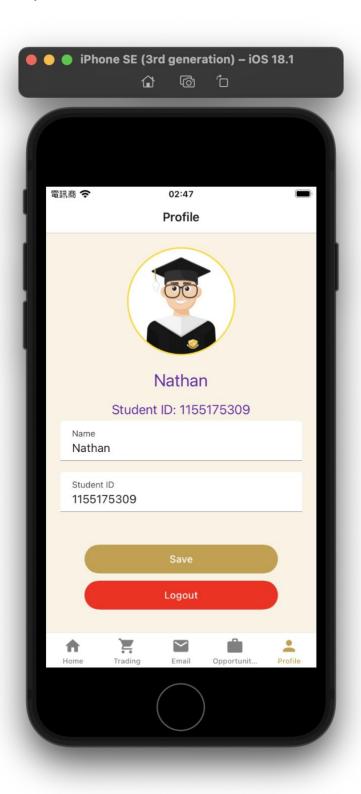
Two-factor authentication (2FA) and student email verification further enhance platform security.

• Profile Management:

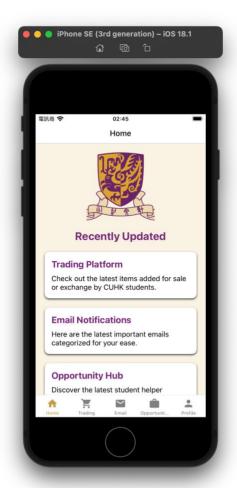
 Students can edit their personal information (name, student ID) directly on their profile page.

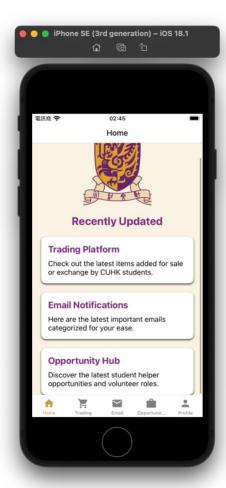


o A "Save" button allows updates, while a "Logout" button provides an easy exit from the system.



2. Home Page Navigation



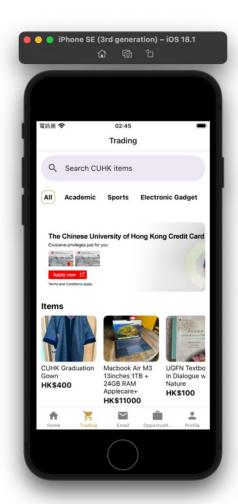


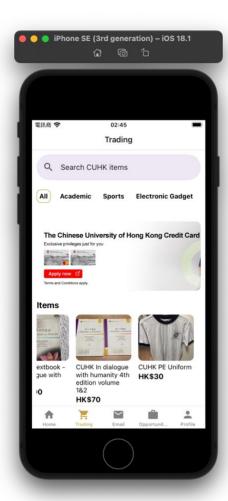
- The home page serves as a centralized hub, showcasing the app's three main modules:
 - 1. **Trading Platform**: A student-exclusive marketplace.
 - 2. **Email Notifications**: Smart categorization and organization of emails.
 - 3. **Opportunity Hub**: Access to part-time, volunteer, and credit-bearing job opportunities.

3. Trading Platform

• Features

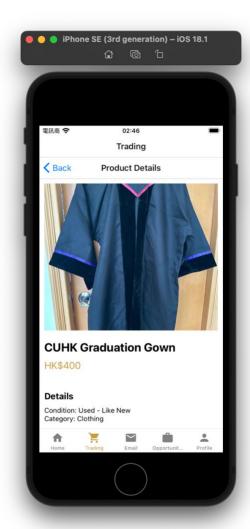
- o A marketplace for buying, selling, or exchanging items and services.
- Categories include Academic, Sports, and Electronic Gadgets, catering to student-specific needs.

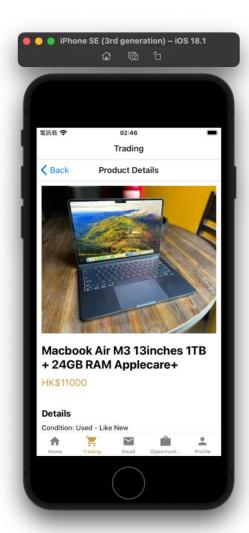




• Product Listings

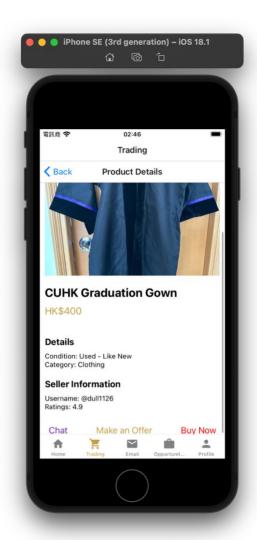
- o Detailed information for each item, such as condition, price, and category.
- o Includes seller details (e.g., username and ratings).

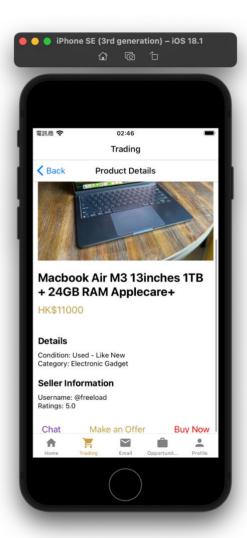




Actions

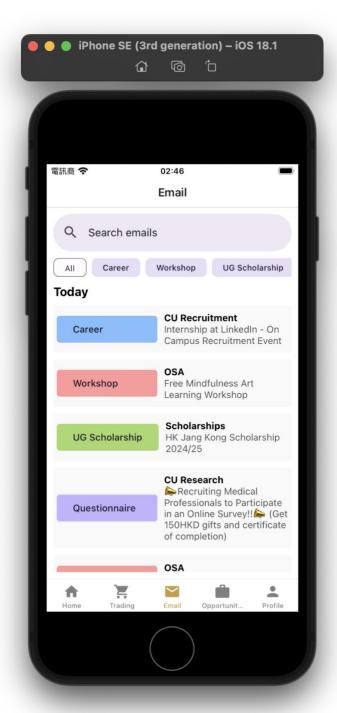
Users can "Chat," "Make an Offer," or "Buy Now" for seamless transactions.



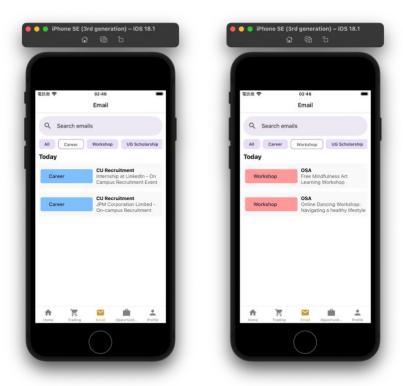


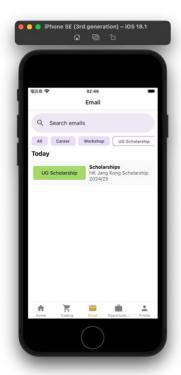
4. Email Notifications

- Automatic Categorization:
 - Emails are sorted under tags like **Career**, **Workshop**, **Scholarships**, and **Questionnaire**.



 Keyword filtering (e.g., "Questionnaire") and sender recognition streamline email organization.







• Customization

 Students can personalize categories and filter email notifications to suit their preferences.

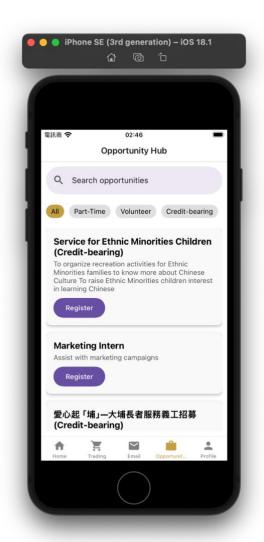
• Search Functionality

o A search bar enables quick retrieval of specific emails.

Relevance

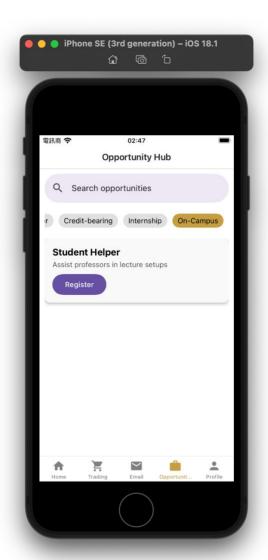
 Updates on job postings, academic notices, and other campus-specific communications will be delivered.

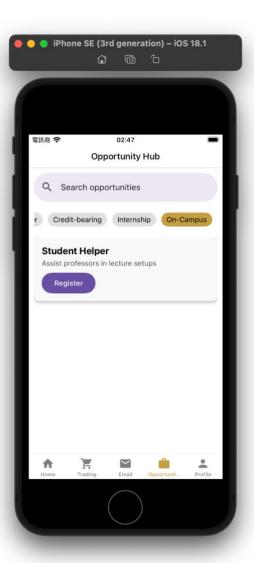
5. Opportunity Hub



• Role Categorization

Opportunities are filtered into categories like Part-Time, Volunteer, Credit-Bearing, and On-Campus.



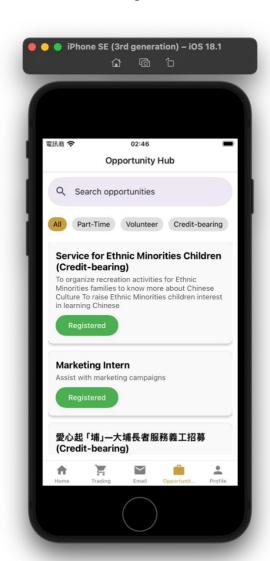


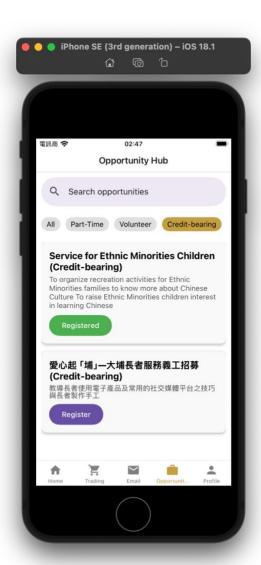
Details

 Each opportunity lists its scope, requirements, and potential credit-bearing fulfillment.

Ease of Application

 A "Register" button enables direct application for roles, eliminating the need for separate forms.





• Academic Integration:

 Jobs that fulfill CUHK's compulsory credit-bearing service-learning program are clearly labeled.

Value and Revenue Creation

The CU Exchange App is expected to create both tangible and intangible value while ensuring financial sustainability. By focusing on the unique needs of the CUHK student community, we provide a seamless ecosystem for exchanging academic resources, goods, and services that enrich student life, and generate revenue through strategic partnerships and features.

1. Membership Tiers and Premium Features

We will introduce a user rating system to evaluate buyers, sellers, and service providers. High ratings will help foster trust and credibility, encouraging safe and reliable transactions across our platform. This creates a more comfortable environment for all students.

Membership Tiers: We will offer a free membership tier for basic access and a premium membership for enhanced features. Premium users will benefit from discounted transaction fees, priority access to high-demand items, and exclusive academic resources. Additional features like early access to new items or services will enhance their experience.

Premium Listings: For students looking to promote their services (like tutoring or hostel luggage help) or items (such as second-hand appliances), we will offer premium listings for increased visibility. These listings will be prioritized at the top of relevant search results, ensuring higher exposure and faster transactions. Students can choose from two pricing options for those who need quicker sales or responses:

For a successful sale, we will charge an 18% fee on the item. Alternatively, users can pay 8% of the order price upfront to waive additional fees upon sale.

2. Advertisements & Sponsorships

We plan to partner with businesses that are highly relevant to students to generate revenue through targeted advertising.

Potential partners include:

Canteen and Fusion Supermarket: Promoting meal deals or student-friendly packages to help reduce daily expenses.

COMER Hair Salon: Offering student discounts for grooming services, driving engagement with local businesses.

Heng Seng Bank Credit Card: Featuring student-friendly financial products and exclusive offers tailored for the CUHK community.

Student Union: Promoting university events, activities, and services to the wider student body.

These partnerships will not only support our platform financially but also offer our partners a direct channel to reach students, providing mutual benefits and ensuring our platform remains free and accessible.

3. Customized Information Dissemination

We aim to keep students informed based on their academic interests, courses, and events. Notifications can be tailored to include upcoming deadlines, events, or important news from the Student Union or academic departments. This makes our platform a highly relevant tool for students and fosters a sense of community by boosting engagement in school activities.

Sustainability of the Platform

To ensure the long-term sustainability of our CU Exchange Platform, we will implement several strategies:

1. User-Centered Design and Continuous Improvement

We will embed a feedback loop into our platform to continuously collect user preferences and suggestions. This will allow us to evolve based on students' needs and ensure our platform remains a relevant tool throughout their university journey.

2. Environmental Sustainability

By promoting the resale and exchange of second-hand items like textbooks, appliances, and kitchenware, we will encourage sustainable consumption. Students can save money by reusing items instead of buying new ones, helping to reduce waste and minimize the environmental footprint of the CUHK community.

3. Scalability and Future Growth

We are designing our platform with scalability in mind, meaning it can easily expand to other universities or scale up with additional features. We envision adding new service categories and establishing partnerships with external businesses as the platform grows, ensuring long-term viability.

4. Community Engagement

We will actively engage with the student community by partnering with student clubs and organizations, hosting events, and promoting initiatives through our platform. Regular promotions and collaborations will help keep our platform vibrant and ensure it is actively used by students.

5. Low Maintenance Costs

By using efficient, cloud-based infrastructure like AWS or Google Cloud, we will keep operational costs low while ensuring high performance. Regular updates and maintenance will be carried out efficiently to avoid heavy costs.

By building a diverse and resilient revenue model, promoting environmental responsibility , and staying closely connected with the student body, our CU Exchange Platform will be positioned as both a financial and social asset to the CUHK community for years to come.

Current Progress and Future Plan

The development of CU Exchange App is in progress, we have finished the basic app design but there are a few more steps need to do:

Development

The design of the app's interface and functionalities has been completed as introduced previously, including the creation of the Opportunity Hub, a trading platform and email filtering function.

Technical Implementation

To ensure the successful development of the CU Exchange App, we will integrate our application with the user server to facilitate efficient data storage and organization. Additionally, we plan to implement Duo Two-Factor Authentication to enhance user verification protocols, ensuring that all users are verified members of the CUHK community.

Given that we are a small-sized app provider, it is anticipated that in the preliminary stage, active user base will be fewer than 1,000 individuals. The core functionalities of the app will be straightforward, limited to no more than ten key features initially. As such, we will utilize cloud hosting services, such as AWS, for reliable and efficient data storage.

Next Steps in Development

The subsequent phase of our project involves comprehensive app development, during which we will conduct a three-week trial specifically for WYS students, followed by an additional week dedicated to gathering user feedback.

Partnership and Advertising Opportunities

Over the course of four weeks, we will actively seek to establish partnerships with various departments within CUHK and engage non-governmental organizations (NGOs) to launch the Opportunity Hub feature. Furthermore, we will reach out to several merchants for advertising partnerships, including Hang Seng Bank, local restaurants, and FUSION.

Primary Objectives

Our primary objective is to implement an automatic email classification function, which will provide substantial benefits to all students. During the initial management phase, our development team will play a crucial role in addressing technical issues, responding to user inquiries, and conducting necessary software updates.

Cost Estimate

1. App development

We will recruit professionals to develop the app. It is estimated to complete the app design and testing in two months in total. Since the functions of the platform are not complicated, it can be considered as a relatively small app. We will also assist in app development, so that we can save some of the budget. Therefore, we can adopt a lower budget plan. The estimated cost of app development is \$20,000-\$40,000, ⁴including one to two years of initial maintenance.

2. Cloud server

We will use a cloud server for data storage. According to the survey, in 2023, there are more than 20,000 students in CUHK.⁵ We anticipate 3% of the students will be the initial users, which is about 600 students. The data memory required by the platform is relatively small, since only the basic and vital functions will be concluded in the app at first. Therefore, we will use memory-optimized cloud server, the minimum price will be \$400-500 a month. ⁶We will take a lower quotation, which is about \$5,000 a year.

3. Launching

The proposed app will be launched through the Google store and Apple store. We will use cross-platform app development tools such as Flutter, Corona SDK, and Xamarin etc. to synchronize the uploading of the iOS and android systems.⁷ The total registration fee for Android Play Store is \$25, and the Apple developer program for the App Store is \$99 for one year.⁸ Therefore, the cost of platform launching will be \$1000, allowing for handling fees and exchange rate fluctuations.

4. Promotion

In addition, we will also promote our app on campus. The main ways are distribution of posters (budget \$300) and membership coupons (budget \$1200). We will set aside \$1,500 for the promotion.

In summary, the total budget for the first-year expenses will be around HK\$27,500 - HK\$47,500.

⁴ https://blog.shopline.hk/app-price/

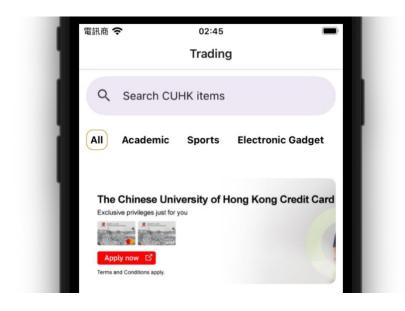
⁵ https://www.iso.cuhk.edu.hk/images/publication/facts-and-figures/2023-lite/pdf/facts_2023_lite.pdf?20240813

⁶ https://www.layerstack.com/pricing

⁷ https://www.simublade.com/blogs/top-cross-platform-app-development-frameworks/

⁸ https://www.businessgo.hsbc.com/zh-Hans/article/mobile-app-8-costs

Profit Forecast



1. Advertisement

We will set up a rolling advertisement section that will not affect the user's experience. We expect to attract businesses on campus in the early stage. If other businesses related to campus life wish to connect with CU students, they are welcome to promote their services through our platform. At the initial stage of the app, our advertisement price will be lower than the market price. Once we see significant growth in user numbers, we will gradually increase our advertising fees and open up the section to outside stores. Meanwhile, we will set up a total of five rotating ads. In accordance with the cpt calculation method (fixed charge per month), it is estimated to charge \$500 for an advertisement. Combined with the \$200 click-through rate, there will be a total of \$2700 advertisement fee per month. Through the advertising section, which is our main source of income, we could make a revenue of \$32,400 a year.

2. Premium List

As we expect to reach around 600 users in the early stage, there will be about 4% of them to choose the premium list feature. We will offer users two options to maximize the exposure of products in order to enhance the chance of transaction. Conservatively, our plan is more cost-effective for higher-priced items, so we anticipate that users will be able to sell \$100 or more of items using the premium list feature. Therefore, there may be an income of \$192 or \$432 a month, which is about \$2,300-\$5,200 a year.

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https://medium.com/@flipweb/%E5%BB%A3%E5%91%8A%E6%8A%95%E6%94%BE%E6%96%B9%E5%BC%8F-cpc-cpm-cpa-cps-cpt-bc0116ebe4ee

As a result, in the first year, our total income may reach \$35,000 or more.

First year		Budget (HKD)		Profit (HKD)
		8 \ /		, ,
	App development	20,000-40,000	Advertisements	32,400
	Cloud server	5,000	Premium list	2,300-5,200
	App store	1,000		
	Promotion	1,500		
TOTAL		27,500-47,500		34,700-37,600

How to make use of profit

1. Human Resources

We will recruit staffs for keep the app running smoothly, for example we need to hire technical staff to fix sudden bugs, human customer service to handle user disputes and to receive user feedback in time.

2. Maintenance

When we recruit professionals for app development, the developer will provide initial maintenance for 1-2 years. Whereas a normal app undergoes major maintenance once n every 5 years, thus, we will utilize the profits to prepare for all the later maintenance. ¹⁰

3. **Promotion**

We will run targeted ads on social media platforms and collaborate with student influencers or campus ambassadors to share authentic content, reviews, and demonstrations. Additionally, we will leverage university mailing lists to send promotional emails that highlight the app's benefits and features tailored to students' needs. We will also create visually appealing flyers and posters, placed in common areas around campus, such as libraries, student canteens, and hostels, incorporating QR codes that direct students to download the app easily.

4. Expansion

If the proposed platform is well received during the operation, we will add more tailormade and specific functions for university students. We will also be prepared to work with other universities to broaden our user base for mutual benefit.

¹⁰ https://www.pintech.com.tw/tw/article/215/app-maintenance-cost-details

Potential Risks and Limitations

1. Technical Challenges

Developing a sophisticated app that integrates multiple functionalities may present technical challenges, including bugs and system failures. To address these issues, we will allocate sufficient resources for thorough testing and ensure that a skilled development team is in place. For instance, we will hire IT professionals to refine the app prior to its official launch. Additionally, a pilot program will be implemented to identify and resolve any potential technical issues while gathering feedback from the initial users. Their insights will be utilized to make enhancements leading up to the official launch, ultimately improving the user experience.

2. Data Privacy and Security

Data privacy is a major concern in today's digital landscape. The proposed app will handle user data, particularly in email categorization and product exchanges, which raises important privacy considerations. Changes in regulatory compliance related to digital platforms, e-commerce, or data privacy could significantly impact operations. Therefore, we will implement robust security measures and stay informed about relevant laws, adapting the app as necessary to ensure compliance with data protection regulations, such as the Personal Data (Privacy) Ordinance. Additionally, we will clearly outline the types of personal information collected, how it will be used, and the measures in place to protect user data, such as encryption.

3. Funding and Resource Allocation

It is important to recognize that developing an app and providing a platform for a significant number of users may require substantial financial resources. Insufficient funding could hinder development, marketing, or operational efforts. Therefore, it is essential to clearly outline the budget and funding needs while presenting a detailed plan for resource allocation. Moreover, we aim to raise funds not only from investors but also by seeking partnerships with CUHK to enhance support and resources for the project.

Conclusion

This project aims to develop an integrated platform designed to enhance the convenience of CUHK students. The platform will include key features such as automatic email categorization, a second-hand trading platform, and an opportunity hub. By implementing dual verification, this platform will significantly improve cybersecurity and mitigate potential threats, ultimately fostering a safer and more efficient digital environment for the university community.

Appendix I

Questions in the survey:

1. 你經常會收到過多與自己不相關的中大電郵嗎?

Do you often receive too many CUHK emails that are not relevant to you?

Yes: 103 (96.3%) No: 4 (3.7%)

2. 你有沒有因收到過多與自己不相關的中大電郵而感到煩擾?

Do you feel annoyed by receiving too many CUHK emails that are not relevant to you?

Yes: 98 (91.6%) No:9 (98.4%)

3. 你有沒有因收到過多與自己不相關的中大電郵而忽略中大電郵, 導致錯失一些重要的資訊?

Do you ignore CUHK emails because you receive too many CUHK emails that are not relevant to you, resulting in missing out on some important information?

Yes: 95 (88.8%) No: 12 (11.2%)

4. 你會在Carousell/ Goop/ Dcard上購買二手的中大課本/source/體育服嗎?

Would you buy second-hand CUHK textbooks/sources/sportswear on Carousell/ Goop/ Dcard?

Yes: 86 (80.4%) No: 21 (19.6%)

5. 在Carousell/Goop/Dcard進行交易時,你會擔心受騙嗎?

Do you worry about being cheated when making transactions on Carousell/ Goop/ Dcard?

Yes: 96 (89.7%) No: 11 (10.3%)

6. 你認為在Carousell/Goop/Dcard進行的交易可以受到保障嗎?

Do you think transactions made on Carousell/ Goop/ Dcard are protected?

Yes: 87 (81.3%) No: 20 (18.7%)

7. 你覺得尋找實習、比賽、獎學金、課外活動等資訊困難嗎?

Do you find it difficult to find information about internships, competitions, scholarships, extracurricular activities, etc.?

Yes: 89 (83.2%) No: 18 (16.8%)

8. 你會因實習、比賽、獎學金、課外活動等資訊比較分散,而導致花費較多時間去尋找想知道的資訊嗎?

Will you spend more time looking for the information you want to know about internships, competitions, scholarships, extracurricular activities, etc. because the information is scattered?

Yes: 101 (94.4%)

No: 6 (5.6%)

9. 你認為目前中大所推送的資訊(例如實習、比賽、獎學金、課外活動)足夠嗎? Do you think the information currently pushed by CUHK (such as internships, competitions, scholarships, extracurricular activities) is sufficient?

Enough: 25 (23.4%) Not enough: 82 (76.6%)

10. 你認為網上有關中大的資訊(例如惡劣天氣情況下的上課安排、不同課程的評價)分 散嗎?

Do you think the information about CUHK on the Internet (such as class arrangements under bad weather conditions, evaluations of different courses) is scattered?

Yes: 97 (90.7%) No: 10 (9.3%)

11. 你會因網上中大的資訊比較分散,而導致花費比較多的時間去尋找想知道的中大資料嗎?

Will you spend more time looking for the information you want to know about CUHK because the information about CUHK on the Internet is scattered?

Yes: 98 (91.6%)

No: 9 (8.4%)

12. 如果有一個可以過濾不相關的中大電郵、提供不同中大、實習、比賽、獎學金、課外 活動等資訊和交易二手中大物品的平台,使用者需要用中大電郵去註冊才可以使用這 個平台。你會想使用這個平台嗎?

If there is a platform that can filter irrelevant CUHK emails, provide information about different CUHKs, internships, competitions, scholarships, extracurricular activities, etc., and trade second-hand CUHK items, users need to register with CUHK email to use this platform. Would you like to use this platform?

Yes: 101 (94.4%)

No: 6 (5.6%)