Scout

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https://scoutsg.vercel.app/

Description **2**
1 Target User, Problem / Overall Pain Point 2
1.1 Explore-First Design 2
1.2 Questions-First Approach (+ Question Templates) 2
1.3 One-click Telegram Setup 3

Existing Solutions **4**
Reddit 4
Discord/Slack Channels 4

Timeline **6**

Individual Contribution and Roles **7**

Application Design **7**
Tech Stack 7
Database Design 8
Database Schema 9

Marketing **10**
Social Media 10
Direct Partnerships 13

Usage Statistics **13**

Future Plans and Strategies **14**
Partnerships 14
Possible Extensions 15
Modules: Group projects and Study groups 15

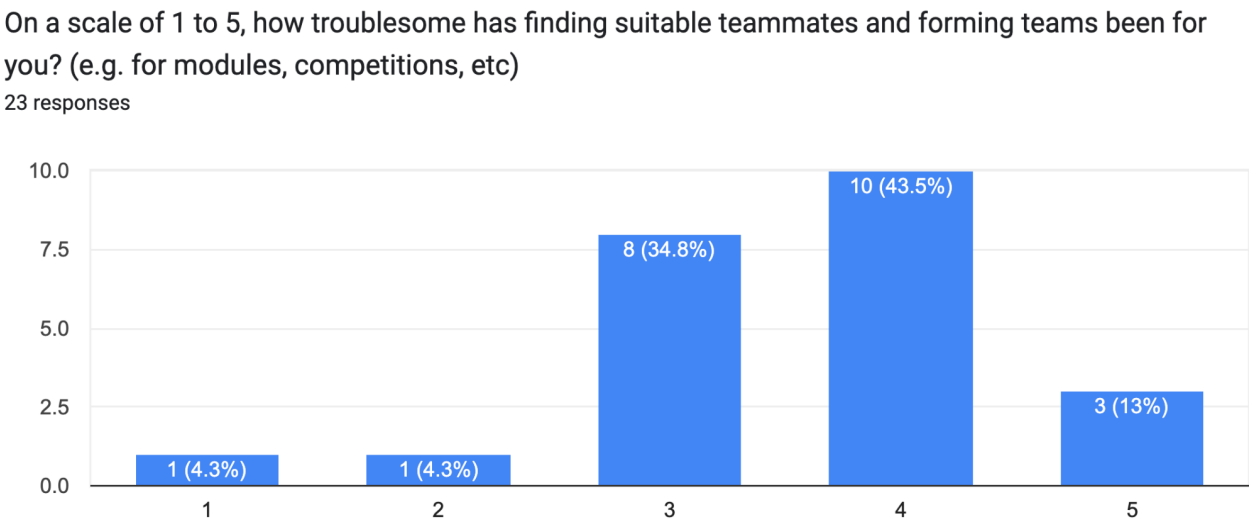
Insights **15**
User Experience 15
Technology 17
Marketing 18
Teamwork 19

Description

Scout is a responsive web app with a mission to help university students find and form teams rapidly for undergraduate competitions.

1 Target User, Problem / Overall Pain Point

Through our preliminary survey of 23 students, we found that students faced difficulties finding suitable teammates to join competitions. Some students are solo participants, while others may have a partial group but face difficulties in completing the team.



We strongly felt that **students should not be disadvantaged because they cannot find a suitable team**. Therefore, we want to create a platform for undergraduates to discover teams or teammates who complement their personalities and skill sets, so that they can achieve their goals for the competition. We thus developed Scout, for users who have a moderate-to-high interest in competitions, but face difficulty forming a complete suitable group. Here, we highlight three key features of Scout that enable rapid team-forming and finding.

1.1 Explore-First Design

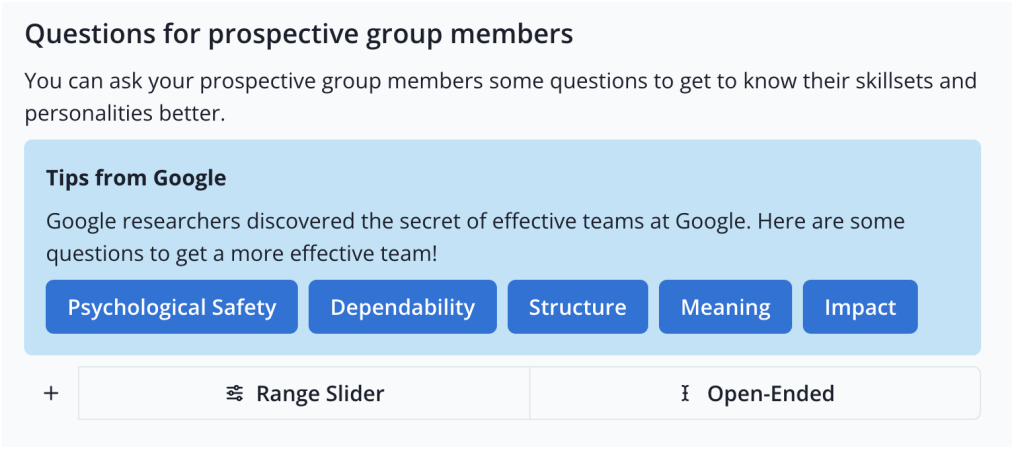
We allowed users to explore the competitions, partial groups and even create a team without authenticating first. This is in line with the mobile design principles of letting users explore first before they commit (source). Although our app can be used on desktop and on mobile, we felt that this was a critical feature in order to promote a "snappy" feeling in our app. We did not want users to drop off from our app after encountering an authentication page too early in the user journey. Hence, we only prompt them to login at a later stage, only when absolutely necessary, such as when creating a group or when requesting to join a group.

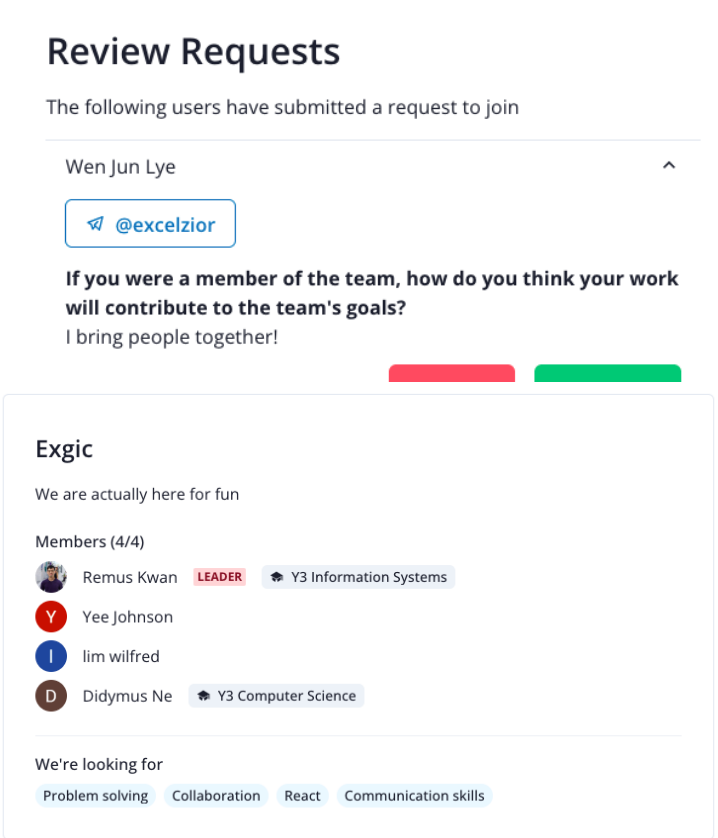
1.2 Questions-First Approach (+ Question Templates)

Before deciding to form a team with someone, students need to get to know each other to determine if they would be a good fit.

A pain point we observed from our requirements gathering was that students who were forming teams had to **repeat** their questions for each new student they wanted to get to know more, slowing down the process of forming teams. Hence, we designed a team Question-First application, where team leaders can list the questions they would ask, and users who wish to join the team can easily answer these questions.

A second pain point we observed with regards to Questions was that users tend not to know what are “good” questions, and find it troublesome to come up with them. Hence, we applied Google’s research into what drives effective teams and adapted it into template questions to help them form effective teams “snappily”.





In case the answers to the questions are insufficient, team leaders can also reach out to prospective team members on Telegram by clicking their username on Scout to continue the conversation and get to know them better, provided that the other party has updated their profile with their telegram details.

For subsequent team members getting to know more about the team they are considering joining, team leaders can indicate further details in the group description or using the tags.

1.3 One-click Telegram Setup

As an added convenience factor, Scout allows users to opt-in to create a Telegram group chat tied to their Scout group. When the Scout group is first created, a Telegram group will be created with the leader and the Scout Telegram account. When new users are approved to join the team, they are automatically added to the group chat if we are able to do so.

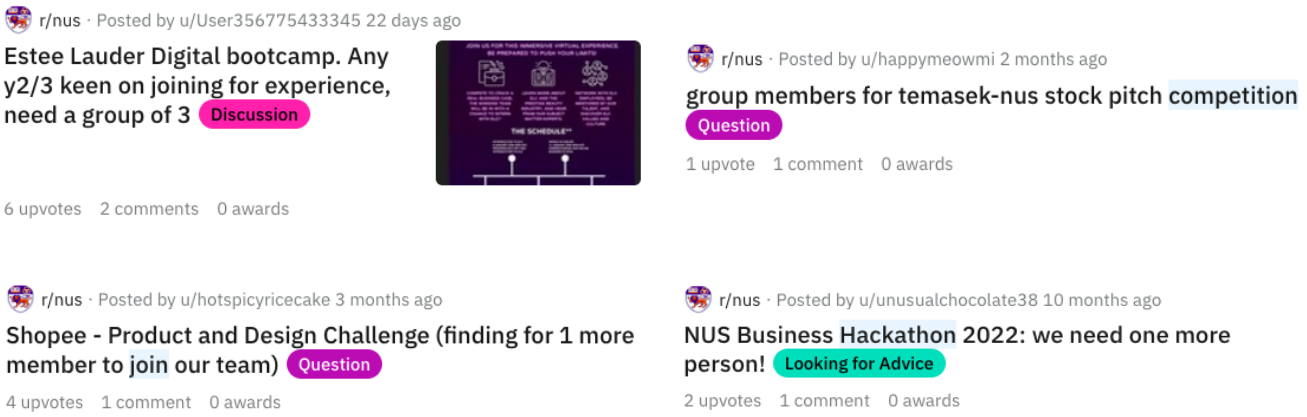
By setting up a Telegram group, we also have a convenient channel to notify groups on updates to their Scout team, such as when new users request to join the team. This reduces the need for users to constantly check back to our app, and helps with user retention as we remind users to come back only when there are new requests to consider.

Existing Solutions

Scout is arguably the first team-finding and forming platform for undergraduates in Singapore. From our preliminary scan, there are no apps dedicated to solving this problem. However, users facing these problems have turned to other sites.

Reddit

NUS students who are looking for team members to join competitions often turn to the r/nus subreddit. However, Reddit is not an ideal platform as it is a general forum that is not specific to finding competitions and forming teams. These posts generally do not perform very well (as evidenced by the low number of upvotes and comments) and are quickly buried below more popular memes and jokes. Users also have to constantly DM and repeat questions asked, which makes this process very manual.



Discord/Slack Channels

Some hackathons and competitions create Discord or Slack channels for participants to join, ask questions and interact with each other online. They often include a channel for participants who do not have complete teams to interact with each other to complete their teams.

However, such an approach is also extremely manual: the user has to create a channel, or post a message, ask for team members, and manually reply to each request, or repeating questions to find out more. Moreover, some competitions do not have such a channel for participants to interact with each other, and may require participants to sign up as a **complete** team (forcing students to form a team before registering) - people who do not have a complete team do not have a dedicated platform to find others in similar positions.

Timeline

Legend: ✅ hit, ❌ miss

W	Development	Marketing & Outreach	User Experience
8	Users can ✅Authenticate using one-click Google login or magic link sent to email ✅Browse competitions on the platform ✅Create a group within a competition ✅Provide questions to ask prospective group members to get to know them ✅Browse groups within a competition ✅Request to join groups by answering questions posed by the group creator ✅Group members can approve and reject requests to join the group	✅Set up social media accounts for project (LinkedIn, Instagram, etc.) Email: scoutteamsg@gmail.com LinkedIn: https://www.linkedin.com/company/scoutsg/ Instagram: @scoutteamsg ✅Research competitions with ongoing registrations to find suitable partners 1. Contacted Ms Jane Lim Li Sze, exploring how we could use the platform for students to find competitions / hackathons 2. Found 7 competitions to seed the database	✅ Conducted two user interviews on the first iteration prototype ✅ Write Product Requirement Document (Scout v1.0)
9	✅UI enhancements, aesthetic changes ✅Fix performance issues ✅Google analytics New features in the user journey ✅Telegram one-click setup ✅Open-ended questions ✅Question templates ✅Share group to invite people to request to join ✅Send invite link to specific friends to add them into the group directly	❌ No response from Ms Jane Lim → Cancel plans to collaborate with NUS office ✅ Manually find competitions to add to database ✅ Create Google Form and link to app for users to submit competitions that they do not see	✅ Conduct user interviews on UI/UX on Telegram enhancements + redesigned app ✅ Validate with users whether they prioritise a one click setup or team collaboration ✅ Beta testing
10		✅ Social media marketing (LinkedIn) for the release of beta version ✅ Contact hackathons organiser to integrate their hackathon marketing to include our application for group formation	
11	✅ Security checks	✅ Liaise with Advocate Users (Ling Ling, nuscslife) ✅ Promote the CFA Institute Research Challenge to NUS Business School Telegram	✅ Add user feedback form to app to allow user to send feedback and reports on bugs
12		✅ Push “Did You Know?” Series on LinkedIn ✅ Pitch idea to societies to use our app for their competitions ✅ Create Scout demo video, Design Poster for STePs ✅ Plan Marketing Campaign for STePs (Beat Saber Dance Off) + Collect marketing collaterals (3x Oculus Sets, 1x additional Monitor Screen)	
13	❌ Tidy up code + Write a more descriptive README (done in Reading Week)	✅ Push Advocate User on Instagram and LinkedIn (IG: nuscslife, lingling) ✅ [STePs] Beat Saber Dance Off (Purchase Gifts, Set up booth)	✅ Summarise feedback from booth participants (graders + SoC visitors + industry partners (to use for future iteration Scout v2.0)

Individual Contribution and Roles

Individual contribution and roles. Acknowledgement of resources/help provided by external parties.

Member	Roles	Contribution Summary
Didymus Ne	Full-stack developer Marketing (Social Media) User Interviews	1. Frontend features 2. Backend validation 3. Social Media Marketing 4. Conducted 5 user interviews, surveys
Keith Gan	Full-stack developer Product Design	1. Authentication (Google one-click login and Magic Link) 2. UI/UX Design 3. Frontend design enhancements
Lee Yong Ler	Backend developer Marketing (Partnerships)	1. Database Schema and REST APIs 2. Liaising for new partnerships 3. Conducted 1 user interview
Lye Wen Jun	Full-stack developer User Interviews	1. Frontend features 2. Telegram features 3. Conducted 2 user interviews

Application Design

Tech Stack

Our application is built using Next.js, Prisma, Chakra UI, and the Telegram API. Despite none of us having had experience with this tech stack, we used this tech stack for its benefits below.

The main reason for using Next.js is to enable our application to do server-side rendering which aids in search engine optimization. With Next.js, we can also build a hybrid application with server-side rendered pages as well as static pages which improves the load time for some pages of our application. Lastly, Next.js has built-in compatibility with Vercel, which is able to scale with the use of serverless functions.

We opted to use Prisma because it offers a simple way to define a wide range of API operations in a type-safe manner. By using an ORM, we reduced the amount of time spent writing SQL queries and managed to focus more on optimising the user experience. Furthermore, Prisma is the best ORM companion for our Next.js app, as we are able to call our

Prisma client within the server-side rendering functions from Next. The creators of Next and Prisma have commonly touted each other as the perfect companions.

On the frontend, we used Chakra UI library because it provided us with common components. We decided to use Chakra UI after comparing it against other alternatives, including Material UI and Mantine UI. While Chakra UI has less components than the two, this actually makes the library lighter, and we can use other libraries to support our features (e.g. we used react-hook-forms as an additional library for our forms), making our app more customisable. Moreover, Chakra UI has support for dark mode which we actively sought to incorporate in our application. The themeable feature of Chakra UI enabled us to create custom themed components to suit the user interface of our application. Most importantly, Chakra UI has a large enough user base, which gives us confidence.

Database Design

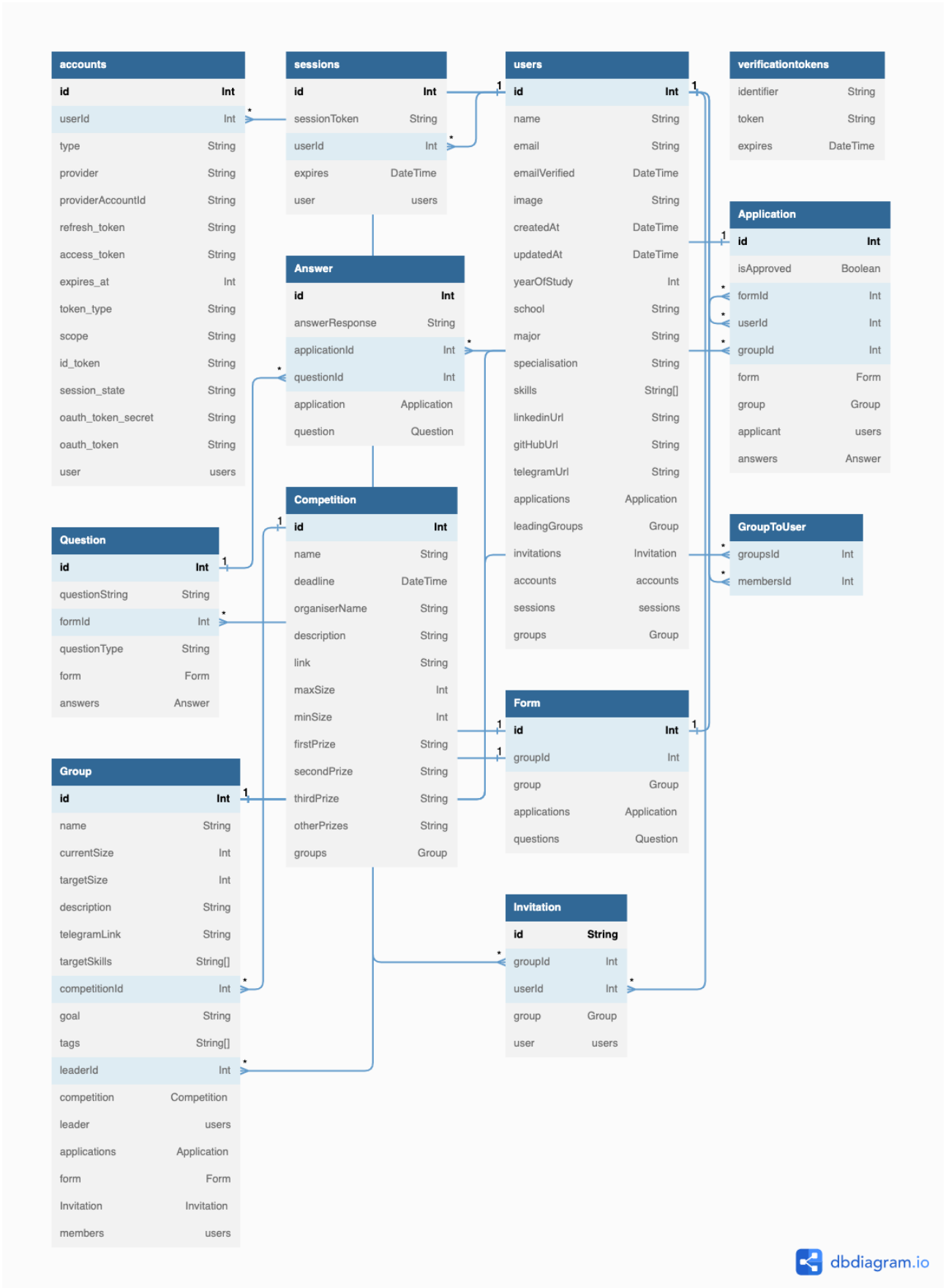
Our database schema can be found below. We designed our database according to the features and user stories we sought to implement.

The following tables are used to authenticate and authorise the users:

1. Accounts
2. Sessions
3. Users
4. VerificationTokens

For discovery of competitions, we created a *Competitions* table to store all the competition information. Each user is able to create a group in the *Group* table, with a corresponding form in the *Form* table that contains questions in the *Questions* table. Requests to join the group will be in the form of an application in the *Applications* table which contains answers to the questions in the *Answers* table. For the relationship mappings, please refer to the database schema below.

Database Schema



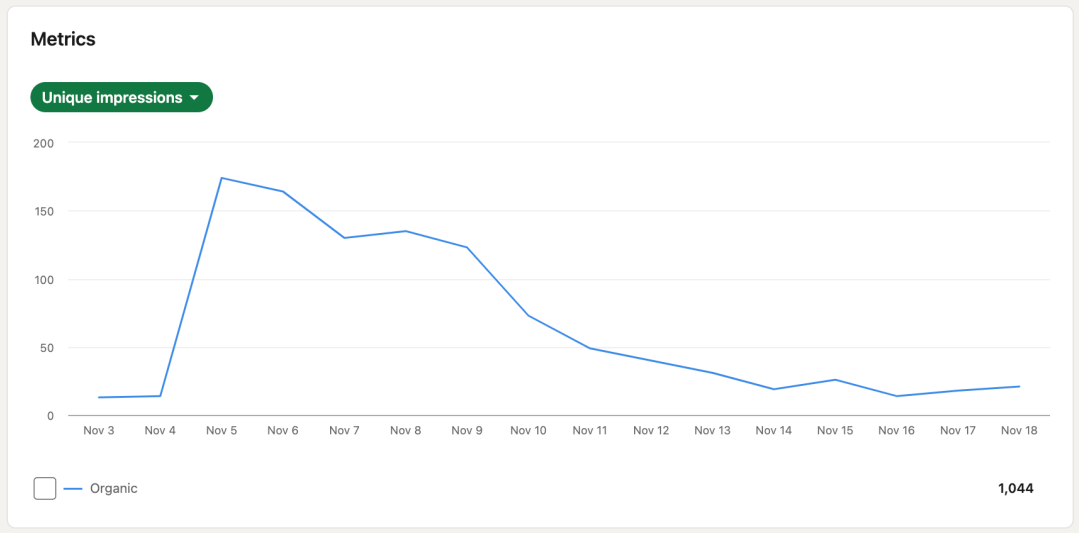
Marketing

We dedicated a significant amount of time (~2 weeks) to bring Scout “to market”. As emphasised in our class, we recognised the importance of marketing to acquire users so that the product we built can truly benefit users. For our marketing, we mainly used three channels to acquire users so far: Social Media (LinkedIn, Instagram, Telegram, Reddit), Partnerships and STePS. We did not use any form of paid advertisements or marketing, so the results of our marketing are purely organic.

Social Media

LinkedIn: we decided to set up a dedicated LinkedIn page for Scout. Our target users for Scout are undergraduates with a *medium* to *high* level of interest in participating in competitions (Group 4: Customer Contact Report 1). We hypothesised that LinkedIn attracted such a crowd more as these students are typically more focused on achievements.

We drove two main initiatives on LinkedIn: (1) Did You Know? Series, and (2) Interviews with undergraduates (Ling Ling) who had participated in competitions.



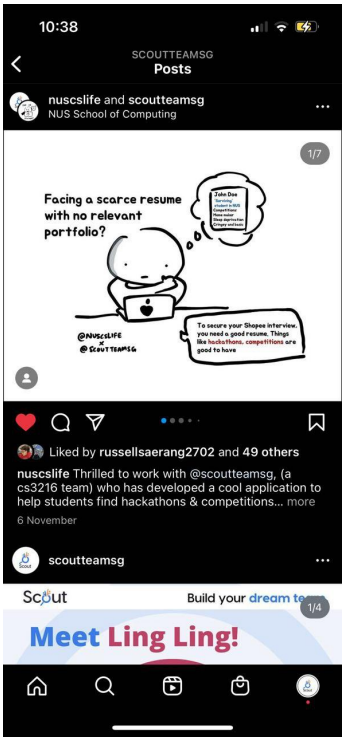
Over the course of our marketing, LinkedIn allowed us to reach **1,044 unique users**. The two marketing initiatives on LinkedIn performed the best of our posts organically, amassing a 25.64% and 60.76% click-through rate.

Content engagement | Time range: Oct 20, 2022 - Nov 18, 2022 | Show: 10

Post title	Post type	Audience	Impressions	Views	Clicks	CTR	Reactions	Comments	Reposts	Fol
The 21st STePS organised by NUS Computing is back and in-person, from... Posted by Didymus Ne 11/8/2022 Boost	Image	All followers	342	-	20	5.85%	6	0	0	
Meet Ling Ling! As an avid participant and organiser of competitions in NUS,... Posted by Didymus Ne 11/5/2022 Boost	Document	All followers	1,720	-	1,045	60.76%	20	1	1	
Starting our "Did you know?" series are competitions organised by Samsung... Posted by Didymus Ne 10/27/2022 Boost	Image	All followers	468	-	120	25.64%	3	0	0	
Web Link Posted by Didymus Ne 10/26/2022 Boost	Article	All followers	681	-	60	8.81%	10	0	0	

Instagram: Instagram was our secondary channel for social media. While LinkedIn has the crowd we want to target, LinkedIn's algorithm ranked posts by relevancy, and not time. We thus needed a social media platform that could push content to our followers quickly. Unlike other "quick-content" social media platforms which are popular among undergraduates today (TikTok), Instagram had an additional age of "reposting", "sharing", and "posting together", which would help our "advocate users" advocate for us easily. Hence, we used Instagram to expand our reach - and also used Instagram as the key platform for our advocate users to shout us out. We used advocate users to generate "buzz" (advocacy marketing)

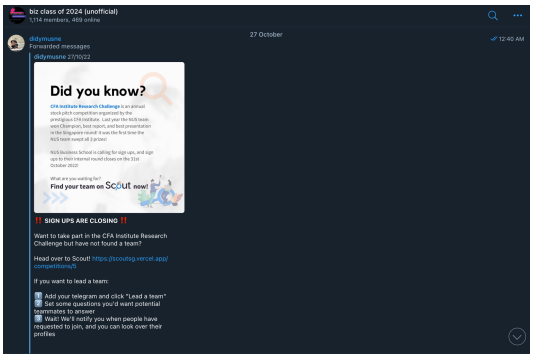
Instagram Story from **Ling Ling**, advocate user 1

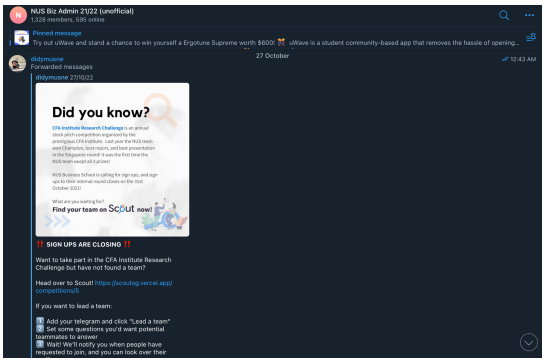


Instagram Post from **nuscslife**, advocate user 2

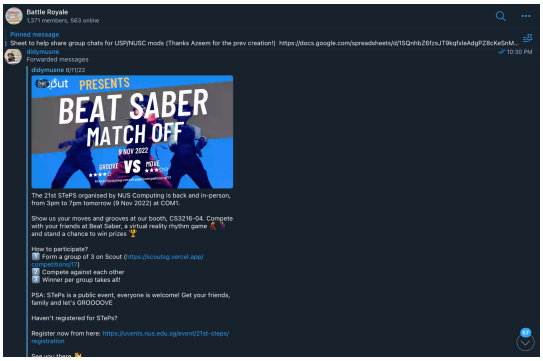
Telegram, Reddit: We used these channels to target a more specific audience for specific campaigns, hoping to get an *immediate reach*. A drawback of using Telegram or Reddit is that these “blasts” can be ‘drowned out’ quickly from more messages or posts, making its *true* reach hard to measure.

Telegram



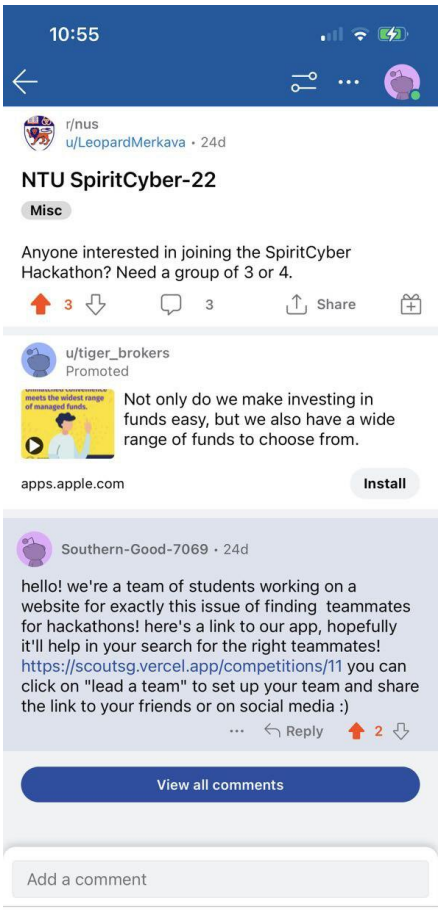


Blasting the Did You Know series for the CFA Institute Research Challenge, which was only open to NUS Business school, to Business School Telegram Channels



Blasting our advertisement to get crowds down for STePs

Reddit



Responding to queries on groups directly on Reddit posts.

Direct Partnerships

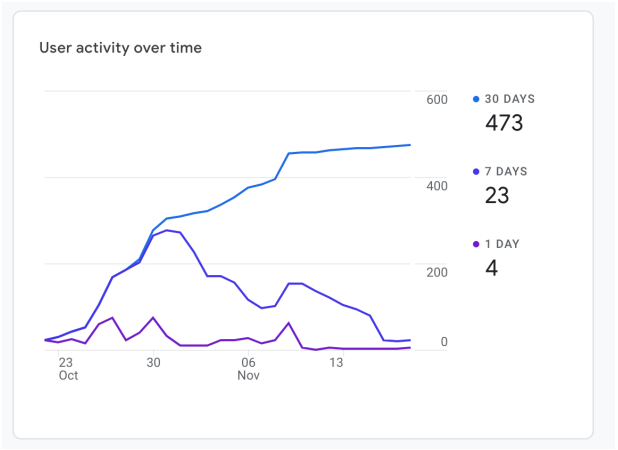
As our platform is built for students joining hackathons and competitions, we reached out to student organisations and clubs. Our main intent for collaboration is for these societies to broadcast our platform for the participants to find teammates after signing up for their competitions.

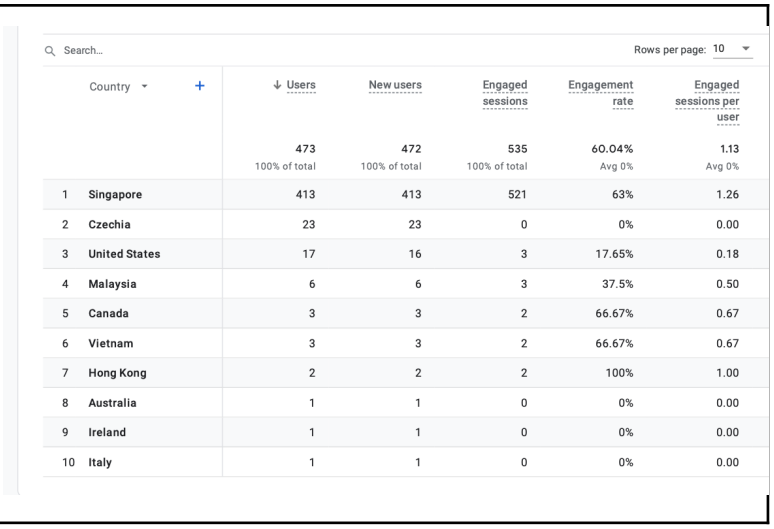
Confirmed early Partners	Ongoing discussions
1. NUS Maths Club, Problematic 2. NTU IEEE Club, Intuition 3. NUS Computing Club, Life Hack + other competitions from the academic liaison department	1. NUS Economics Society 2. NUS Data Science Club 3. NUS Commit 4. NUS ISE Club

Usage Statistics

Report on the current number of users who have installed, active users, etc. Perhaps Google Analytics data and screenshots (or similar analytics tools) to support your claims.

According to our Google Analytics report, we have had **473 unique users** (aa. 19th Nov 2022) on our app who have visited our app.





Search...

Rows per page: 10

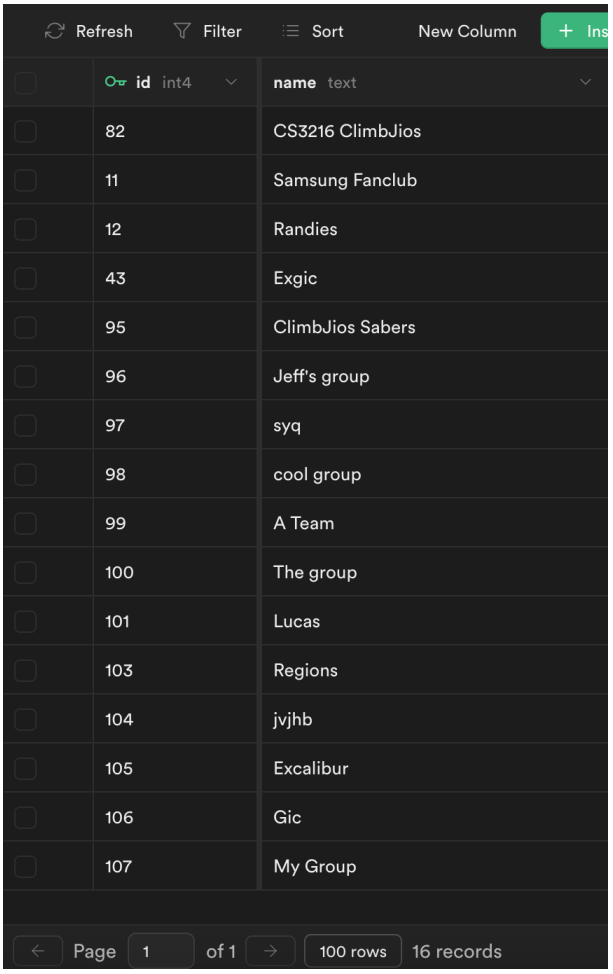
	Country	Users	New users	Engaged sessions	Engagement rate	Engaged sessions per user
		473 100% of total	472 100% of total	535 100% of total	60.04% Avg 0%	1.13 Avg 0%
1	Singapore	413	413	521	63%	1.26
2	Czechia	23	23	0	0%	0.00
3	United States	17	16	3	17.65%	0.18
4	Malaysia	6	6	3	37.5%	0.50
5	Canada	3	3	2	66.67%	0.67
6	Vietnam	3	3	2	66.67%	0.67
7	Hong Kong	2	2	2	100%	1.00
8	Australia	1	1	0	0%	0.00
9	Ireland	1	1	0	0%	0.00
10	Italy	1	1	0	0%	0.00

Of these **473 users**, we have managed to *convert* a total of **62 users** to **have signed in** into our app, as we recorded 62 user accounts in our database.

id int4	name text
51	Suveen Ellawela
52	Panka Szalka
53	Niaaz Wahab
54	Lucas Tai
55	NULL
56	Saad Haider
57	Martin Chuang
58	NULL
59	Felix Halim
60	Aldo Maximillian Sugito
61	Hanyu Liang
62	RussellDash332

Page 1 of 1 100 rows 62 records

62 users registered on our database.



16 groups created in our database.

Our **first two real users** were the users who created the group **Samsung Fanclub** and **Randies**. In fact, we suspect that the user who created the group **Randies** is the user we responded to on the NTU SpiritCyber-22 Reddit thread, as the user created the group after one day of us replying to his NUS Reddit post.

Future Plans and Strategies

Partnerships

Our preliminary partner societies have feedback that they find a need for this platform. Hence, we intend to work on growing Scout to the de facto standard for team formation for hackathons and competitions, starting from NUS and other local universities. Partnering with Intuition, one of the largest hackathons in SE Asia, will be a big step towards this direction, growing our user base while also marketing our platform for user awareness and adoption.

Possible Extensions

Modules: Group projects and Study groups
Team formation for modules was one of our initial ideas but we decided to work on hackathons only for the duration of 3216, to avoid conflict with other teams during STePS and also a difficulty in testing actual use cases due to the timing within the semester.

We hope to extend Scout to include our initial idea, helping students to form teams with complementary skill sets and most importantly being paired with a satisfiable team for modules / classes. This solution aims to fix the pain points faced by both students and lecturers. Students can now be paired with people they are intentionally looking for, while lecturers also have the ease of setting up group logistics. Lecturers can also choose to set up auto matchmaking for the class based on personalities, skill sets or majors.

Insights

We categorised our learnings and insights from Final Project into four main themes: (1) User Experience, (2) Technology, (3) Business Strategy & Marketing, and (4) Teamwork.

User Experience

Design is a constant and iterative process
In our pre-release iteration of Scout, Scout was designed differently, with a simple landing page built off a template. However, we observed and received feedback from our first round of user interviews that users were not clear what Scout was for, what they could do with Scout, and what was the “next action” they should take.

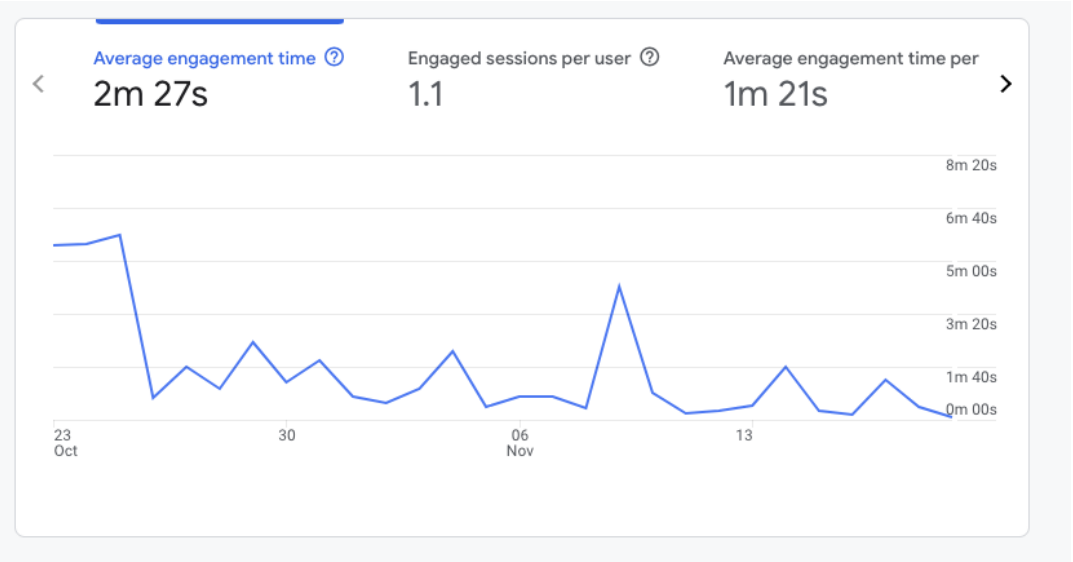
This process is also never-ending: as we observe and record more events on Google Analytics and our interviews, we will need to tweak the design to ensure the usability of our product as our use cases grow.

Our solution can be extended beyond the original target audience
While we design for a specific target user in mind, the solution designed can also be extended to solve problems for other users. We had designed for Scout as a platform for students to find and form suitable teams. While our primary target user is students, we discovered that organisers of competitions are **another group of users** who share the same problem as students who want to take part in competitions. After all, organisers of competitions are a group of users on the flip side who also face the problem of incomplete participating groups.

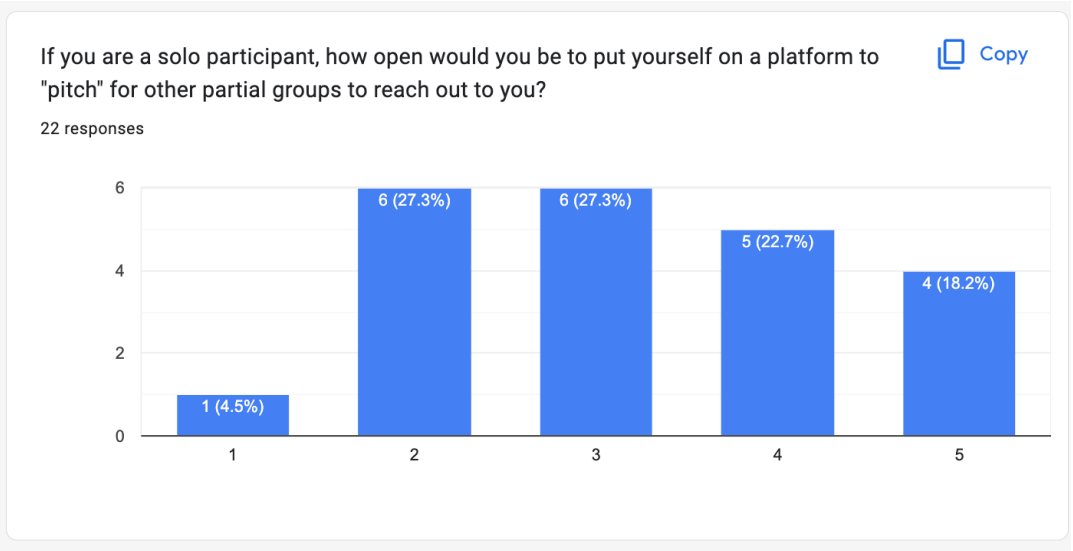
Recalling how Ms Kate mentioned “inclusive design” where designing for the “inclusive” case also allows extensibility to other use cases, we find this concept shared in class very applicable to the idea of “partnerships” as well. Essentially, we “designed” a solution for a problem with one *type* of user in mind, and “extended” the solution to include another *type* of user which also faces this similar problem.

Google Analytics

Using Google Analytics helps us understand user behaviour more and plan for future iterations, especially since we have **actionable metrics** and data to look at. For example, a trade-off we made when deciding to allow users to view an “unauthenticated” version of the app was that we would not be able to capture all “visiting” users to our app into our database, since they do not need to “sign in” or create an account to use our app. This meant, in reporting-wise, we *really* only have **62 actual users**, instead of the 473 users who had browsed our app for an average of 2.5 mins. The average engagement time by our 473 users indicates to us that users are not simply “scrolling” through the app, but actually taking the time to find out more (the average time on a typical page is 54 seconds).



While we prioritised getting the app “out there” and having users to “use” the app in the “explore-first design”, we now observe from Google Analytics that users are “using” our app, but not for the intended purpose of forming teams. This scenario was also identified in our user survey, where surveyors indicated that they’re less willing to put themselves “out there” on a platform.



Some ideas we have towards the issue could be to make groups “private” within a competition, so users do not have that intimidating feeling of “putting themselves out there *to the world*”, but only *putting themselves out there* within the context of a competition for other fellow like-minded users who want to take part in the competition to view. This is an example of how Google Analytics complements our surveys to provide us with metrics, understanding our users better.

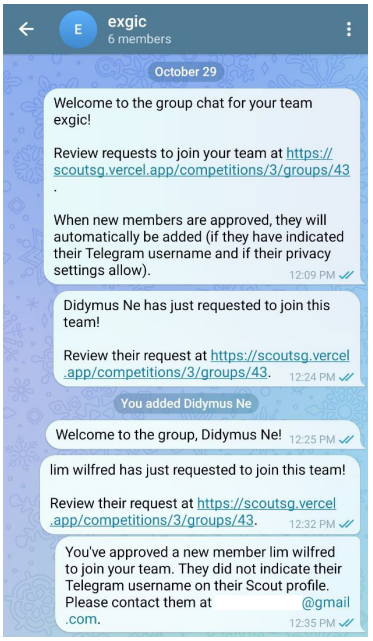
Technology

Finding a framework with good support and documentation is crucial

Although none of us had used the tech stack we chose for Scout (NextJS, Prisma, and Chakra UI), this tech stack is widely popular today and has clear documentation. It helped us understand its benefits easily, and the clear documentation made our development experience better. Its vast popularity also helped us find solutions to problems faced easily. We attribute a significant amount of our development time saved due to the widely available documentation and solutions.

Expect the unexpected, especially from technology that we are not sure about, and adapt fast

Unlike most development projects which use the Telegram Bot API, we decided to use the **Telegram API** as we wanted Scout to “create the Telegram group” for the user. The Telegram Bot API (which is used far more often) does not have permissions to create a Telegram group.



The alternative to using the Telegram API was to have the user give us “access” to his / her Telegram account, and we would use his / her Telegram to create the group. However, we felt that this was a massive invasion of the user’s privacy, as we would be able to access all of the user’s message history.

While we thought that we had planned a workaround, we did not expect that as a result, the Telegram API would mark our Scout Telegram account as “spam”, which made all our API functions to “create group” or “add users into group” return a “PEER_FLOOD error”. We only caught on after we had sent out a Telegram message to the Business School Telegram Channel, but no user was able to create a group with the Telegram option on the app.

There was no clear existing way to “workaround” this on the internet as well. We found that adding users as a “contact” helped, which we added into our code, but the ideal scenario was for the user to also add Scout as a contact in Telegram.

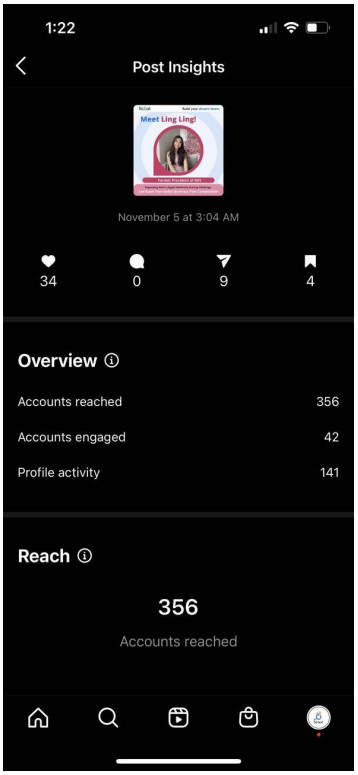
Nonetheless, we quickly implemented the change - this “adapting fast” response to unexpected errors helped us get the app running again in < 1 day.

Marketing

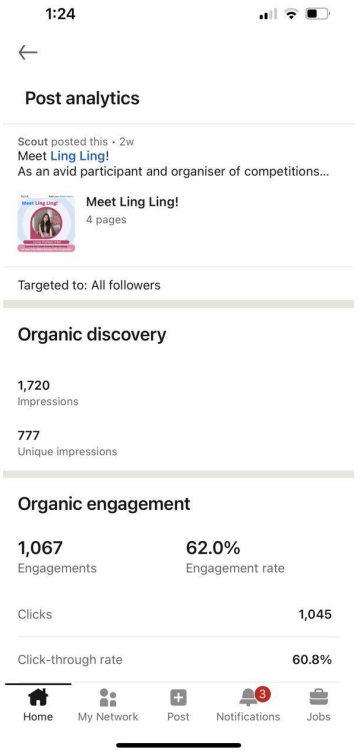
Advocacy marketing was our most effective channel to attain reach

We decided to invest time to find “advocate users” who could appeal to our target users and have the “following” to spread the word, and convince them to be our “advocates”.

This investment was worth it. Our followers on Instagram and LinkedIn rose exponentially (> 60%) after posting our first advocate user, Ling Ling. Compared to all other forms of initiatives such as the “Did You Know?” series, our advocacy marketing initiatives had the greatest reach and engagement rates with our social media followers.



Instagram Reach



LinkedIn Reach

Timing is important to acquire users

A key insight we gained from our go-to-market efforts was the importance of “timing”. Getting Scout to be actually used by the student population was difficult, especially at Week 11-12, when assignment submissions were generally due. Despite having up-to-date competitions, it was difficult to really incentivise users to find the energy to participate in a competition and create or join existing groups. We attribute a part of why we could not get more users to “sign in” and create a team / join a team due to the timing of release. Nonetheless, we believe that releasing the app now has laid a better foundation for future iterations as we continue exploring building Scout for modules and improving the existing version for competitions.

Teamwork

Teamwork is important

In reflection, we could not have achieved this without each other’s support and dedication to Scout in the past 6 weeks. We recognise the importance of teamwork, and learnt through Final Project lessons on being able to set clear deadlines for deliverables, and constantly communicate (through Telegram or Discord) on the progress of tasks, any problems we were facing, etc. As a small team, we have grown closer, and believe this was an intangible asset that helped drive us through this semester!

Note: Thank you Uncle Soo and the teaching team for the past semester, and for supporting Scout! We deeply appreciate the insights