

Final Project Report

HK ARCHERY WEBSITE

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Introduction

The HK Archery website is an archery website designed for the local archery amateurs and for promoting the archery culture among the public. This work is conceptually driven from my personal experience. As an archery amateur myself, I got into this sport about one year ago. When I was a beginner, I was eager to learn and know all the relevant information about this sport. However, information is limited and tends to be scattered all over the internet. From then on, the idea of designing an archery website was rooted in my mind. In this report, I will further elaborate on the design thinking process of the HK Archery website.

Strategy

Site Objectives

When I come to Hong Kong, I found that there is no such a comprehensive and professional information channel to serve the local archery amateurs. For example, if they want to know where they can play archery, where the clubs are and when there will be competitions in Hong Kong, etc., they have to spend a lot of time in searching for these information between several websites. Additionally, most archery-related websites in Hong Kong are the official websites of the local clubs which only provide relevant information about the clubs, like location, opening hours and services. It is clear that the lack of an information aggregator fails to serve the needs of local archery amateurs and promote the archery culture among the public.

Therefore, in order to help save the time and energy that archery amateurs spent on searching for relevant information and engage more local people in this sport, a Hong Kong archery website is worth developing.

User Needs

The website will serve two groups of people. The primary users will be the local archery amateurs, including beginners, intermediate and advanced players. The secondary users will be the general public in Hong Kong who are interested in this sport.

In order to further understand the needs of these two groups of people, two user interviews were conducted. One was done with five local archery amateurs and another was done with five CUHK students who know little about archery but are interested in this sport.

For the first user interview, I choose five local archery amateurs as interviewees. Two of them are males and three are females. Among them, there are two advanced players who have played this sport for over five years. Two intermediate players who played it for around one year and a half and one beginner who just got into this sport for less than one year.

In the first user interview, I asked my interviewees questions to figure out their needs as archery players and developed a user journey map according to the interview. Key questions are listed as below (see Figure 1).

Q1	What archery-related websites do you usually visit?
Q2	If there is a comprehensive local archery website, what contents or services do you hope to find there?

Figure 1. User Interview Question List

For the first question, all interviewees revealed that they seldom visit archery-related websites because there are not much professional archery websites out there. However, they do go on Youtube to watch archery videos. Some follow the Facebook and Instagram accounts of the local archery clubs to communicate with other local

players. They also go on the Hong Kong Archery Association official website to check the latest competition schedule.

For the second question, when asked if there is a comprehensive local archery website, what contents or services do they hope to find there, I found that different levels of players have different needs. For the beginning and the intermediate players, what they expect are basic introduction to archery, including types of archery games and types of bows; rules of play; archery tutorials and information about the local archery clubs. While, for the two advanced players, apart from the above contents, they also expect a ranking of the latest local games and a platform for them to communicate with other players.

For the second interview, five CUHK students were chosen as interviewees. They know little about archery but show some interest in it as they have attended the Archery Experience Day held by the CUHK Archery Club. In this interview, the second question in Figure 1 was asked. Their answers are similar. What they expect are basic introduction to archery and tutorials to help them get started with this sport, as well as information about where they can play archery in Hong Kong.

Based on the interviews, a user journey map of the target users is developed as shown in Figure 2. Since the needs of the secondary users overlap with that of the primary users, no additional user journey map will be created for the secondary users.

User Journey Mapping			
Persona	Stage	Goals	Artifacts & touch points
Archery amateurs	Awareness	Want to know about archery in HK	/
	Search	Search online	Search engine Facebook Instagram
	Browse	To know about what archery is	Archery introduction page
		To know how to get started with archery	Archery tutorials page
		To know how to improve their archery skills	
		To know where they can play archery in HK	Club page
		To check the latest competition schedule	Schedule section
		To check the latest ranking	Ranking page
	Interact	Communicate with other archery amateurs	Communication page
	Retain	Go back to the website to communicate with others	Communication page
		Go back to the website to check updated information	Other pages

Figure 2. User Journey Mapping

From Figure 2, we can see that the target users' needs can be classified into two types: a need for information and a need for social interaction. While, in order to satisfy

users' social need, a communication platform is required, such as online forum or online community. However, my current knowledge and capacity is not enough to support me for developing an online community yet. Therefore, the HK Archery website for the final project will not cover this need and this part will be left for future improvement.

Scope

In this part, information on how the website will function to solve the problems and the contents requested will be elaborated. The website shall be able to satisfy the users' need by providing up-to-date archery-related information in a clear and organized way, as shown in the context diagram in Figure 3.

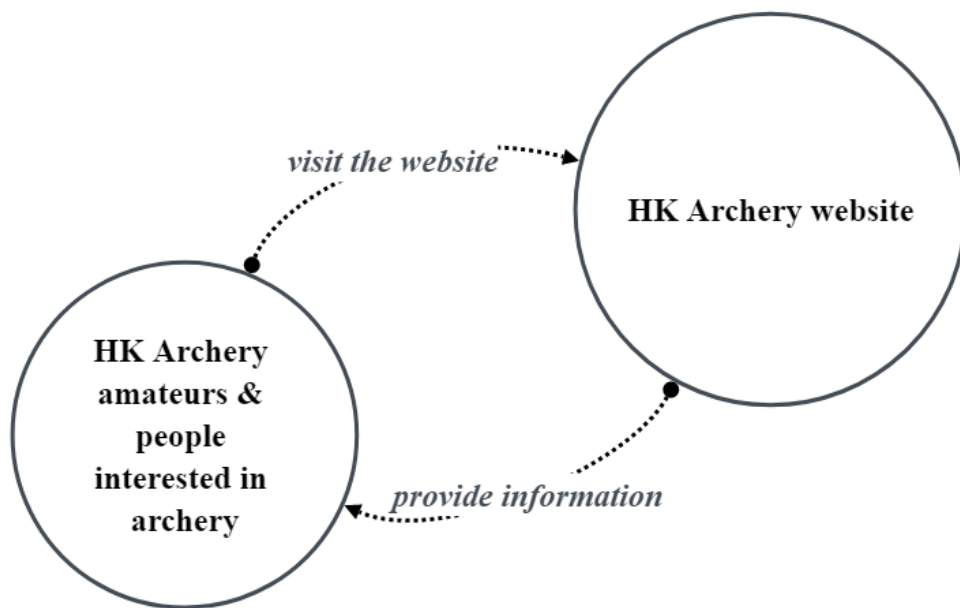


Figure 3. Context Diagram

In addition, according to the user journey mapping, the information needed by target users is summarized into five categories, including:

- Introduction to archery
- Archery tutorials

- Information of local archery clubs
- Information of latest competitions
- Local ranking

Contents regarding introduction to archery will cover topics like what is archery, types of archery, types of bow and rules of play. In order to provide professional information, contents are taken from professional archery websites including World Archery, Archery GB, Archery 360 and Discover Archery. For archery tutorials, contents are presented in forms of video and text. Videos are taken from the Youtube videos produced by World Archery and Archery 360, including the latest event videos, tutorial videos, and four video series of different themes. For the local club part, information is obtained from the official websites of the local clubs. As for competition, this part presents the event schedule in the latest three months, and information is obtained from the official website of the Hong Kong Archery Association. Finally, the local ranking shows the latest ranking of the Hong Kong archers in two areas: recurve and compound. Data is from Hong Kong Archery Association.

Structure & Skeleton

Based on the above, a site map of the HK Archery website is created as shown in Figure 4. According to the site map, low fidelity wireframe prototypes are created to map out the structure and layout of the website (see Figure 5-11).

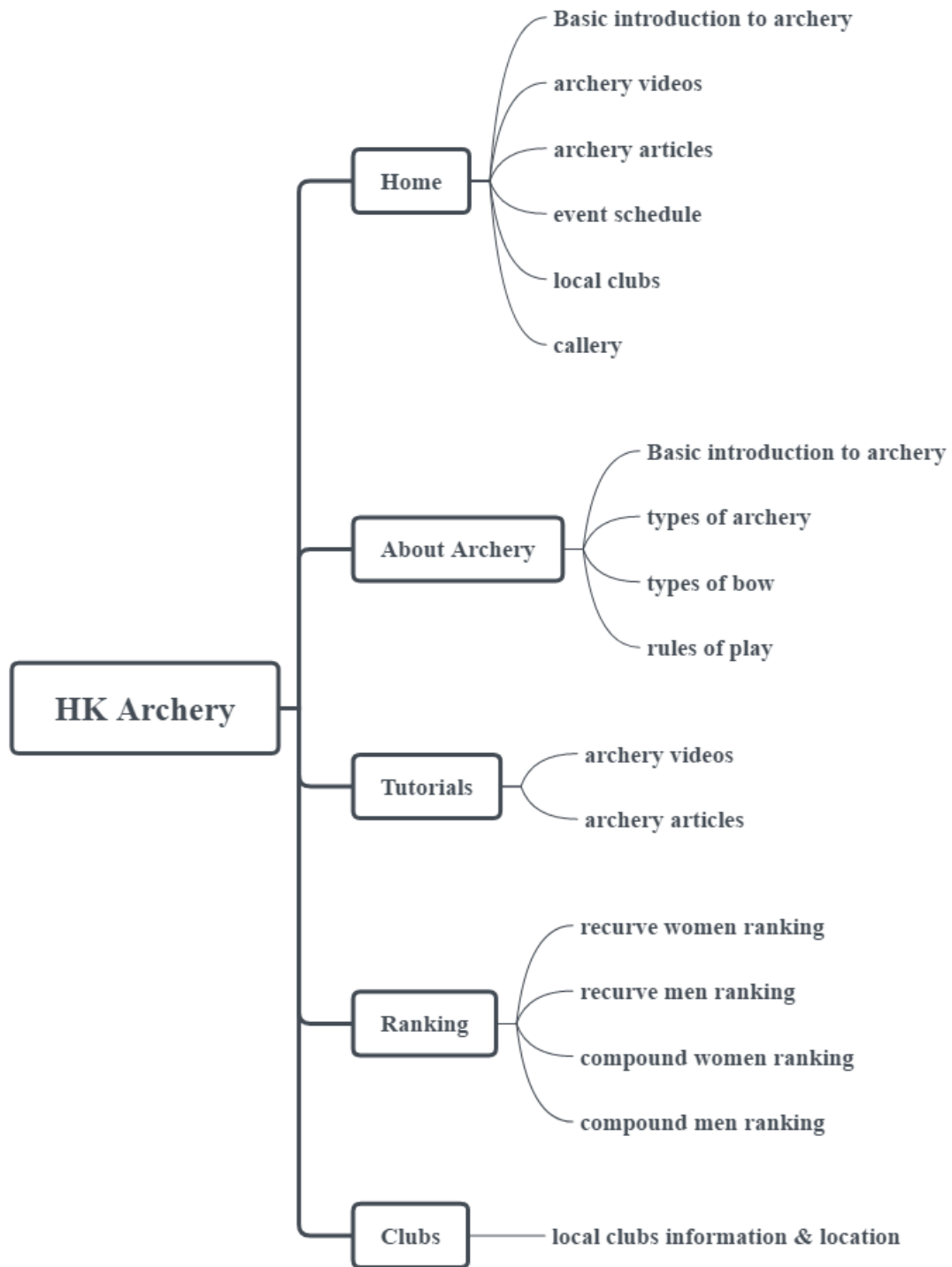


Figure 4. Site Map

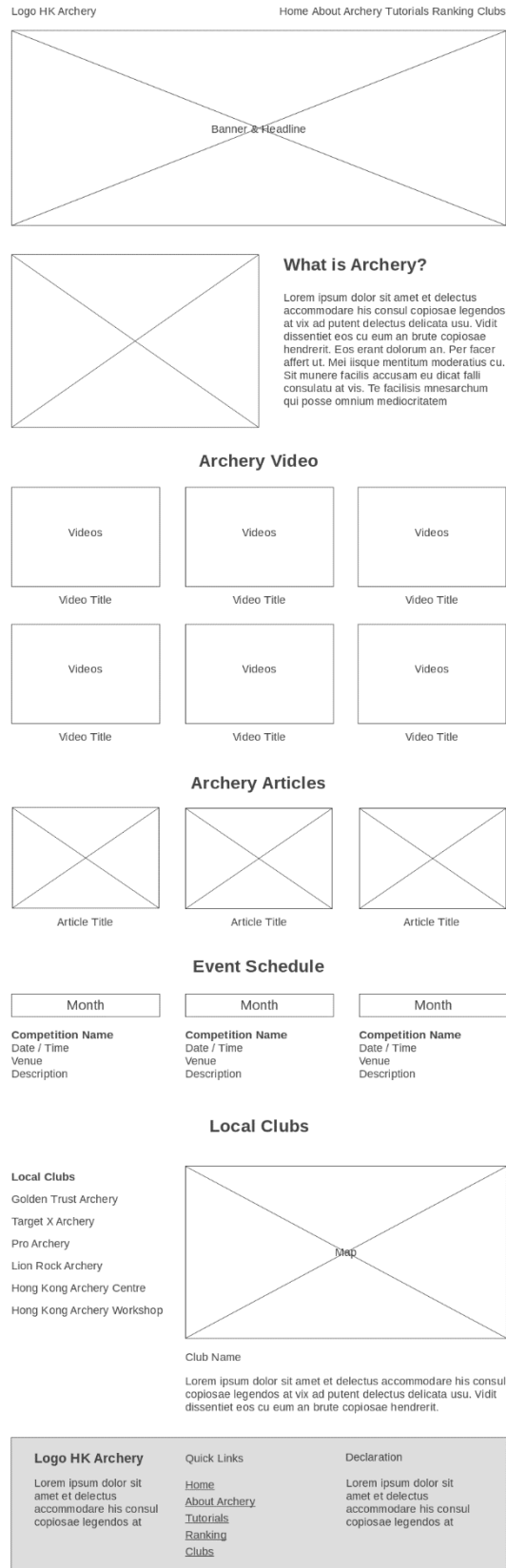


Figure 5. Wireframe - Home Page

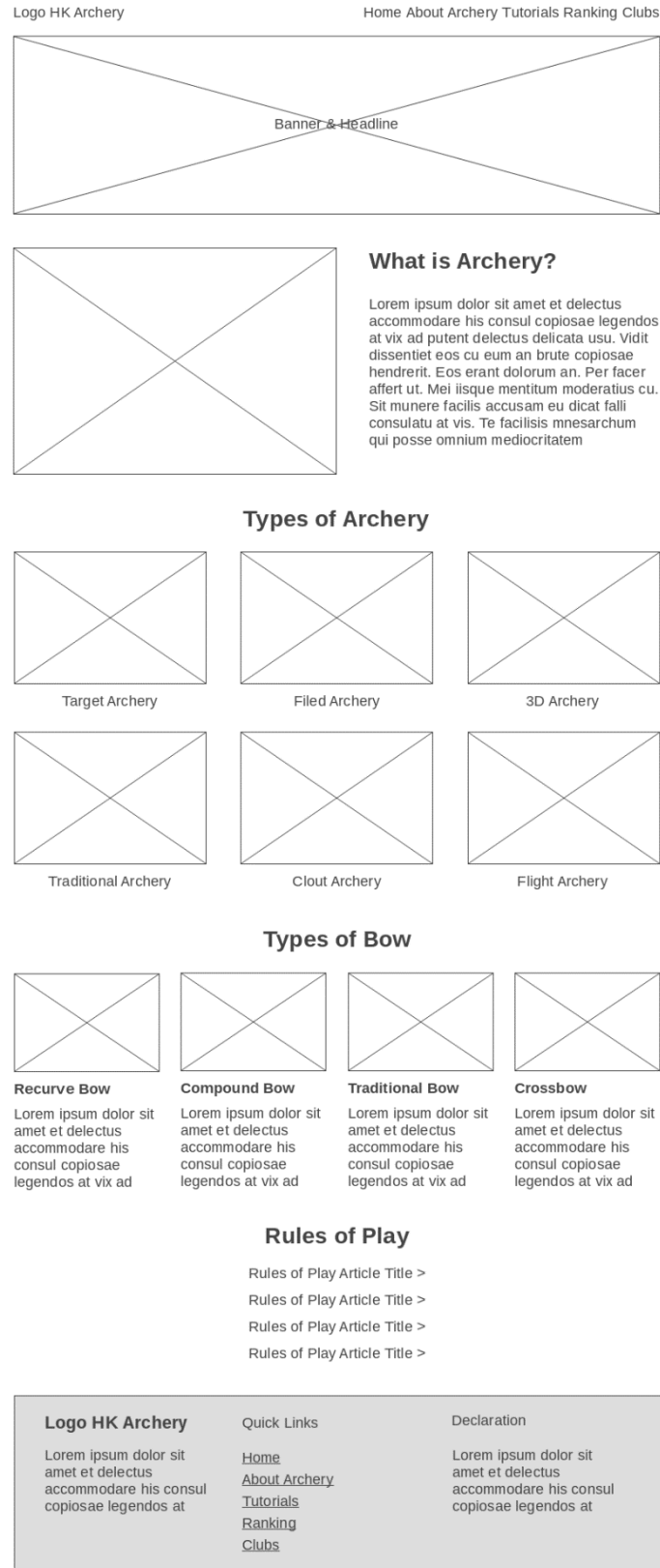
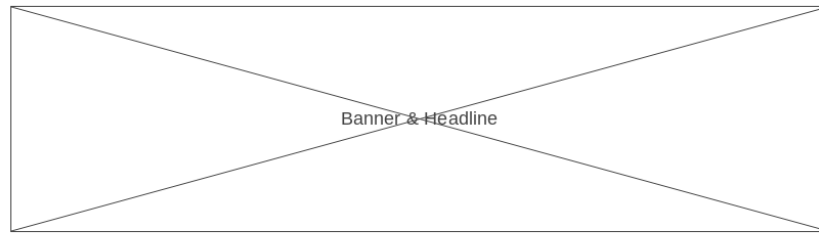
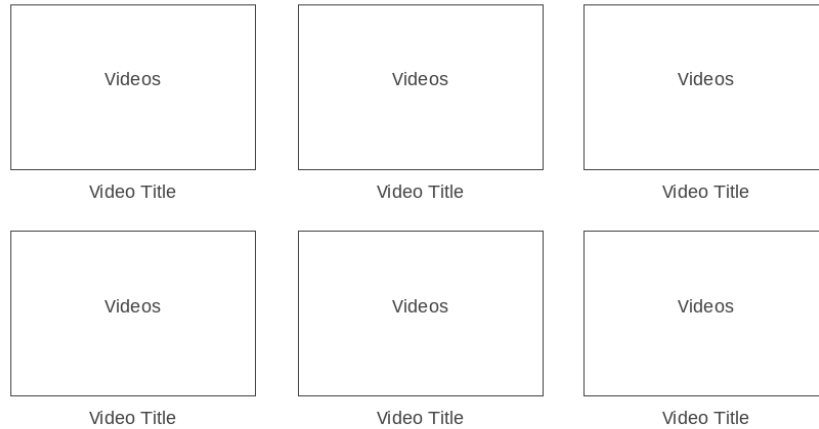


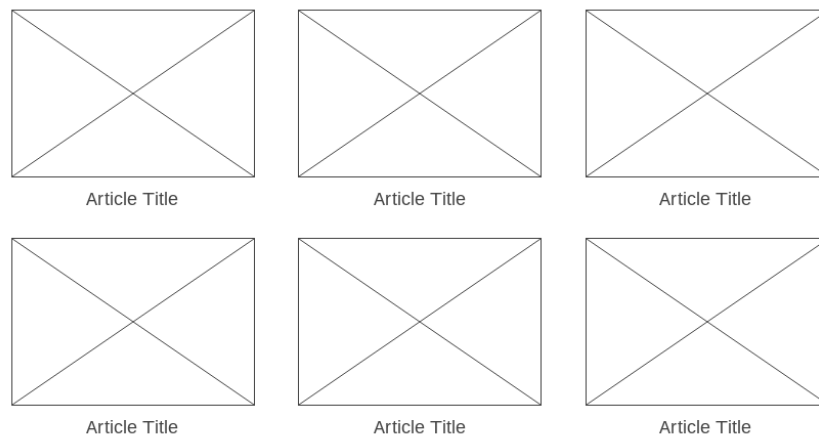
Figure 6. Wireframe – About Archery Page



Archery Video



Archery Articles



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Figure 7. Wireframe - Tutorial Page

Banner & Headline

Hong Kong Ranking

Recurve Women

Recurve Men

Compound Women

Compound Men

Data table showing the top ten local archers in recurve women competition

Data Chart showing their records in the latest 5 months

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Quick Links

[Home](#)
[About Archery](#)
[Tutorials](#)
[Ranking](#)
[Clubs](#)

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Figure 8 Wireframe - Ranking Page

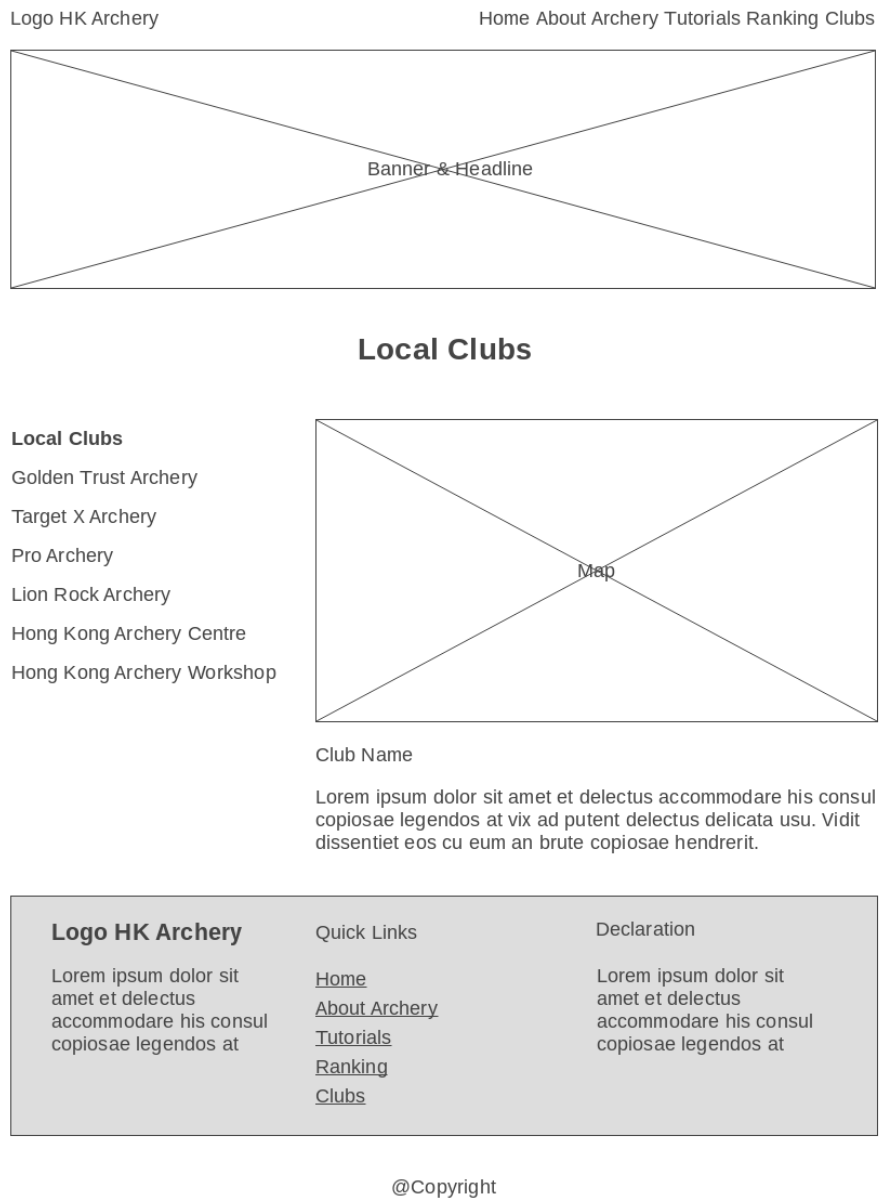
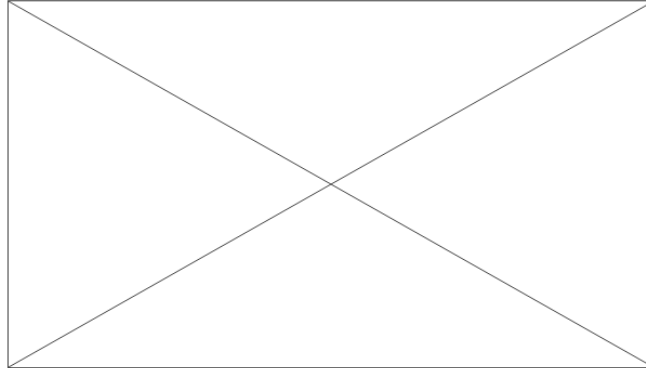


Figure 9. Wireframe – Club Page

Article Title



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Logo HK Archery	Quick Links	Declaration
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Figure 10. Wireframe – Article Template Page

Archery Video

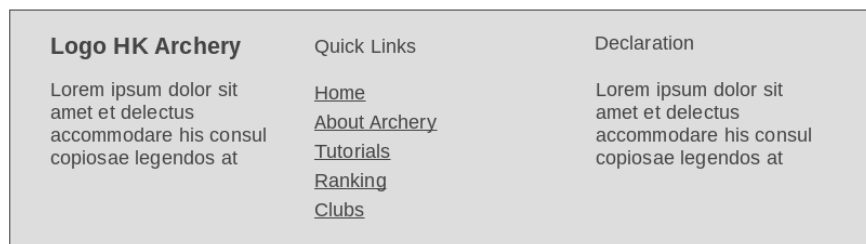


Figure 11. Wireframe – Video Template Page

As the wireframes show, the Home page presents the basic structure and the contents of the whole website, from introduction to archery to local club information. The About Archery page is actually designed for archery beginners and the secondary users. From what is archery, types of archery, types of bow to rules of play, users can learn about this sport through articles in these sections. The Tutorials page shows archery tutorials in the forms of video and text. The Ranking page demonstrates the latest ranking of local archers in the form of table and their performance in the latest

five months in the form of line chart. Besides, the Club page presents information regarding the local clubs, and shows their location in the form of map. Finally, the Article Template page and the Video Template page show the basic structure and layout for article pages and video collection pages.

To evaluate the overall effectiveness of the page layout against usability best practices, a usability test was conducted with five target users (the five local archery amateurs in the first user interview). During the test, I let the users freely explore the prototypes and discover several problems with the wireframes. First, all users mentioned that the navigation tabs in the right side of the navigation bar are too close to each other, making it difficult to read. Second, two of the users found that there is no quick links in the article detail page to help them quickly navigate to other article pages. Third, three users suggested that it would be nice to add a gallery in the home page for demonstrating pictures of archers. Apart from these, the overall design is clear and intuitive to them.

Surface

According to the usability test results and the users' suggestions, I refined the website prototypes and applied a Bootstrap template to help me design the whole website. Responsive design is also considered to provide smooth user experience on different devices. Below is an example screenshot of the website home page (see Figure 12).

For more details, please check via:

https://yvonnexin47.github.io/hk_archery/index.html

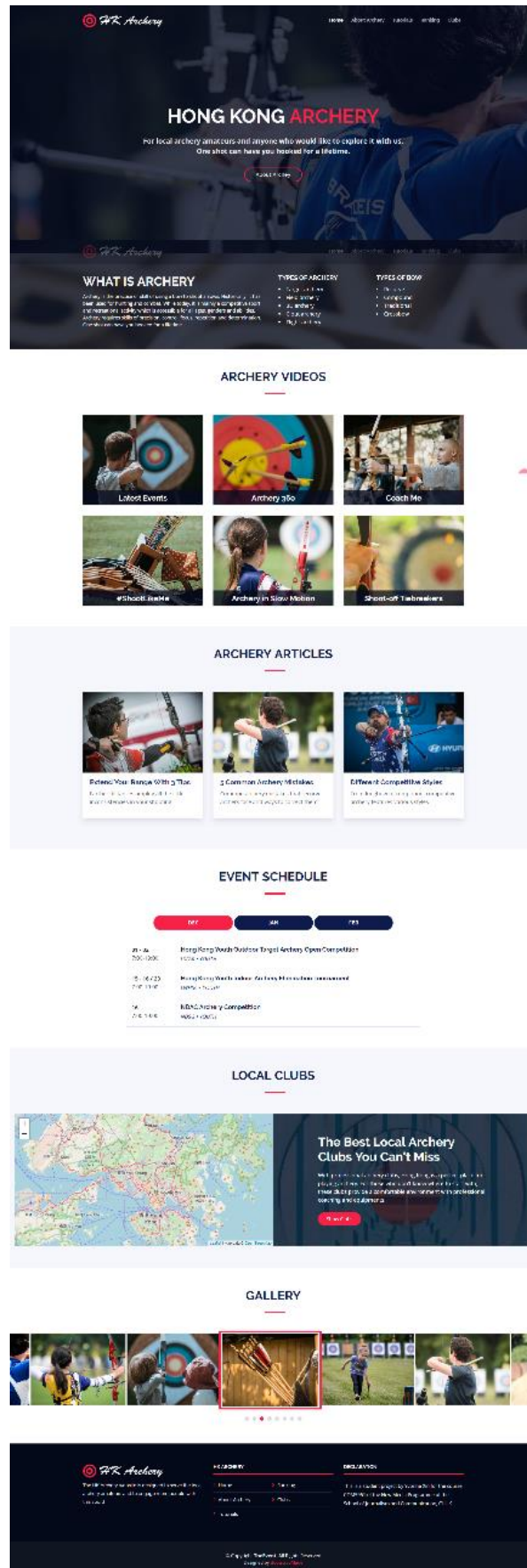


Figure 12. Screenshot - Home Page

To further exam whether the website meets the needs of end users, another round of user testing was conducted. This time, I invited two secondary users in the previous user interview and another three local archery amateurs to be test participants. During the test, three user testing methods were applied: the five-second usability test, the thinking aloud approach and the A/B testing.

Five-second Testing

The five-second usability test was used to gauge the audience's first impression towards the website and to measure how well the design conveys a message in a short period of time. The test was run by showing the home page to the participants for just five seconds, then participants are required to answer questions based on their memories and impressions of the design. Figure 13 is a list of questions that I asked for the five-second test.

Q1	What do you think this website is for?
Q2	What do you think the intended audience is?
Q3	What was your impression of the design?

Figure 13. Five-second Usability Test Question List

For the first question “What do you think this website is for?”, all participants answered that it is a website about archery. For the second question “What do you think the intended audience is?”, all participants thought that the intended users shall be Hong Kong archery amateurs, which they judged from the name of the website and from the title “HONG KONG ARCHERY” in the banner. For the third question, their answers are positive in general. All participants said that the website design looks great and organized. Overall, the five-second test reveals that the webpage is able to communicate the intended message to the audiences in a clear and effective way.

Think Aloud Testing

Additionally, a think aloud testing was conducted for discovering what my target users really think of the design. In this test, for the purpose of getting an overall feedback towards the website, no specific tasks were assigned to the participants. Instead, users were asked to freely navigate the website. Besides, they were encouraged to verbalize their thoughts as they move through the user interface. During the process, they were asked to explain what they were looking at, what they were doing and what was their feeling at each moment. Participants' behavior and comments were noted down throughout the whole process. Below is a list of questions designed for the test (see Figure 14).

Q1	Could you find what you are looking for?
Q2	Do you think it is easy to switch between different pages?
Q3	Do you find the contents easy to read?

Figure 14. Think Aloud Usability Test Question List

For the first question, most participants said that the website provides rich and useful contents for them. However, one mentioned that the website seems to be mainly about modern archery. Therefore, for traditional archery amateurs, they may not find much useful information on this site. Also, another participant suggested that it would be nice to add a contact page for audience to submit their thoughts, questions or suggestions. For the second question, though participants agreed that the navigation helps them quickly switch between different pages, they advised me to add quick links to the section titles in the home page to increase usability. For example, users expect that when they click on the section title "Local Clubs", it shall take them to the "clubs" page immediately. In this way, they can easily switch to other pages. For the third question, all participants considered that the layout is organized and the overall design performs well in terms of readability. The think aloud approach is helpful in discovering users' expectations and identifying what parts of the website confuse the audience.

A/B Testing

For quantitative usability test, I conducted an A/B testing to see whether having an archery video at the home page banner will help to attract people's interest and keep them stay longer at this site. The reason why I did this A/B testing is because I believe that a video will do a better job in demonstrating the charm of archery than sheer text or graphic. Especially for people who know little about this sport, a video helps to get them know about this sport in a few seconds. Below are the screenshots of the two versions. Figure 15 is the A version (Original) which has the banner video play button, while Figure 16 is the B version without the video play button.

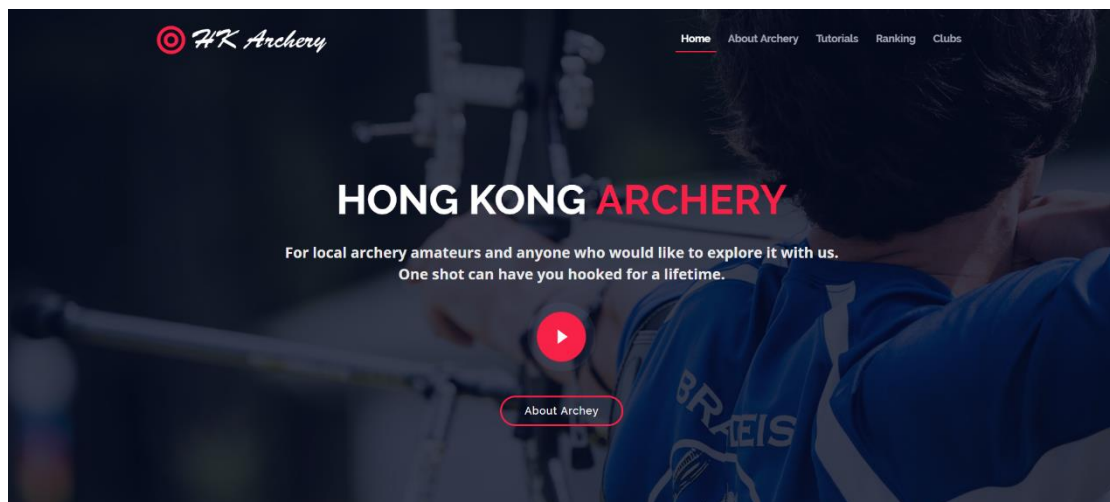


Figure 15. A/B Testing – A version

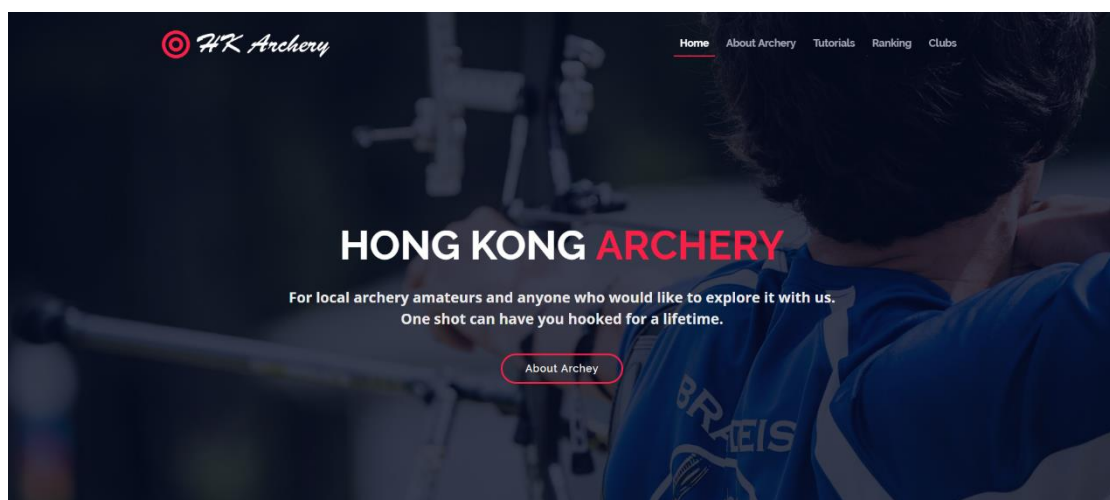


Figure 16. A/B Testing – B version

To figure out which version performs better, I also need to know how many visitors watched the video when they were browsing the A version. Therefore, I used Tag Manager to track how many people clicked on the video play button during the A/B testing. However, the tracking started one day after the A/B testing, while most traffic comes in the first day of the testing. As a result, there are some data uncollected. Figure 17 and 18 are the GA reports of the event tracking and the A/B testing respectively. According to the statistics, overall, the A version performs better than the B version in terms of achieving a higher conversion rate, which means that people tend to stay longer in the A version.

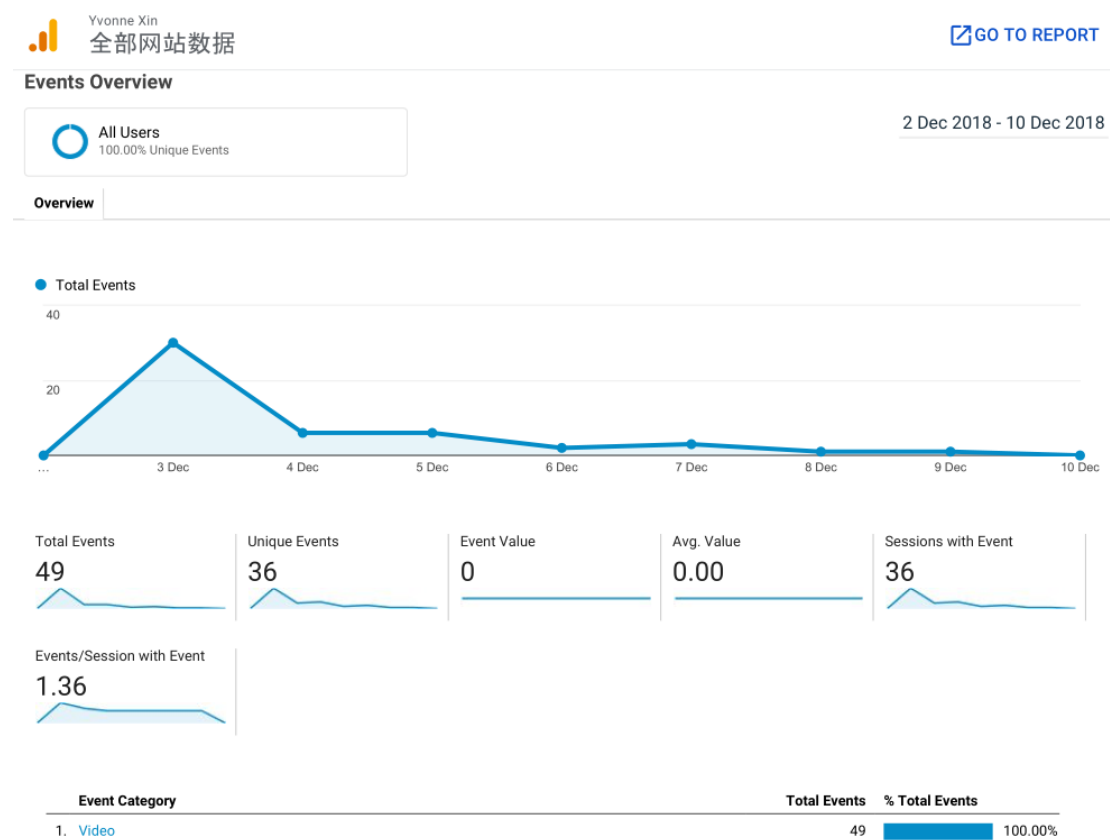


Figure 17. GA Report – Video Event Tracking

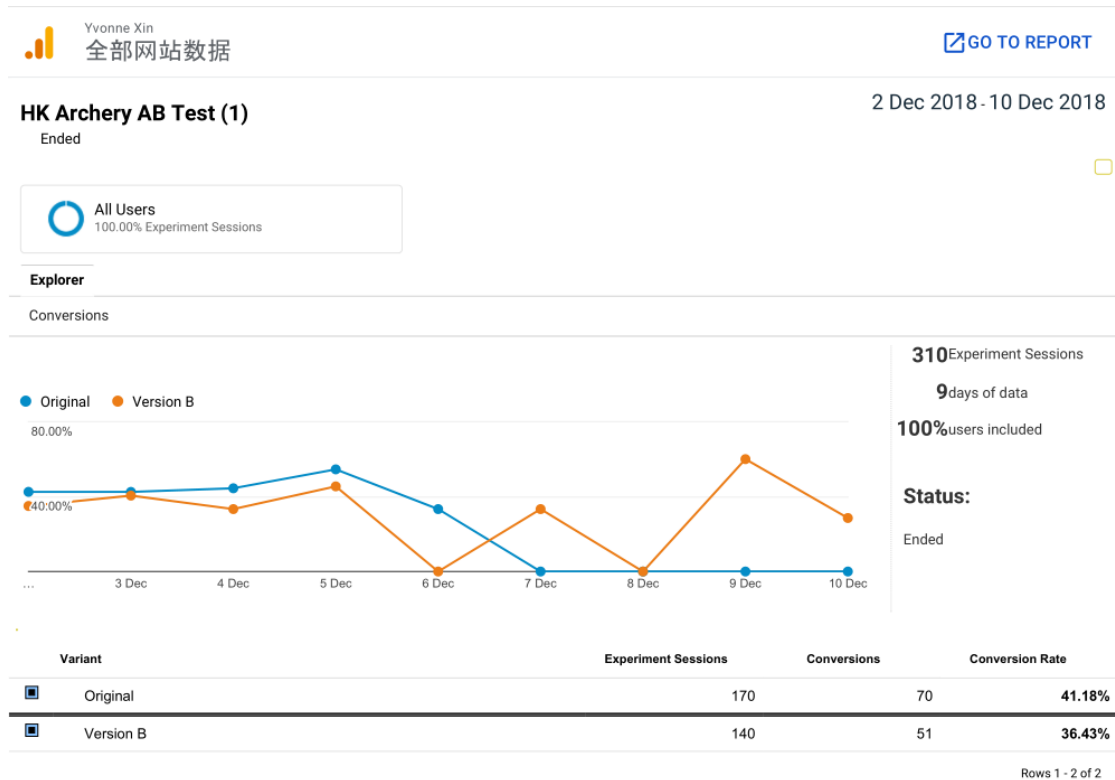


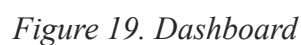
Figure 18. GA Report – A/B Testing

Performance Analysis

When it comes to measure and analyze the performance of the website, Google Analytics plays an important role. With the help of Google Analytics, I created a dashboard with ten metrics, as shown in Figure 19.

The right column of the dashboard shows data concerning the total number of users each day, user type, users by source/medium, users by city and users by device category. While, the left column demonstrates the average session duration, goal conversion rate, page views, average time spent on different pages by different types of users and bounce rate.

2 Dec 2018 - 10 Dec 2018



According to the statistics, from December 2 to December 10, 2018, there are 289 users visiting the HK Archery website with 12.3% of them are returning users. Among the users, most are from Hong Kong, which accounts for 62.1%. Besides, there are also users from the Mainland China, such as Guangzhou, Foshan and Zhuhai. This implies that a Chinese version of the website may be worth developing to serve users in different regions. In terms of the traffic source or medium, 32.1% of users comes from Facebook, 30.8% comes from WeChat, 9% are from Instagram and only 1.3% are from Youtube. However, for Hong Kong people, their most commonly used social networks are Facebook and Instagram. Therefore, I believe that the traffic from WeChat mainly consists of people in Mainland and Mainland students in Hong Kong.

In order to promote the website among local archery players, I advertised it on Facebook and Instagram by sending direct messages to my target users. However, due to the strict supervisory system of Facebook and Instagram, I was blocked by these two social networks for a period of time. As a result, I was unable to reach my target users. That's why the line chart in the "Users" widget shows a continuous decline of visitors in this period. Additionally, from the "Users by Device Category" widget, data suggests that most of the users browse the website through their mobile phones and around one quarter of them view the website with desktop. Only two users visit it with tablet. This uncovers the use habit of electronic devices of my target users. Therefore, it suggests that responsive design for mobile phone is of great importance because users nowadays mainly access information through their mobile devices.

Furthermore, from Google Analytics, I can see that the average session duration is around two minutes and forty-five seconds and the average number of pages viewed during a session is 2.43. The home page ranks the first as the most popular page with 505 page views, followed by the ranking page and the tutorial page with 98 and 93 page views respectively. Moreover, from the "Avg. Time on Page by Page Title and User Type" widget, we can see that returning visitors spent more time on each page than new visitors.

Conclusion

Limitations

Generally, from the user interviews, usability tests and the Google Analytics statistics, several limitations regarding the designing process were revealed. First, in the user interview for defining user needs, secondary users are all CUHK students, which reduces the diversity of user types. Second, the A/B testing experiment period is too short and data is limited for conducting a thorough analysis. Third, the event tracking is done one day after the A/B testing. As a result, a part of data is uncollected. Lastly, as I was blocked by Facebook and Instagram, I was unable to reach the target users for a period of time, resulting in a decline of visitors during the data collection period.

Suggestions

Based on the above, here are some suggestions for future improvement of the website. First, in order to meet user's need for social interaction, a communication platform is worth developing to enable users to communicate with each other. Next, currently, the contents of the website are mainly about modern archery. More contents regarding traditional archery is to be added to serve the needs of traditional archery players. Besides, simplified and traditional Chinese versions shall be considered to cater users of different languages. Additionally, quick links for the respective pages are to be added to the home page section titles to allow quick and easy viewing of the website contents. Lastly, a contact page shall be developed for receiving suggestions and questions from users. Apart from these, generally, the website performs well by providing rich content and useful information to users in a clear and intuitive way.