



Design Report

For the Website Project

Introduction to Web Design (DECO7140)

Semester 2, 2021

By Wanqi Yang (46600284)

Part A

Introducing the Design Report

The project was commissioned by NASA (Necessary Aerospace Survey Administration). NASA has worked for *Project X* for a long time. *Project X* is a milestone in NASA's history. It shows NASA's vision. It's about why it has been set up.

Project X will build a spaceship that condenses the wisdom of all humankind and is equipped with the most advanced aeronautics technology. It is a gigantic spaceship with a complete ecological cycle built inside. It means the passengers can live on the ship for their whole life and procreate generation after generation. And the ship has infinite energy. It will never run out. But the rule is that the ship will never return to Earth due to exploring deep space.

It is 2077, and the spacecraft is expected to launch in Houston in 2099.

The website project aims to recruit the boldest adventurers, the most ambitious scientists, and people longing for the brand-new world as the crews. Space exploration is a difficult task, so our recommended crew age is 18-70 years (special talents can apply for relaxation on a case-by-case basis), and as we are still 22 years away from take-off, the audience for our website should be 18-50 years old.

From this report, you can learn the following:

- (1) The design idea, like how we design for our target audience or how the website style is determined, and
- (2) The design process and all the tests we took. It also records every iteration to ensure the retroactive property of the design process.
- (3) Detail and layout illustration about the website to show how the website performs and is being used.

Introducing the Web Designer

Wanqi Yang, the designer of the website. Bachelor of Engineering in Mechanical Engineering. Now I am working hard for my interaction design degree. I have little coding experience before and trying to improve my programming. I like playing the computer game. I am a huge fan of sci-fi, no matter what form it performs. So when I received the request, the idea of this website came up naturally. I'm excited to have a chance to build my own sci-fi "world".

Since I barely have programming skills, I consider myself a beginner. I immerse myself in every Lecture, Practical and Tutorial. I also seek help from an online resource like W3Cschool.

I focus more on realising my concept rather than generating some grand realistic idea during the project.

Responding to the Brief

Introducing the Website Topic

ProjectX is about a spaceship that condenses the wisdom of all humankind and is equipped with the most advanced aeronautics technology. It is a gigantic spaceship with a complete ecological cycle built inside. It means the passengers can live on the ship for their whole life and procreate generation after generation. And the ship has infinite energy. It will never run out. But the rule is that the ship will never return to Earth due to exploring deep space.

The passengers can explore the universe in their whole life. They will reach the space that human astronauts never reach. The ship can provide a similar experience to Earth thanks to the ecosystem built inside. It still has exciting parts worth exploring. Also, it allows crews to explore some planets using small-scale sub-exploration spacecraft.

It is 2077, and the spacecraft is expected to launch in Houston in 2099. The journey will begin with a drive to the Butterfly Cluster M62 & M19 near ANTARES, then turn to the LEO system. Finally, we will head towards the Gamma Disk, a vast system of four galaxies. After completing galactic exploration, colonise a habitable star system. Space exploration is a difficult task, so our recommended crew age is 18-70 years (special talents can apply for relaxation on a case-by-case basis), and as we are still 22 years away from take-off, the audience for our website should be 18-50 years old.

Some ideas came up in the topic brainstorming. The first idea that came to my mind is not some futuristic concept. It is about if something happened or not happened, what the world will look like, and the themed resort allows visitors to experience the world that changed. I must confess the idea is inspired by Philip K. Dick's 1962 novel *The Man in the High Castle*. The original idea is about modern Britain. In this Britain, the Glorious Revolution never happen. Britain is a semi-constitutional monarchy country. It may be novel. However, the differences in a cityscape cannot be shown in pictures, and the etiquette and system are challenging to be presented through images and videos.

Moreover, how can a resort controlled by royalty and nobility accommodate countless queens/kings? The most important thing is that a theme that capitalises on class differences contradicts the universal values of equality that apply to all people by birth. Overall, I gave up using the idea of imagining a world that would change slightly or be great. I cast my eye on something grand. As a sci-fi fan, I turn my gaze to boundless space. Searching for the expanse of space is a big dream for some humans.

I learned before that scientists once proposed a one-way crewed mission to Mars at the 1998 International Space Development Conference because sending the ship back is the hardest part of a manned mission to Mars. In 2013, a Dutch company called Mars One wanted to fly people to Mars and leave them there to live. The above ideas inspire me. Since we are hard to make a ship that can fly at the sub-speed of light, why don't we use the time to compensate for speed? That's how the idea came up. A spaceship never backs to the Earth.

After deciding on a website idea, the NASA official website [2] inspired me a lot in terms of determining the website's style. Creating a space opera with a harsh technological feel rather than centuries leading sci-fi feel is a design approach I like. So there is a sense of bleak, grand, desperate space adventure to be reflected in the design. I believe this is in line with our target user orientation

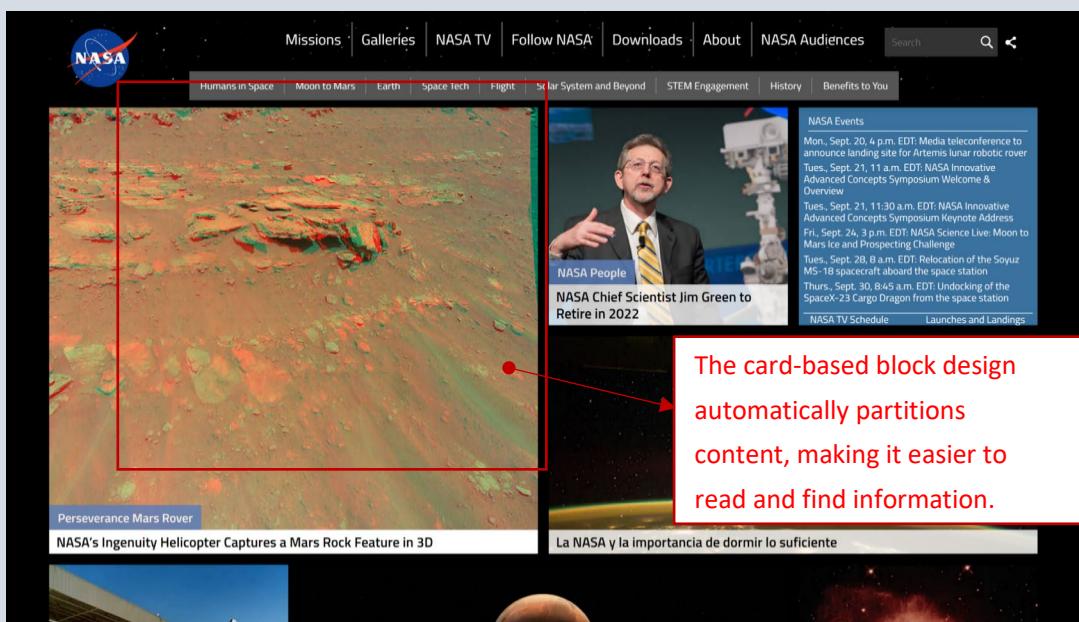


Fig.1 The home page of NASA official website

Its simple style with a dark background brings a solemn sense of technology. The almost solid-coloured background and the content housed in individual panels are simple and easy to read. Yet not lacking in design. The card-style design allows the content to be divided into blocks so that different types of information can be integrated into one layout. Combining text and images is more natural, improving users' efficiency in searching for information and reading. Additionally, it is easy to update the content at a later stage.

It inspired me to decide not to make the high-tech topic style, and I turned it into the mid-tech level to significantly demonstrate its heroically impressive. It also enlightens me to use a simple design style and a card-based layout to reflect the depth of the theme and enhance the user's browsing experience.

Introducing the Target Audience

The target audience is mainly scientific researchers and adventurers due to the distinctiveness of the resort. The audiences may be aboard with a strong purpose and drive. Here are two typical personas about the website and the project.

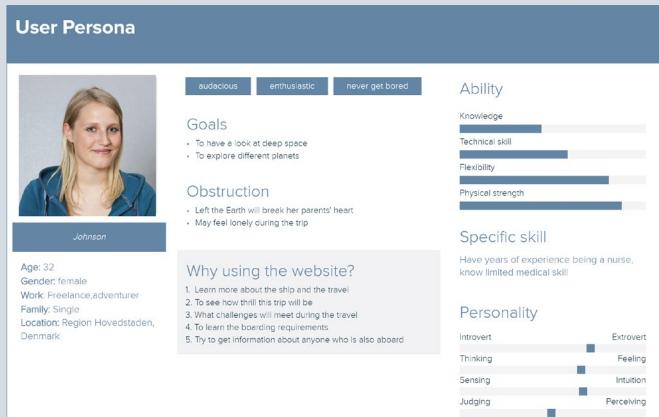


Fig.2 Johnson's persona

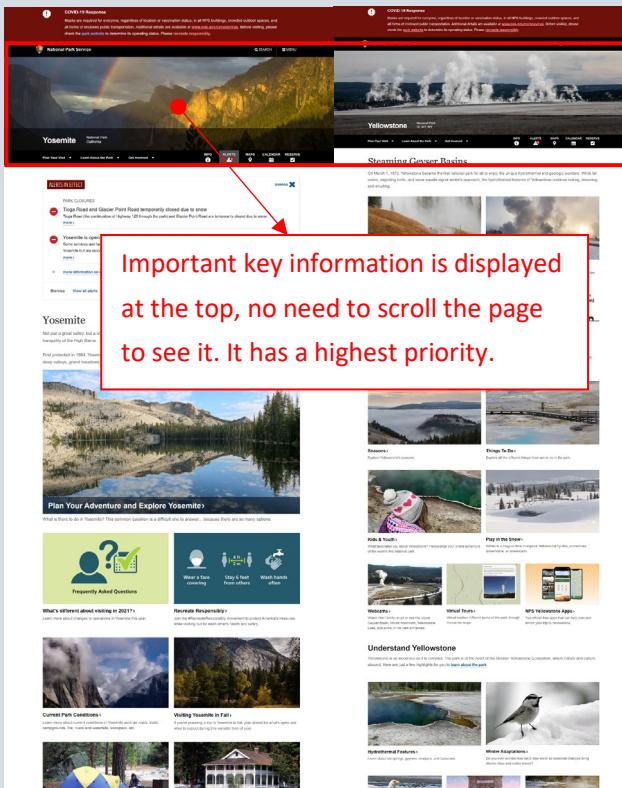


Fig.3&4 Screenshot of Yellowstone and Yosemite

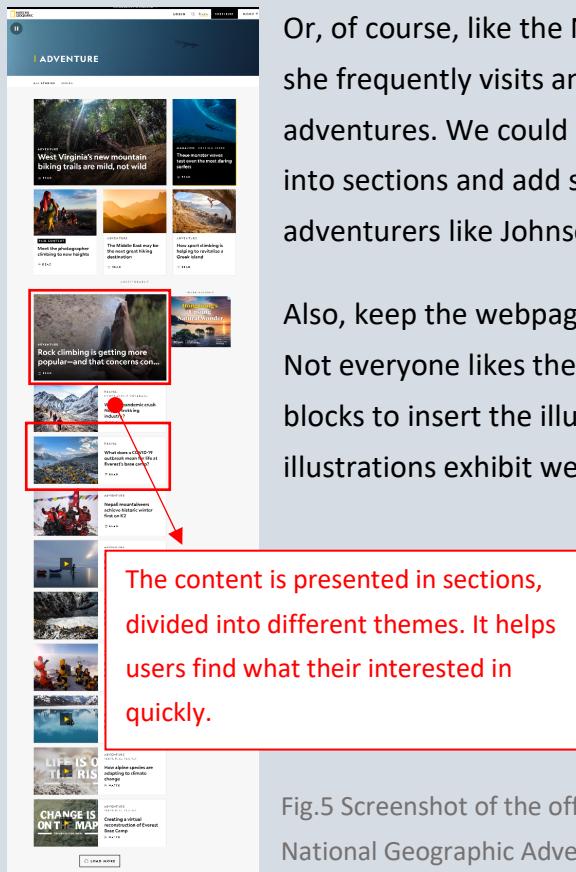
National Parks official websites

Johnson is an adventurer. She is full of passion for exploring something new and mysterious. So she comes to the website to search for something that will make her excited and encourage her to take a step to book a ticket.

Like the official websites of Yellowstone [3] and Yosemite National Parks [4], where she often goes camping and survival challenges, you can get a good visual of the facilities and opening of the parks. Any breaking news can be viewed on the website first. There is also information on park events and some main attractions.

So apparently, she would probably also want to find the information she would need on our website: locations, times, facilities, and open permits. This information is the first thing visible on the websites she usually uses—more details must be scrolled to be seen.

For her purpose, the website should focus on the journal. About what's the journal or how's the journal feel? Make the journal attractive. Show great content to adventurers like John to ensure they don't regret aboard this trip.



Or, of course, like the National Geographic Adventure Station[5], which she frequently visits and where there are descriptions of various adventures. We could break up the content of the life on the spaceship into sections and add some interactive elements to it to attract adventurers like Johnson.

Also, keep the webpage vivid. Don't be a serious science description. Not everyone likes the tediously long essay. So keep using the bunch of blocks to insert the illustration and use responsive design to ensure the illustrations exhibit well on any device.

Fig.5 Screenshot of the official website of National Geographic Adventure Station

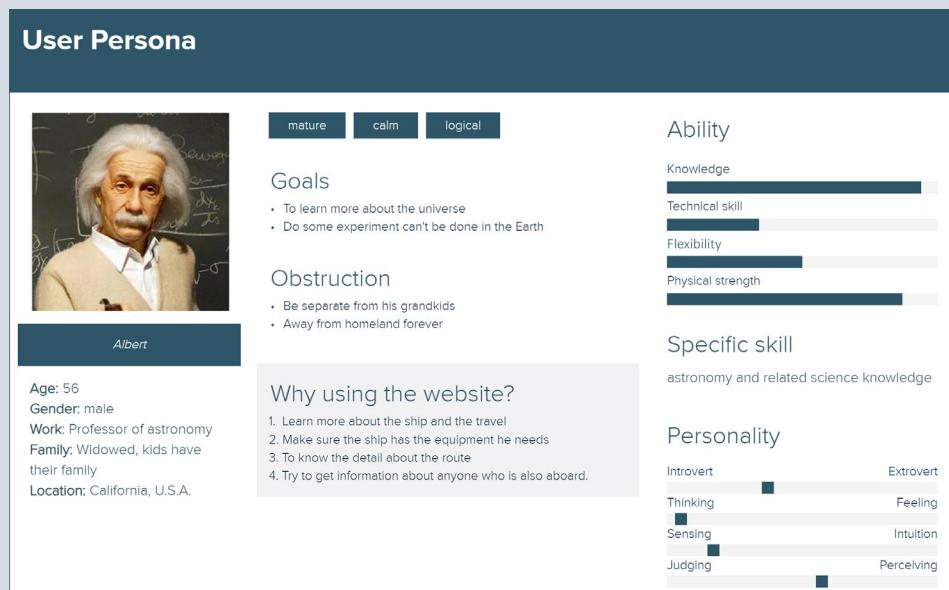


Fig.6 Albert's persona

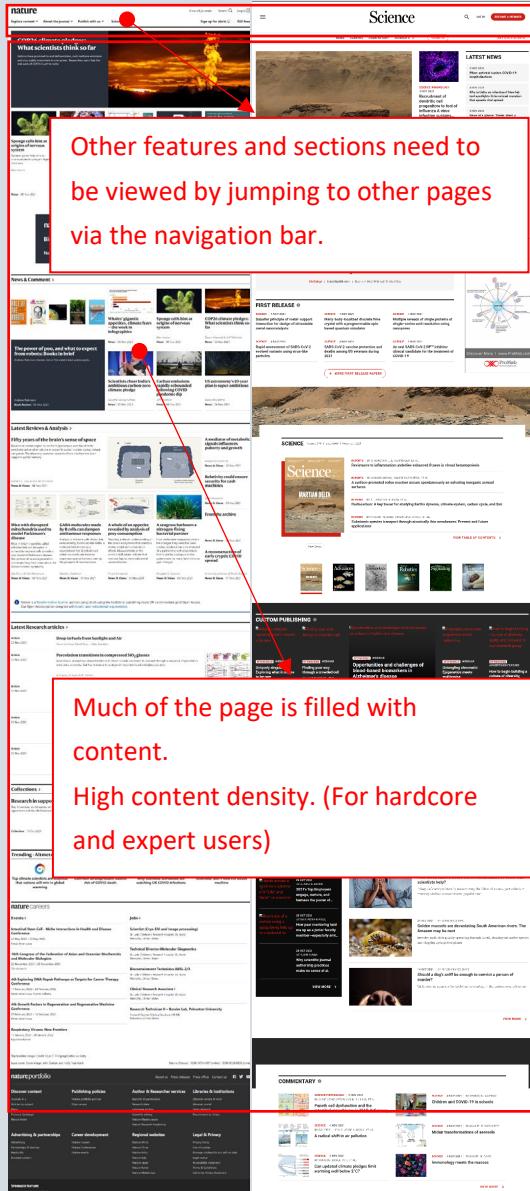


Fig.7 Screenshot of the Nature and the Science official website

Albert is an aged and knowledgeable scientist. His obsession with science is what drives him to embark on this trip. Since he has sought and explored space for his half life, he decides to spend the rest of his life studying space more closely.

As he decides to study in space, the experiment equipment is necessary. It is also one of the aims of the project. So it should be an accurate and explicit list for the user to search for the equipment on the ship.

The official website of Science[6] and Nature[7], which he visits regularly, is like most information sites, with the home page mainly devoted to science-related papers. They have hierarchies. Some features require links to be clicked on to jump from the navigation bar on the home page. It is a decent method to improve the browsing efficiency and experience for websites that need to display a large amount of information. Accustomed to this pattern, He may rely heavily on the navigation bar to find the information he wants. A clear and logical layout with a fully functional navigation bar is essential for our website. The pages need an efficient and informative design.

Part of the website users are professional like

Albert, so the website's content should be more professional. The design may be simple, allows users to focus on the content and what they want. Excessive animation effects and elements are unnecessary. It is challenging but critical to balance the different stylistic preferences of adventurer and scholar for the webpage design.

Since the audiences may come aboard with strong purpose and drive, and the crews have number limits. So I think we can slightly shift the course requirement's focus. Our website is not about branding the resort but more like an information station about the resort, providing enough information for our target users to help them decide to join.

Navigation & Organisation

Card Sort User Test



Fig.8 Pre-defined groupings(Secondary headings are for illustrative.)

Here is the card sort I prepared for the test. It is a close card sort. I will pre-define the categories. In the test, I will only show them the first level of categories, and then I will give them a secondary label in turn. Let them decide which first level this tag should be included in. Observe their sorting behaviour, paying particular attention to the sub-labels that make them show hesitation.

The test task: 1. Which subheading do you think this should go under? (12 sub-label to sort)

The interview question: 1. (Optional) I found you had hesitation on the XX label. Why?

2. Do you think the resort is reasonable? Which card do you want to change its location?
3. Sort the first level headings in order of use. How would you rank them?
4. What information do you want to know but didn't show on the page?
5. Any first-level heading missing?
6. Any advice about the page?

Feedback (After the author's reorganised):

1. Since the ship will be a new home for me, I want to learn more about the entertainment on the ship.
2. Like how the ecosystem may be a tiny world inside the ship, can it be a part of the entertainment?
3. Where's the "Contact us" page?
4. I know about your project because you informed me about it in advance, but I think the users of this website do not necessarily have a deep knowledge of the project, and there should be a page introducing project
5. What is the "about the route" page particularly like?
6. The brief introduction implies the crew can explore some planets using the small-scale sub exploration spacecraft during the journal. It may be can show on this page.
7. A piece of advice for further development: the page "about the ship" may use a 3D model to exhibit.

The advice is useful and points out what is lacking in the website. After analysing the data from the test, below is the version after modification.



Fig.9 Groupings after getting feedback from card sort test

Fig.9 shows is not the finished version. Through the test, one of the tips for me was the requirement of more content abundance, but most of the testers thought the classification was decent. The test generally confirmed the layout of the website.

Navigation & Organisation Systems

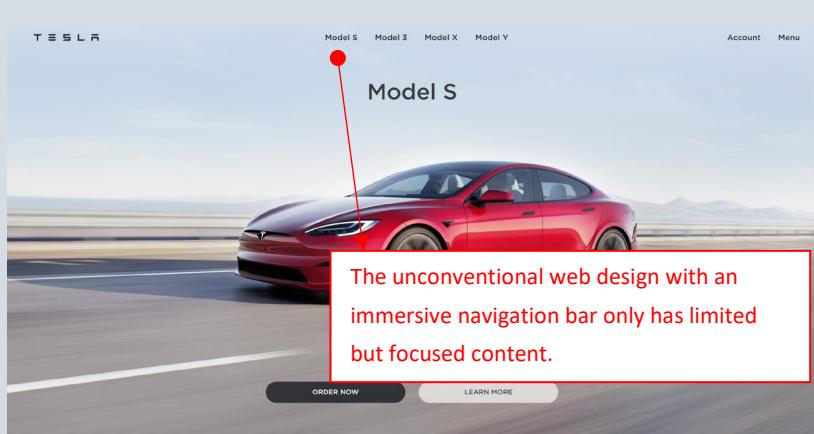


Fig.10 Screenshot of the official website of Tesla

The first website gave me inspiration is Tesla [8].

When I opened the web page for the first time, I was immersed in the website. Unlike the conventional website, it doesn't have a main navigation bar. It is an immersing browsing experience. It guides the user focuses on what they want the user to see. And that is what I want my website done in the discussion before. The website has the cleanest hierarchy and the most efficient information transfer that meets the target user's needs. I learned this kind of design called borderless design.

The whole page is very simple, even without a navigation bar. In fact each section will make you jump to the corresponding function page.

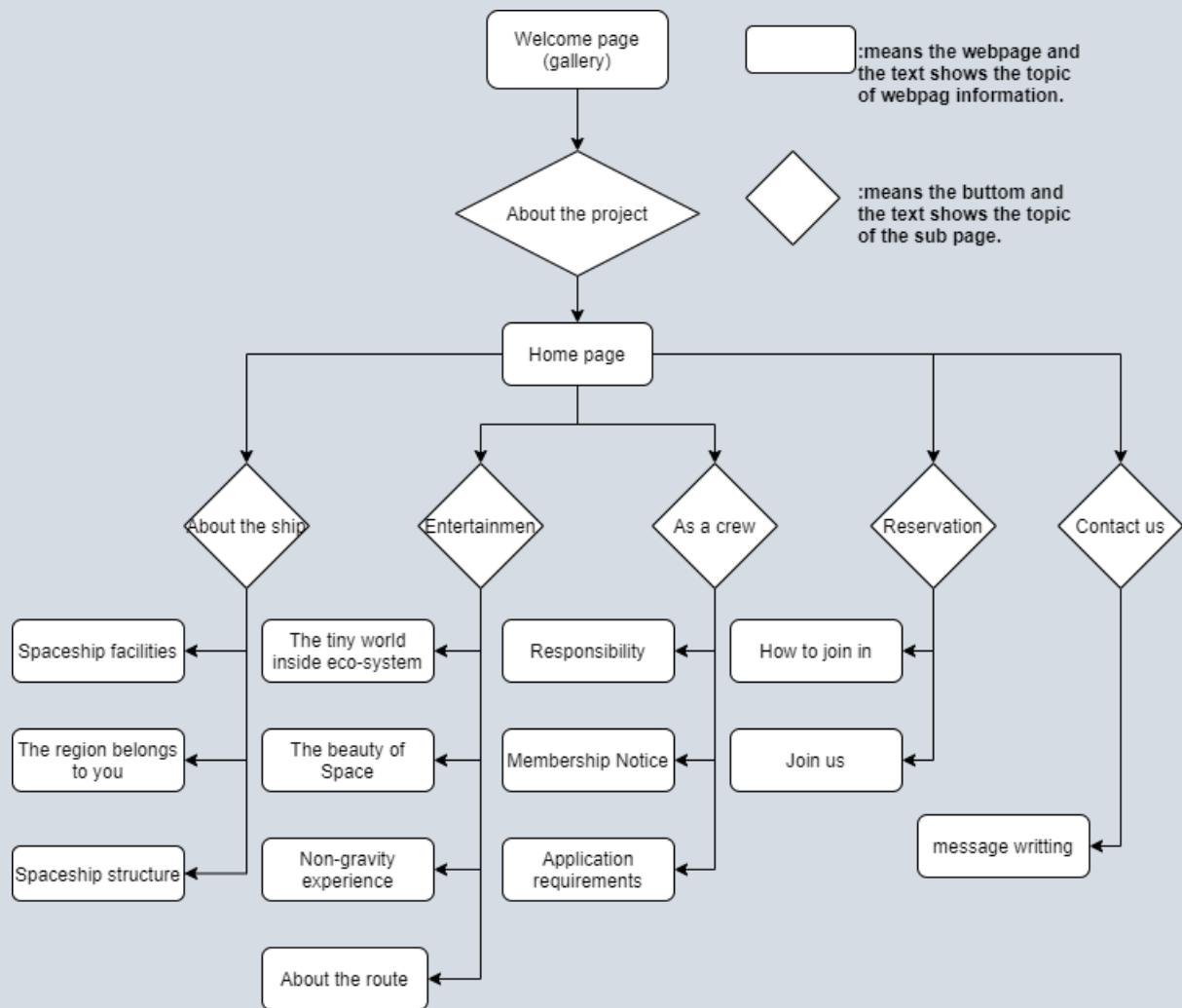


Fig.11 Screenshot of the official website of borderless.Inc[9]

As I decided, the website's style would be simple and a little futuristic. So I may weaken the navbar priority and use the borderless design to express the expense of the universe to convey the impression of the topic style.

So my design idea was to make my homepage a fully navigable page. The information will be presented on secondary screens. It allows for maximum categorisation of information. The hierarchical division allows for less information clutter. At the same time, each subpage will be the final page so that the need for a navigation bar on the subpage is reduced, and thus, the navigation bar is removed from the subpage.

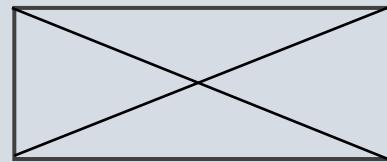
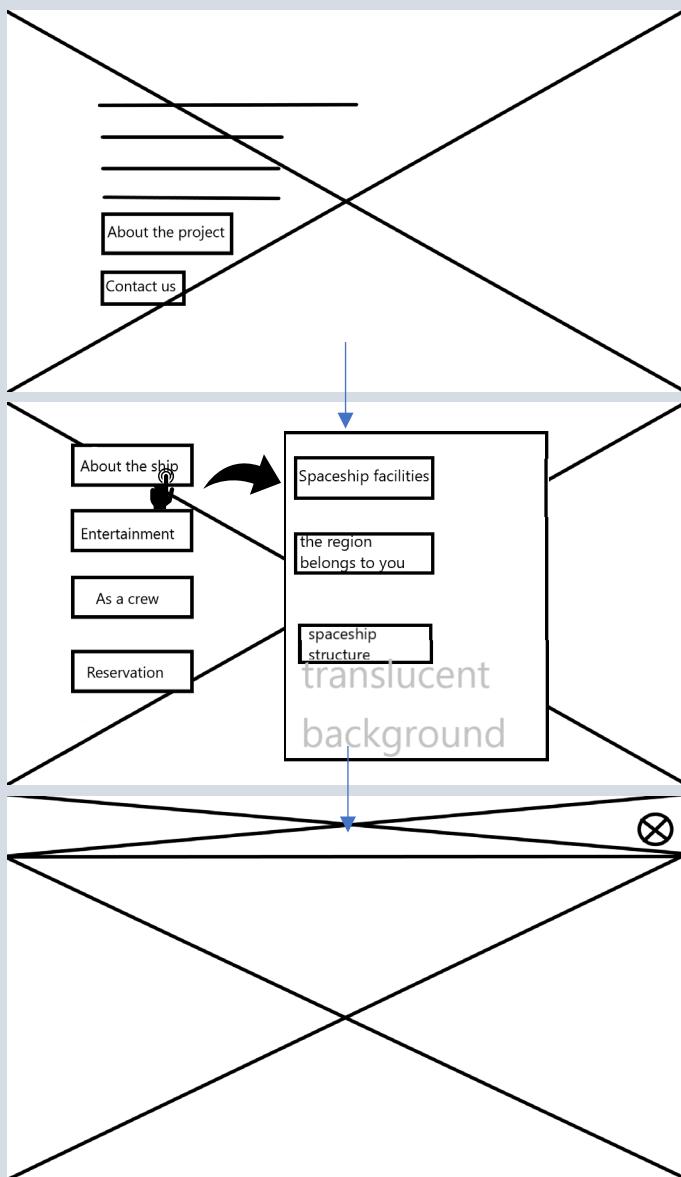
Site Map & Content Architecture



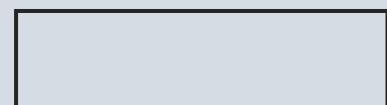
This site map is the version after the evolution of "Paper Prototype" User Test.

Paper Prototype User Test

Here my user test prototype screenshot.



↑ The frame means the image fill in.



↑ The Rectangles with text or icons indicate interactable buttons.



↑ It means the 'quit' or 'back to' button.



↑ The horizontal lines represent text.

The first page is the landing page of the website. This page aims to give the first impression to the users. And it would be a gallery about the project. The second page is the home page which serves as the navigation page. The homepage will feature a clean design to showcase the website's structure, allowing users to quickly locate the information they need. The third is the subpage of a different topic. The content of the project will be shown on each subpages. Each subpage will be divided into different sections of information. By integrating

different subthemes about the same big theme into a single page to create a similar information flow design, users can have a seamless browsing experience. The aim of this test is to learn my users' expectations and test the usability to assist me in optimising the user experience.

Test task: T1: To see the interesting activity on ship

T2:Find the requirement of crew

T3: Book a reservation

T4: Back to home page

T5: To contact us page

Questionnaire:1. What part do you think is most hard to finish?

2. Which task will confuse you?

3. Rate the navigation system on the web and explain why.

Metric: Time on Task

As observation and time count data show, all the testers can quickly become familiar with the website option and get started. During finishing the task, they hardly have hesitation. The only thing that may bother them is to find the contact us page. Most testers said that the global navbar didn't bother them too much. Before I expressed my concern about

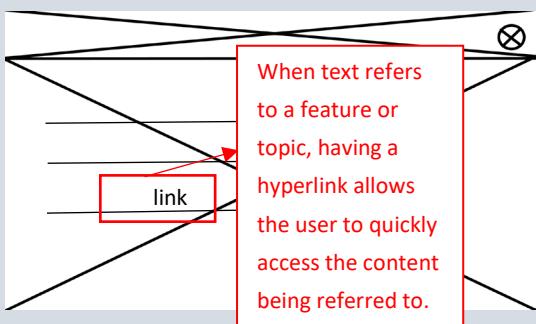


Fig.12 Diagram on the idea of in-page

further development, they said they would like to see the global navbar if the hierarchy becomes complicated in the future. Or, it may be a good idea to include a link for users to jump to in the desired section of the page.

From my point of view, my website has a pyramid-shaped one-way hierarchy. The breadcrumbs can replace the global navigation bar as the navigation system between subpages.

Visual Organisation & Interactivity

Here is the evolution of the prototype for the Paper Prototype User Test.

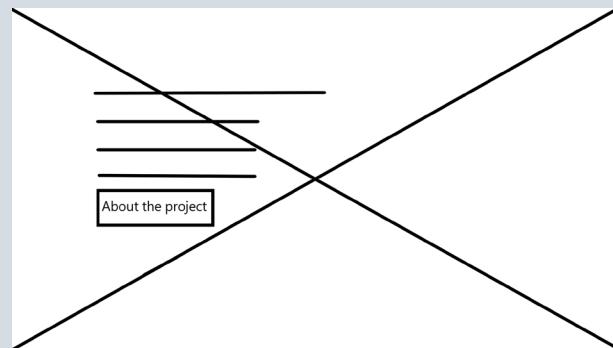


Fig.13 Welcome page

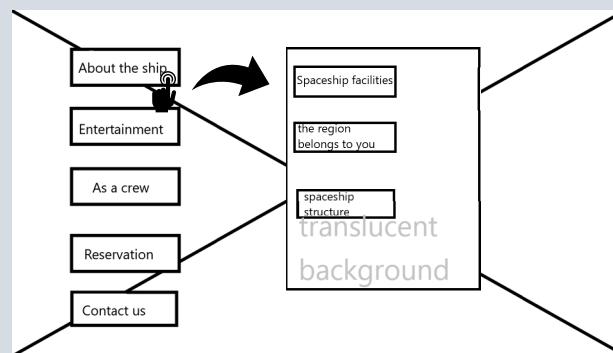


Fig.14 Home page

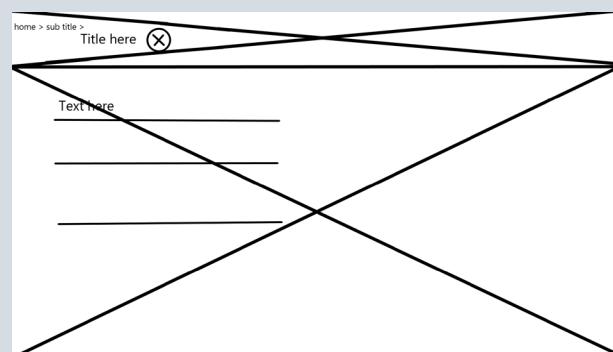


Fig.15 Information page

In this version, I iterated the web design based on the user test analysis finds. ~~The user can click on each breadcrumb section to return to the preceding page.~~ Updated: I discovered the breadcrumb problem later on in development. As my page structure was only two levels, the breadcrumbs lost the advantage of jumping through multiple levels and overlapped with the back button function. As a result, I removed the breadcrumb function from the development. Focus on improving the relevant jump links within the page.

The borderless design can set off the atmosphere of boundless space. Week hierarchy layout enhances this experience. A simple but comprehensive webpage can provide what our target audience wants to know while quickly triggering their enthusiasm.

The interaction element will lead the user from the welcome page to the home page and each bottom page. There are not too many interactive elements on the subpages. The main interaction elements function is to return and goes to the next level page. More element functions may be to learn more about what the page shows.

One exception is the Join Us page. It requires more interaction due to applying for boarding.

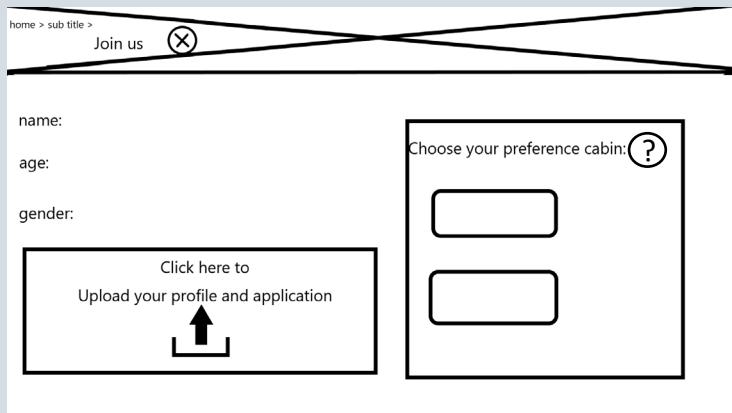


Fig.16 Wireframe of Join us page

Due to the particularity of the project, it isn't like a normal resort. So it is more like you apply for it. It requires the applicant to submit an application and profile to select a suitable candidate. As the user submits their application, they can also pre-choose the cabin they want to stay in. (Since it is a gigantic ship, it has different cabins with different styles). A "?" button will link the user to the cabin introduction page.

Updated: The secondary page for detailed information was removed in the subsequent development. The cabin information has been directly integrated into the booking page with added interactive features to enhance the user's control over the webpage.

Part B

Aesthetics

Aesthetic Prototype User Test

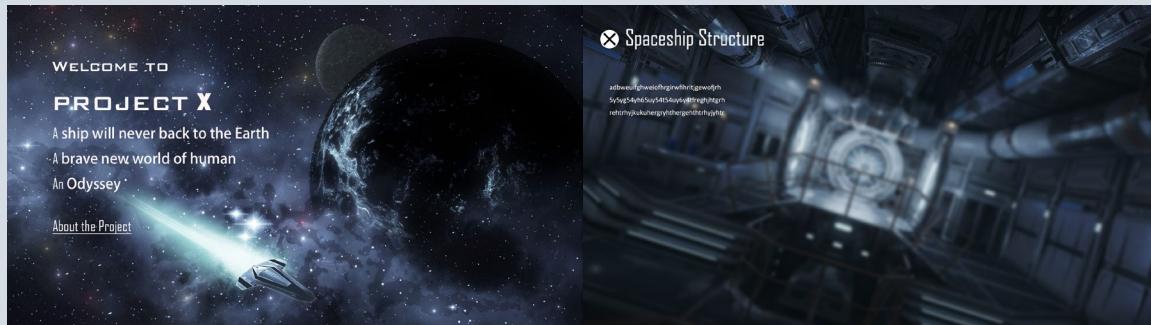


Fig.17 Aesthetic prototype of welcome page

Fig.18 Aesthetic prototype of content page



Fig.19 Aesthetic prototype of contact page

Fig.20 Aesthetic prototype of booking page

The first part of my testing plan was to show the above images to the testers after a brief introduction to the site theme to get their opinion on the website's style. I will gather more information by talking to them. I will then ask them the following questions in the second part of the test.

- (1) The website layouts are not like the conventional websites. Do you feel comfortable with that?
- (2) What do you feel the emotion of the website design style wants to express?
- (3) What kind of style do you think the website should tell?
- (4) Do you feel that the website's industrial and technological style differs from your expectations?

The test aims to understand the user's evaluation of the fit of the design to the theme and to evaluate the user's acceptance of aesthetics.

The feedback collected through this test showed that most testers could correctly feel the emotions I wanted to convey through the website.

Adjectives that appeared frequently were: Technological (mentioned by three out of four testers), grand (mentioned by three out of four testers), bleak (mentioned by two out of four testers), and mysterious (mentioned by two out of four testers).

Regarding feedback about the site's layout being different from the norm, the testers all said it was acceptable. Half of them felt the unconventional layout was more appropriate for a sci-fi theme like mine. Simple structural design provides a sense of space and emptiness.

The feedback from the tests confirmed the aesthetic style.

However, two testers mentioned that using complex art images as a background could make reading the text difficult. Their feedback caused me to think more about it. Considering that the photos will later be displayed in the content, there will be a visual overlap with the background images. I decided to use a background that leans towards solid colours in future development.

Also, in the table discussion, I have learned that simplicity and efficiency are sometimes contradictory. The simplicity sometimes leads to low content density, which causes low efficiency. So you can't just keep it simple. It would help if you had balance. (Too simple: STUDIO STARR : STUDIO STARR ; clear, effective but not simple:

<https://www.apple.com/us/store>)

The key to balance is that you must find your website's positioning first.

Another thing I learned is that you have to try to make the page come alive. A static page may easy to make the user tired.

So in a later design, I try to add some new content forms to my page to keep users fresh.

Style Guide



Fig.21 the final design of welcome page

The final design of my welcome page went from a static image showcase page to a video showcase page. With epic graphics and an infectious narration, the user is more enticed to click further than a static image. The design became more modern in this way.

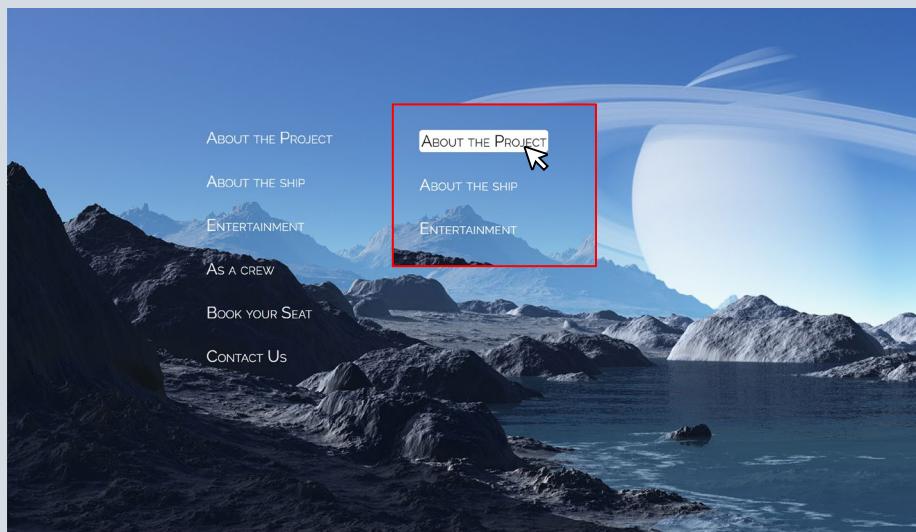


Fig.22 the final design of home page

Given the feedback received in many tests are good. Therefore, the homepage was not changed too much in the design process. It is still only a pure vertical navigation bar link to

different pages. I decided to use a static image as a background rather than a video because Changing video images may cause difficulty in reading.

It is worth noting that the original font Agency FB for the headings on the welcome page, home page and subpages could not be used due to copyright issues and was replaced with an elegant and technical font Raleway.

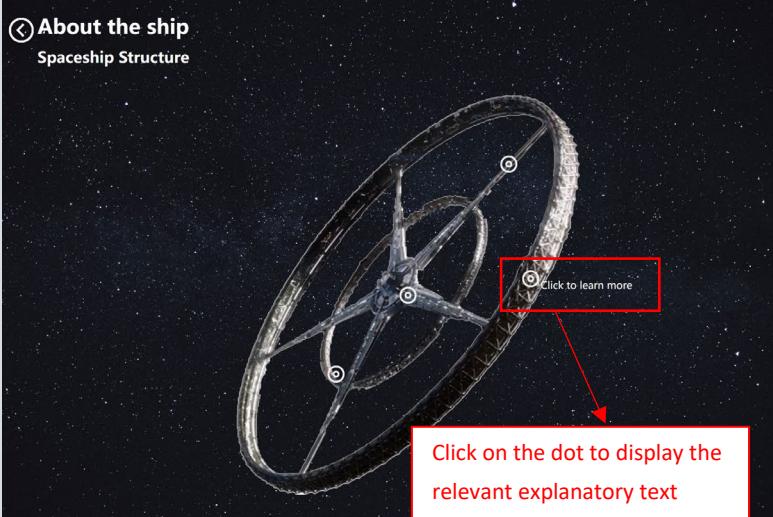
A serif font Cinzel was chosen for the project name to emphasise its formality, unlike the sans serif font used for the other pages.

The headings on the welcome page and home page are in small capitals(see Figures 21&22), enhancing the formality, making the project's importance clear to the user, and deepening the target audience's trust in the project. Because the heading doesn't involve much reading, small capital letters do not affect reading speed. And to be consistent with the content of the whole page, the titles at all levels on the content pages forgo small capital letters favouring the opening capital letters in standard text.

The header hyperlinks all use the same mouse hover style(see Figure 21&22). The sizeable rounded rectangle with black text on a white background shows a dynamic, clean design that can provide a sense of dynamism to a static page. The consistent shape of the button indicates the existence of interactive elements to the user.

Links within pages have different treatments. Links within pages are underlined (see Figure 23). It is the default link style and how most people perceive links. After completing the design, I looked around me for seven testers, and all of them could recognise it as a link.

The underline changes to a rounded rectangular border when the mouse hovers over the link. It is consistent with the border style of the content on the page and maintains a consistent design for the page. It also suggests that the user will jump to a page with content.



About the ship
Spaceship Structure

Spaceship Facilities

With research laboratories such as Level 4 biosafety-protected laboratory, Chemical laboratories, Molecular biology laboratories and Life science laboratories.
With research facilities such as Autoclave, Microscope, Centrifuges, Shakers & mixers, Pipette, Thermal cyclers (PCR), Photometer, Refrigerators and Freezers, Universal testing machine, ULT Freezers, Incubators, Bioreactor, Biological safety cabinets, Sequencing instruments, Fume hoods, Environmental chamber, Humidifier, Weighing scale, Reagents (supply), Pipettes tips (supply), Polymer (supply) consumables for small volumes (μL and mL scale), mainly sterile and so on.
Also, we have excellent urban infrastructure, like educational facilities and medical facilities. Whatever your status or profession, there is something on board to meet your needs.

Attention: If your needs are not listed above, and you are not sure whether the facilities on the spacecraft can meet your needs. You are more than welcome to leave a message on the [Contact Us](#) page to contact us. We have a commissioner to handle your message 24x7.

the Region belongs to You

We offer a variety of accommodation depending on the class. However, we guarantee that the lowest class of cabin will still provide you with an exceptional experience. Depending on the class, the private space available to the crew is 100, 120, 160 and 200 square metres in that order. All four classes of cabin have holographic projections, multifunctional interactive glass windows (Fig. 1), a personal AI assistant exclusive to you, and MR seats with access to the ship's metaverse (Fig. 3).
The normal class passengers need to share a portion of their living space with your neighbours (Fig. 4).

Attention: The above is a list of the residential facilities available to all four classes of crew. For details of the higher class of crew exclusive residential facilities please visit the [booking page](#).

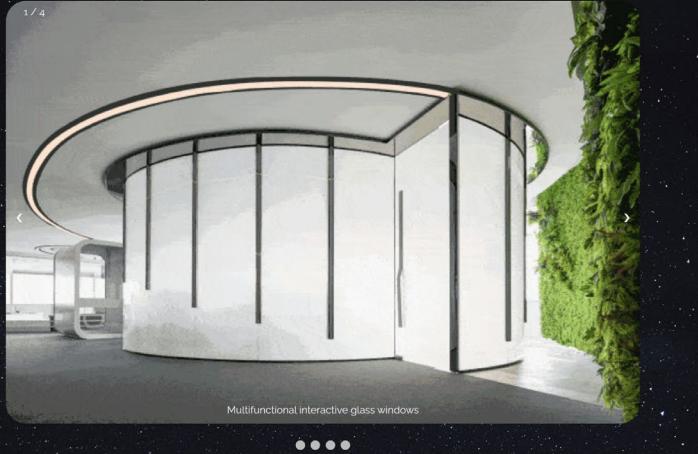


Fig.23 the final design of content page

On the content screen(see Figure 23), each subheading is formatted like the main header but in a smaller font to differentiate the hierarchy. The content under the subheadings is framed with rounded rectangular columns. The design allows the content to be separated from each other while maintaining the overall borderless design of the page. The rounded rectangles enhance the approachability of the website. As our target audience comes to the website with uncertainty about how to decide their future, the rounded rectangles bring them warmth and trust.

In the presentation of the content, pictures and videos are also used in addition to text. Interactive presentation modes: slideshow have been added for the images.

The layout is different for functional requirement on the reservation and contact pages(see Figures 24&25). But it still has the same style: a borderless design of rounded rectangles.

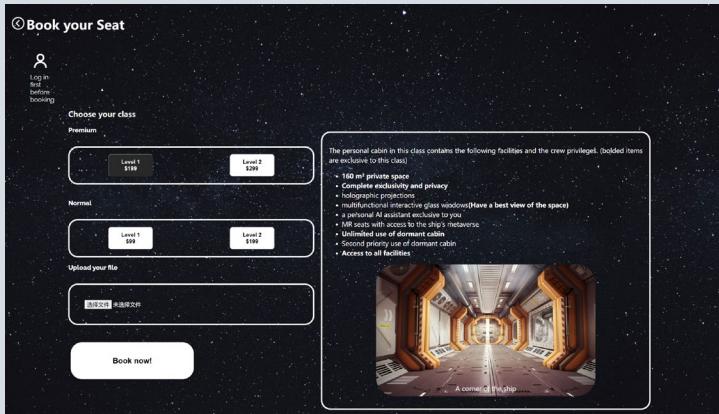


Fig.24 the final design of reservation page

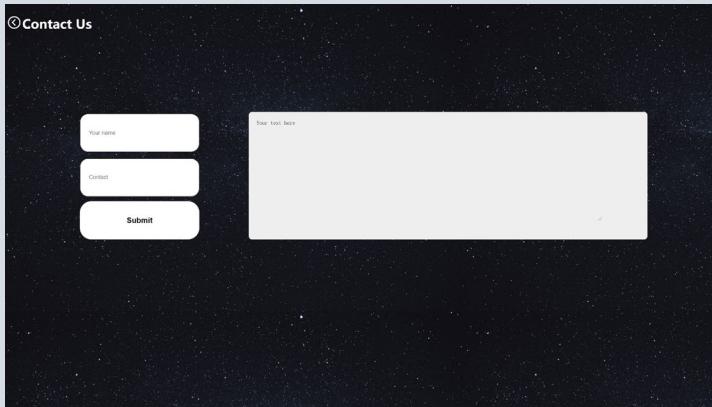


Fig.25 the final design of contact page

The buttons on the website have added a dynamic hovering effect to distinguish them from hyperlinks with similar appearances. Let users know that this is a button for different use.

I deliberately opted for a black starry sky photograph to align with the space theme and maintain the minimalist background. The deep, black backdrop complemented by diffused starlight conveys purity without sacrificing visual appeal. Considering the need for optimal contrast and a cohesive visual identity, I decided to employ the classic black-and-white colour scheme. As such, the text colour was deliberately set to white, enabling the entire web page's base colour to remain hue-free. The final design incorporates black(#000000), white(#FFFFFF), and grey(#292929) to create an understated yet powerful aesthetic.

To make the pages look more modern and minimalist and have high legibility, I chose the San serif font, known for its high legibility[10], to present the content.

Functionality

Hi-Fi Prototype User Test

>About the Project

About the Project

The project is run by the NASA (Necessary Aerospace Survey Administration). NASA has work for the Project X for a long time. Project X is a milestone in NASA's history. It shows NASA's vision. It's about why it been set up.

We are going to build a space ship that condenses the wisdom of all mankind and is equipped with the most advanced aeronautics technology. It is a 20km radius, gigantic spaceship with a complete ecological cycle built inside. It means the passengers can live on the ship for their whole life and procreation generation after generation. And the ship has eternal energy. It will never run out.

The ship will travel to the outer space and explore the entire universe to the limit of exploring the deepest space.

Man's exploration experience is their whole life. You will make the space exploration's reach. Thanks to the ecosystem built inside, the ship can provide similar experience like it on the Earth. It still has interesting part worth to explore. Also, it allows crews to explore some planet using the small-scale sub exploration spacecraft.

This project is a long term non-ending project, you can see it as a holiday without end or as a great adventure; either way, we welcome you to join us. It is currently 2077 and the spacecraft is expected to be launched in Houston at 2098.

How to Join in

Due to the limited number of places and the special nature of the voyage, the crew needs to be vetted by the NASA Foundation.

You can select the cabin class you want to book and upload your personal file on the booking page. Your booking request will be reviewed within 14 working days and the results will be sent to the email address on your account.

We will assign you a cabin class based on your ability and the cabin class you choose at the time of booking may not be the one we ultimately assign to you, you have the right to withdraw your booking.

Attention:

- You have the opportunity to change your cabin class during the voyage.
- The file should contain your personal information, family situation, medical condition and financial situation etc. A detailed sample can be downloaded from the NASA website.
- We recommend that you are not older than 50 years old at the time of application (relaxations are available on a case-by-case basis for special talents)

About Us

We are Project X, funded and directly managed by NASA.

Crew is to explore deep space. We are currently working intensively on the construction of this magnificent giant ship and recruiting crews. If you are not interested in sailing but would like to join the project team as a logistician, you are also very welcome, please submit your resume on the Project X Genius website.

Entertainment

Tour of Spaceship Eco-system

"As you can see in the pictures, we have an ecosystem just like the Earth, with realistic artificial sunlight and natural breezes that make you feel like you are on Earth. In the city there are green spaces, lakes and country parks. Outside the urban areas we have rainforests area, deserts area and grasslands area, that simulate nature. It will take you three weeks to a month to fully explore one area. The landscape changes and fluctuates and as you sail on the ship you will experience seasonal climate changes."

The Beauty of Space

Black hole

On our journey, you will get a very close look at the fascinating, wonderful and mysterious celestial and astronomical phenomena in space. For example, occultations, planetary streaks, supernova explosions, white dwarf collapses and shining glows of interplanetary matter. For example, we will witness various different appearances, neutron stars blue and red giants and the most mysterious jewel in the universe, the black hole. Thanks to the power of our spaceship, we will be able to observe these celestial bodies at a distance visible to the naked eye and to carry out a wide range of scientific research on them.

At the same time, we also have small-scale sub-mission spacecraft for you to freely explore the planets around the route during your journey. You can experience the fun of flying in a rocket, or carry out some scientific research.

Non-gravity Experience

Black hole

Although gravity is generated by the ship's uninterrupted rotation, you can experience the wonders of a gravity-free environment during your journey to explore the planets or while walking outside the ship.

You can even experience a gravity-free environment in an external hover module for scientific research.

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About the route

Black hole

It's going to be an epic journey. The journey will first arrive to the Butterfly Cluster M9 & M19 near ANTARES, a spectacular nebula of interstellar material visible to the naked eye, and 19 Earth-like planets.

We will then turn to the LED system, where a stellar level black hole has been detected, and two three-body systems. A field survey of planets in three-body systems will provide significant scientific opportunities to study chaotic systems.

We will then travel to the Galactic Disk, a very large system of galaxies, which is predicted that we will arrive 12,000 years after our departure. We hope to have you on our path.

Fig.26 the final design of content page(1)

As a Crew

Responsibility

As a crew member, this ship will be home to you and your descendants. All crew members share a common bond of destiny. You have to fight for the survival of this ship and contribute your strength. Keep peace and love alive, and let this small society in space shine a tiny but bright light on human civilization!

Membership Notice

THE SHIP WILL NEVER BACK TO THE EARTH.

- Two additional relatives can be brought on board per ticket.
- Before sailing, we invited leading legal experts to draw up a set of spacecraft laws with reference to the laws of various countries. When you board the ship, you are deemed to have known the existence of the laws.
- The crew will be required to sign a contract for the duration of the mission.
- We are committed to creating a classical society. The administration of the ship will be co-ordinated and handled by the artificial intelligence AXL6000, which has the highest authority of the ship. The ship's society will operate in a leaderless form (or rather without human leaders).

Application Requirements

- Have a professional skill. Not just require high technique skill, cooking can be counted.
- Be prepared to move away from the planet.
- Be in good psychological condition and free from mental illness.

Fig.27 the final design of content page(2)

The other part of the Hi-Fi prototype is shown in the *Style Guide*.

The test objectives are about confirming the design's details, including aesthetics and functionality, and verifying the usability.

Fig.28 the final design of content page(3)

The testers were asked to finish the following tasks:

1. Find out if there thermal cyclers (PCR) in the spacecraft.
2. Check if one person can only use a ferry ticket.
3. Book a ticket for the highest class.
4. Log in.
5. How can you ensure you are qualified to be a crew?
6. Find out what place in the space the ship will pass.

The results were generally satisfactory, with all testers completing their tasks. However, task 1 proved the most challenging, as most testers initially searched for information on the booking screen, indicating a need to modify the design to align with users' expectations.

Interestingly, testers could find the sound controller and unmute the welcome page video without prior notice, suggesting the design was intuitive and easy to use. Nevertheless, some testers felt that the font size was too small, which could impact readability. Although the font size was intentionally chosen to create a sense of spaciousness, testers' feedback has been considered. The font size may be slightly increased to improve the design and readability balance.

In follow-up interviews, testers expressed satisfaction with the content pages' layout, noting that the articles were of a reasonable length and the images were presented appropriately. Therefore, no significant changes to the structure are being considered at present.

Overall, the test provided valuable insights into user preferences and highlighted design improvement areas, which will be incorporated into subsequent development efforts.

Technical Implementation

There are five interactions in my website using a combination of HTML, CSS and JavaScript to implement them.

1. A sound controller on the welcome page.

HTML: two div that bind with Onclick event being added id selector.

CSS: Add the icon image as the background image. Set one's display attribute as "none".

JavaScript: Write a function that modifies the style attribute of the div and the mute attribute of the video by judging the mute attribute of the video.



Fig.28 the final design of soundcontroller(two performance)

The sound controller appears as an icon showing the current video status (mute/unmute). The video playback status will change when the user clicks on this icon. Because the video is played silently by default, the video sound will appear when the user clicks this icon for the first time. The video and controller will return to the mute status when the user clicks again. The video on the welcome page has an inspiring epic narration. It fits the design purpose of the welcome page, caters to the theme of the website design, and encourages people to explore the universe.

The auto-playing video needs to be played silently, considering accessibility, because the background music may cause interference for the user hearing the screen reader, which I learned from the table discussion. Also, this interaction is decided to be added after the table discussion. Compared to giving the video a play button, making it automatically play makes it easier for users to realise that they need to look for a control button than a static video cover. Even if the user does not unmute, the absence of narration is an acceptable price compared to the lack of accessibility.

2. A Pop-ups function.

HTML: A div with a specific class.

CSS: Using class selector to set the display attribute of the div as "none" and set the style of the pop-up window.

JavaScript: Write a function that modifies the display attribute of the div.

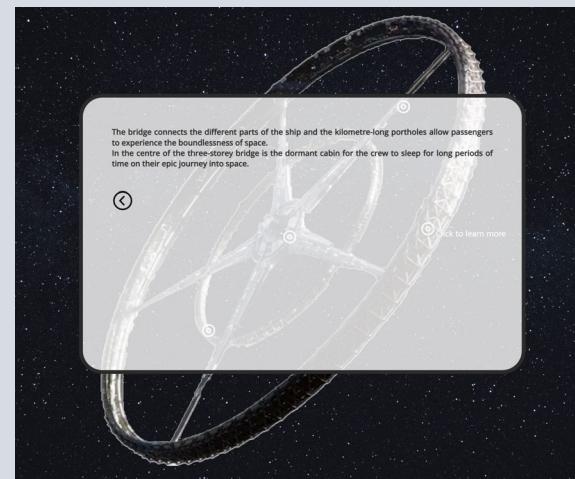
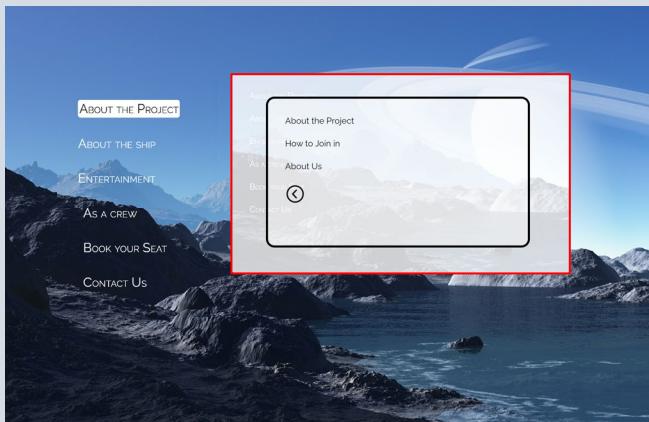


Fig.29&30 the final design of Pop-up window

Interaction	HTML	CSS	JavaScript
3. A interactive picture gallery	A div with many divs and buttons(<a>tag) embed. And a div with spans inside as a counter dot.	The core also is to set the display attribute of the sub div as "none" and set the style of the related tag (ensure the button and dots have the correct position).	Write a function that modifies the display attribute of the div with a picture. The functions of buttons and dots will use an index variable to change the display attribute of a specific div.
4. Make the content change with a button click (implement in "Book your seat" page)	different divs and divs with <button> embed.	The core also is to set the display attribute of the div as "none".	Write a function to toggle the "active" class on the clicked button and display the corresponding content div. Hide the other divs by setting their display to "none".

Interactions 3-5 make the page simple without causing low information density. Also, it provides interaction for the page. It can make the page content in various forms, so users cannot quickly feel bored.

5. Uploading information validation & displaying message pop-ups ((implement in “Book your seat” & “Contact Us” page)

HTML: Bind the onclick event to the <button>

CSS: Nothing special change

JavaScript: Using regular expressions to validate the effectiveness of uploaded information. Write a function that uses the "alert()" method to create a popup window when clicking the button. Control the text of the pop-up window and when the pop-up window is controlled by the "If" judgment statement.

Give people feedback via button pop-ups to let them know the site has received their message. Also, adding a simple judgment mechanism will reduce the backend workload.

To ensure accessibility, all of the above interactions maintain keyboard readability. All buttons and links can be tab-locked and are set with "alt" text to be read by screen readers. (Like <https://www.scope.org.uk/>)

About progressive enhancement, as my website is not overly complex, I didn't design different versions for different performance devices and browsers. I have mainly focused on ensuring compatibility. Avoid using attributes in the site development that are incompatible with major browsers (including earlier versions of IE), and use semantic tags to ensure that the browser recognises and reads the content.

To design a responsive website. I set up viewports for each page, using percentages (or "em") to set any length, width and distance. Also, use flex boxes for layout where possible.

Conclusion

As a rookie without any programming experience, able to build a multi-page and interactive website, I think it is successful.

If I have more time or give another chance, I would like to achieve multi-page content expression in as few Html documents as possible. More biased towards content transformation within a page. And I might specifically design a web page that is entirely different from the widescreen for the mobile screen instead of simple zooming like now.

In my early learning, I based on the order of HTML-CSS-JavaScript to study. I have invested too much time in learning HTML and lack practice. If I had a chance to start again, I might try to build my website in the process of my learning. And I will have finalised the design of the web page before hands-on. Maybe this time, I will set my goal higher. Web design is not that difficult.

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