



Academic Year	Module	Assessment Number	Assessment Type
Spring 2021	Human Computer Interaction	3 (Task 3)	Individual Report

Report on Design & Usability Testing Report

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1. Introduction

The website that I developed is READ-!T which is an online book store where users can login and buy book, where books will be delivered to them. The interface is developed using HTML, CSS, JavaScript, as there is no backend so I've used sweet alert to make the interface more interactive. The main page is index.html page which is the landing page of the whole interface. As soon as the user loads this page, banner is show to inform the offer that is going on in the store, user can click on the cross at the top right corner of the banner to remove the banner and see the interface afterwards. At the top of the page there is navigation bar. The navigation bar consists of logo at the left side, search icon at the right side and options such as home, category, blog, contact, books, sign in and signup at the middle. Below navigation bar there is slider which shows different book with attractive design. Below the slider there is featured book show. Below the featured book there is recently published book section and below this there is category section, where books are displayed based on their genre, below genre section there is services section where different services are shown along with icons. After the services section there is blogs section which consists blog post by read-!t, when clicking on the post, on is redirected to the blog itself. Below the blog section there is newsletter section where users can subscribe to it using their email address and lastly there is footer section, with social media icons, some links and contact is section.

Now first as user clicks on the signup bottom, user is redirected to signup page where user fills their information and they are registered, after that user are redirected to index page. As their account is created, now user can login and they are redirected to their home page. There is slight change in navigation bar as signin and signup option are replaced by cart and logout option and there is user and cart icon along with search icon, now as user clicks on any of the button they are either redirected to all books page or they are redirected to about book page, user can add book to cart directly as well. Users can see information about cart by clicking on cart option. The cart page includes picture of book, name, price, quantity and total price, below this section there is bottom named continue shopping which redirects to home page. Below this there is bill, as well as there is service option below as well as there is footer at the bottom of the page. Now as user clicks on the logout

page users are redirected to homepage where users need to login again to add item to cart or perform other functionality otherwise if user clicks on any button such as view books or add to cart button then they are given alert message to login. There is also shortcut button which appears as one scrolls down the page and if one clicks on that button then they are scrolled to the top of the page. The described interface is solely developed using html, css, javascript and sweet alert. The text and colors are simple and attractive which upgrades the user experience.

2. Design Process

While designing the interface I had two concept in mind that is the interface should be simple so that anyone can use it with ease and the interface should not contain complex process which will take the load time more. I was inspired to create this because, we were creating library management system in another module and I wanted to create something related to it so the idea of online book store came to my mind and with this it will teach me lots of things regarding front-end development as well. I looked up to other online store like daraz, amazon, sastodeal and as well as booksmandala which is online book store in Nepal. I checked every stores design and the pattern that they were designed however they are not satisfying, some in terms of colors, some interns of functionality, and some in terms of complexity to use. So I kept in mind that the interface that I am designing should be simple and attractive. So I started making the wireframes using balsamiq tool where I started with homepage, there is simple navigation bar, some section that people look at book store and simple footer. When I thought about functionality, I wanted simple functionality for the purpose of ease, so I just kept sign in, sign up, search and some shortcut options. While choosing color combination, my choice was grey, white and black as their combination is always perfect and attractive.

As my wireframes were ready for all pages of the website, I started developing it using standard web development tools like HTML, CSS and JavaScript. For the development environment I used visual studio code as I am familiar with this environment and the live server feature that instantly shows the change in website if there is any change in code which makes the development phase more efficient and easy. As I was working on it suddenly I thought about the notification or some kind of alert would make the interface more cool so searched about it and I found about sweet alert which is easy tool for alert messages. Through alert messages the interface becomes more interactive and can notify user about what is happening in the system as well. After I completed my index page I started working on different pages such as cart page, sign in and sign up page, while I was working on I thought to make the front end look like it contains backend though we have no backend. I started making more pages like home page, user page and connected all

through hyperlink, which made the interface more seamless. Some picture of different phases are given below:

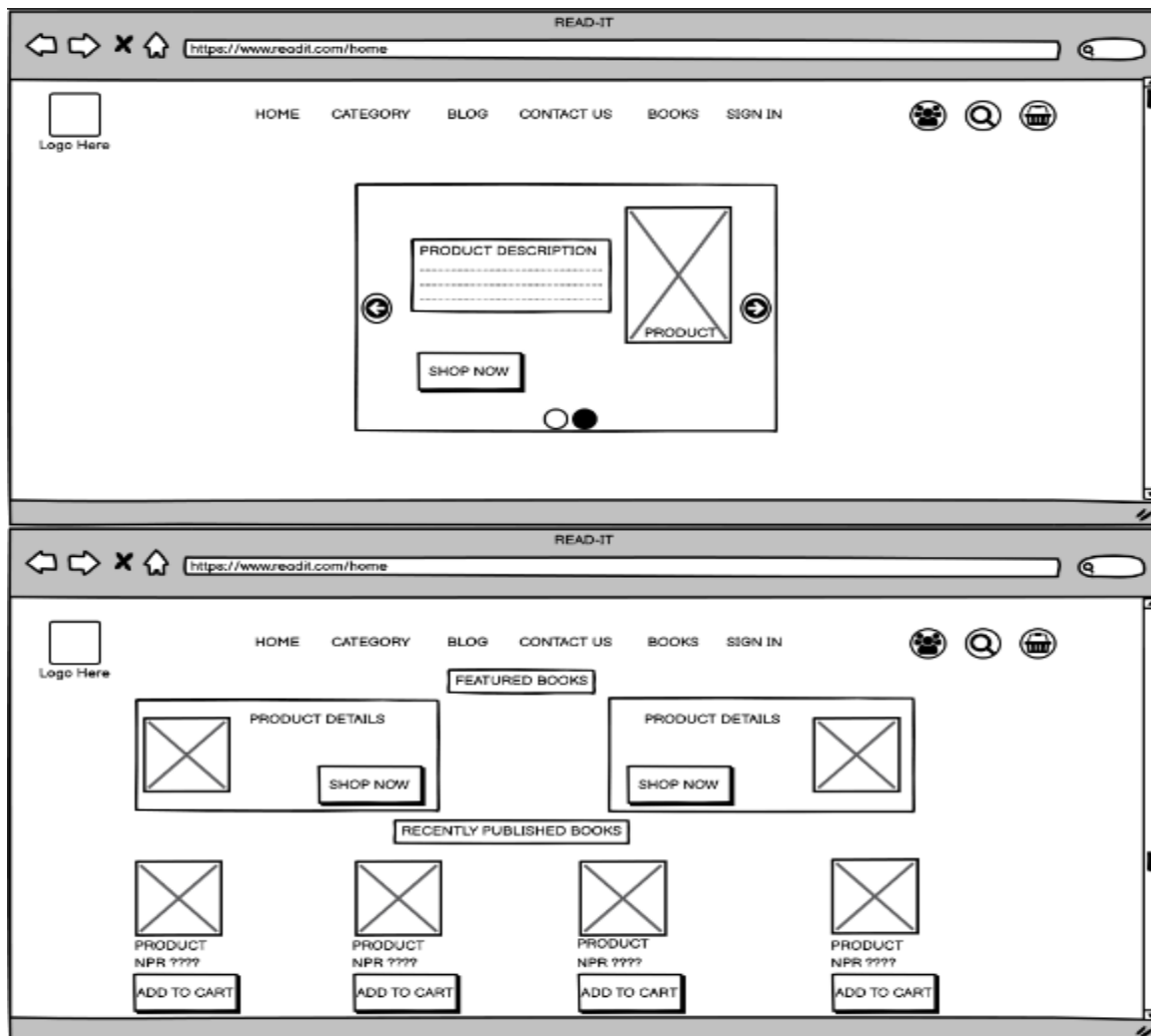


Figure 1 : Wireframe of Landing Page

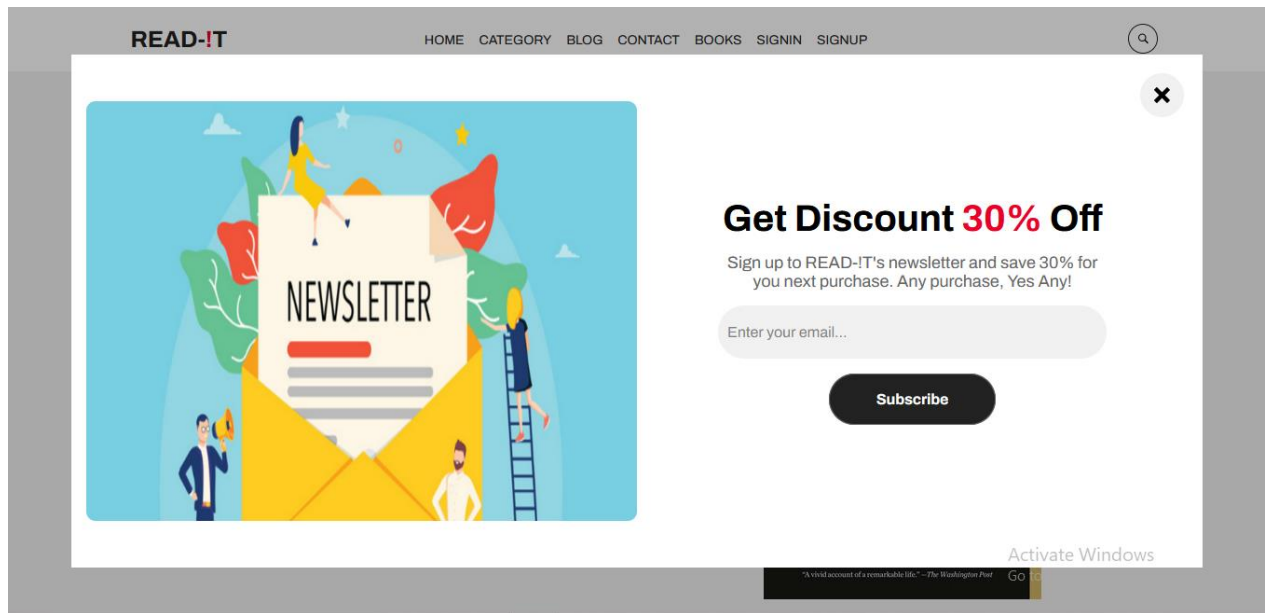


Figure 2 : Landing Page First View

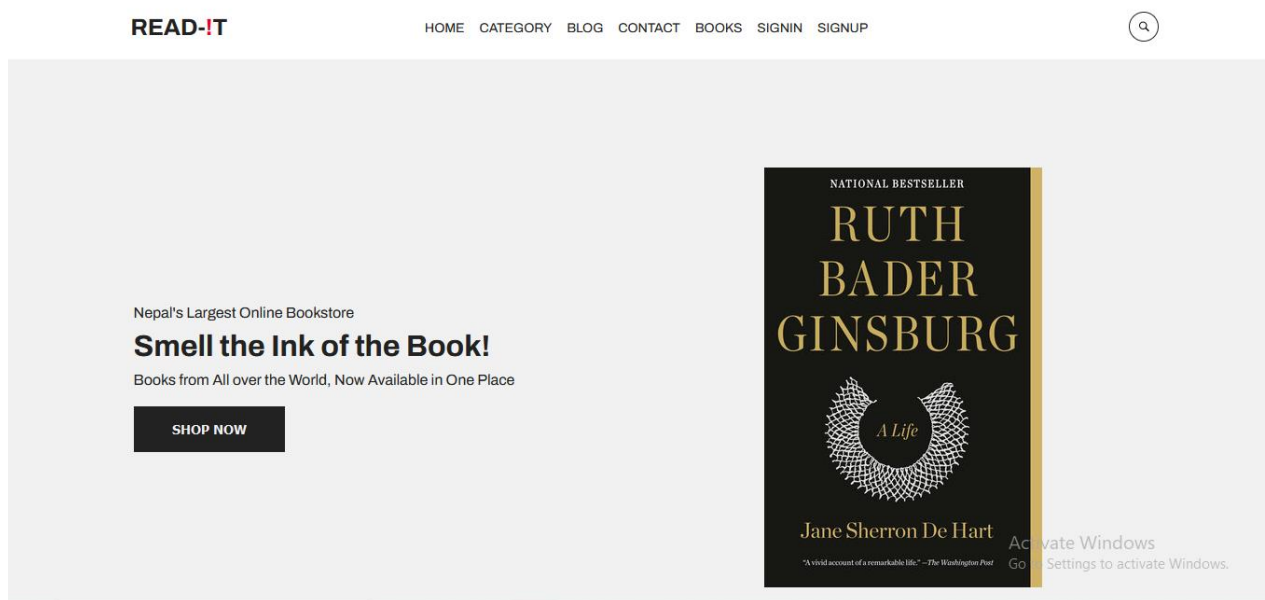


Figure 3 : Landing Page Final View

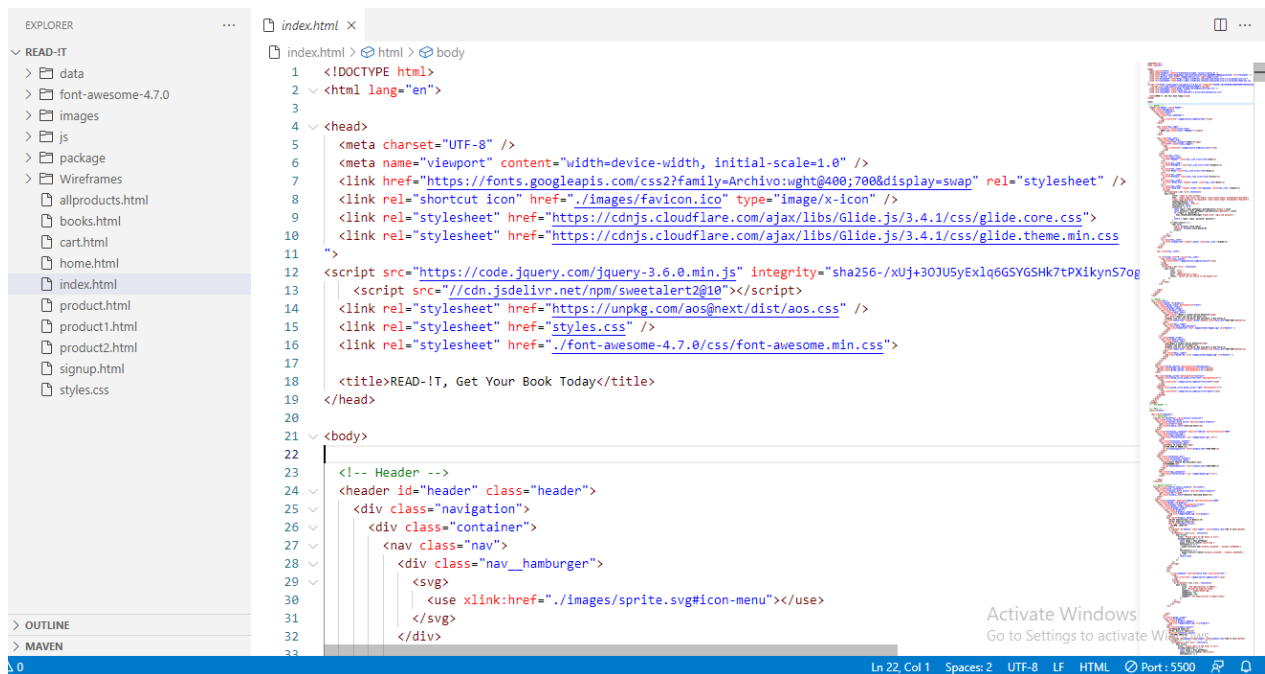


Figure 4 : IDE for Development

3. Evaluation and Testing

I have used Shneiderman's Eight Golden Rule to evaluate my user interface design. The graphical manifestation of such criteria are considerably greater visible in the trendy interfaces that arise. The interface that I have designed successfully satisfies most of the eight golden rules which are mentioned below

3.1. Strive for Consistency

Here, the interface that I have designed have a set of guidelines for how information is communicated to the user, used proper spacing, proper menu bar with standard functionality, proper color scheme and managed user flow. For example: the side spacing and menu bar shows that the interface is consistent.

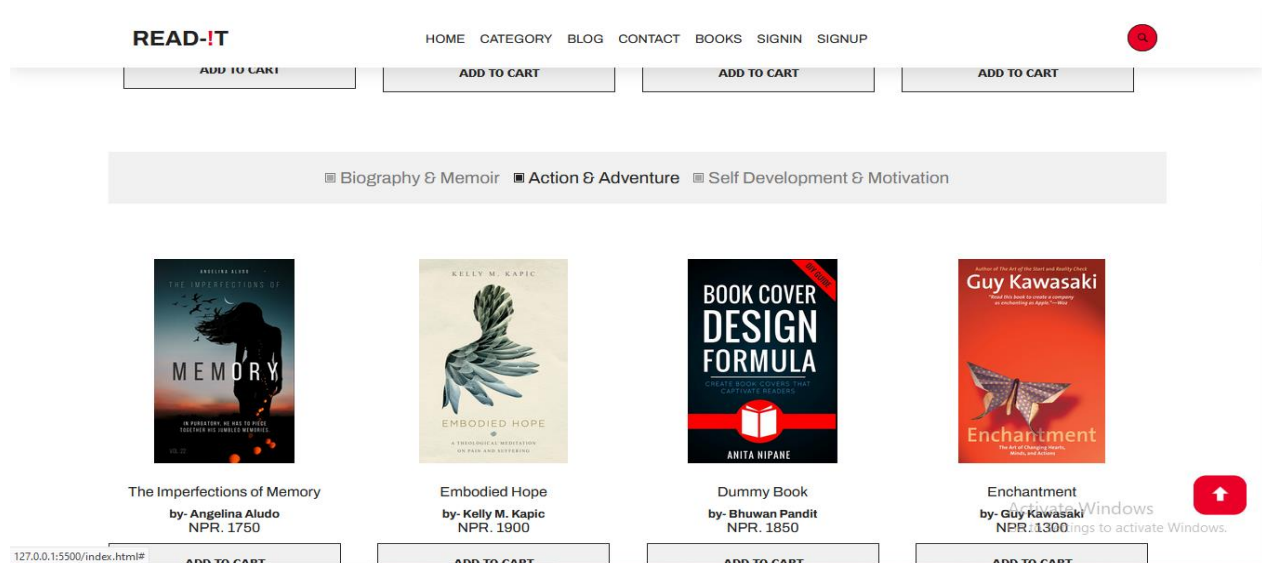


Figure 5 : Consistent Layout

3.2. Enable Frequent Users to Use Shortcuts

Here, I have included proper header and footer as well as up arrow button to automatically slide up for the users to use. The website contains search

options as which makes easier for customers to search for what they are looking for directly rather than searching one by one.

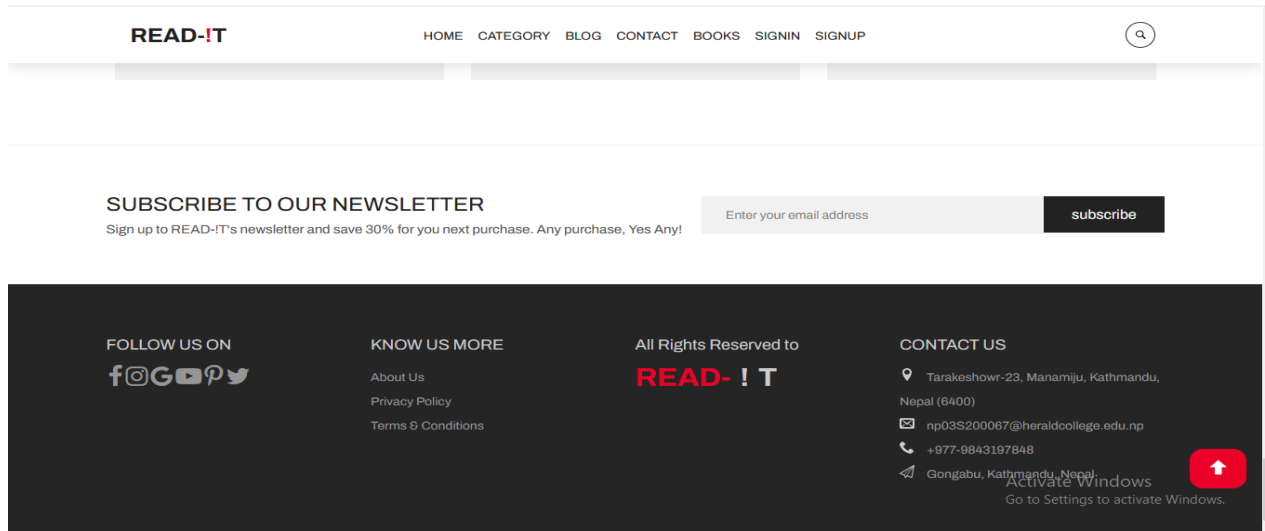


Figure 6 : Shortcuts for Users

3.3. Offer Informative Feedback

Here I have included suitable human readable feedback for every action user performs. The website consists of different pages and section so users are notified using header of the website that in which page the are currently in, as well as the proper heading to every section enables user to know about the section that they are located in.

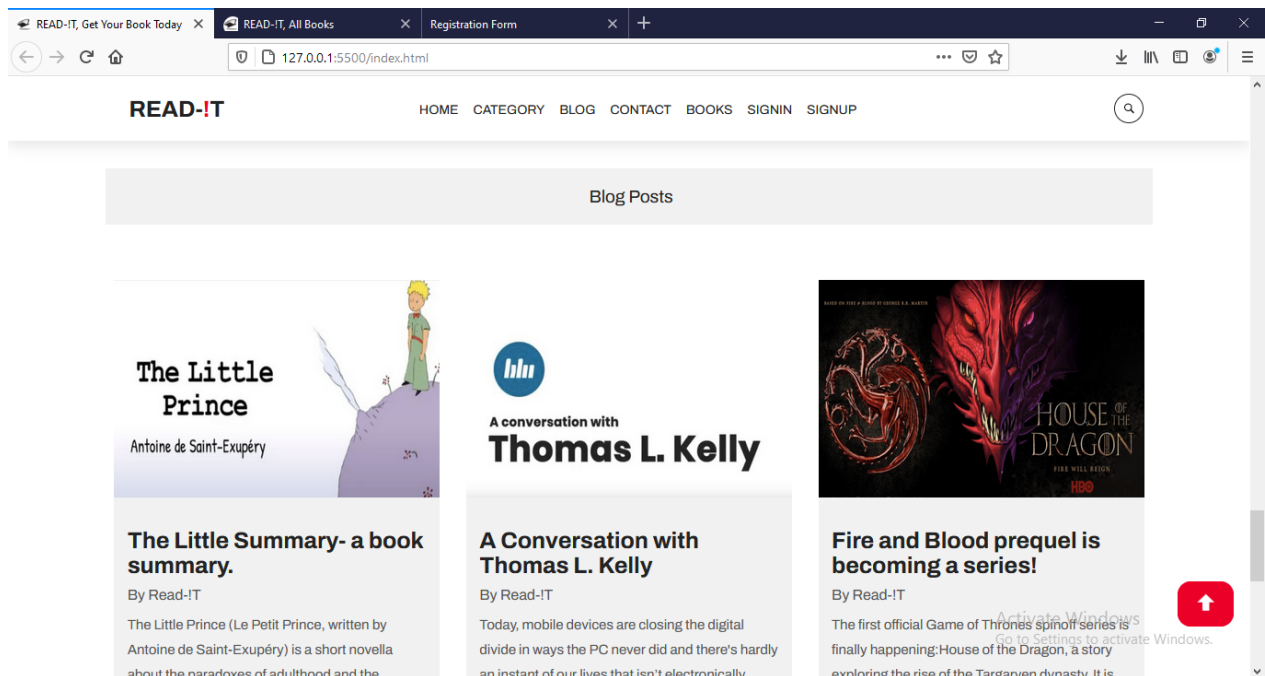


Figure 7 : Informative Feedback

3.4. Design Dialogue to Yield Closure

Every user wants to know what happened when they did some thing or clicked somewhere so, the interface properly tells the user what their action have led them to. One proper example is when an user enters their email and click on the subscribe button in the newsletter section they are prompted with message that they have subscribed to our newsletter.

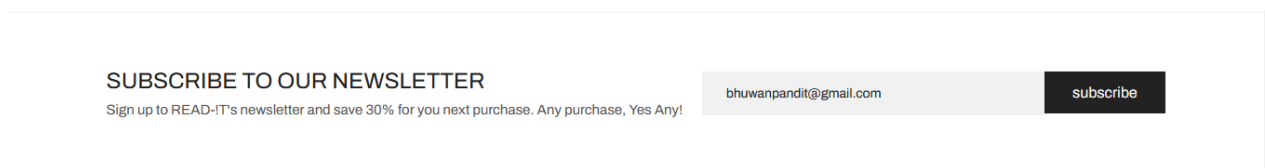


Figure 8 : Newsletter Section

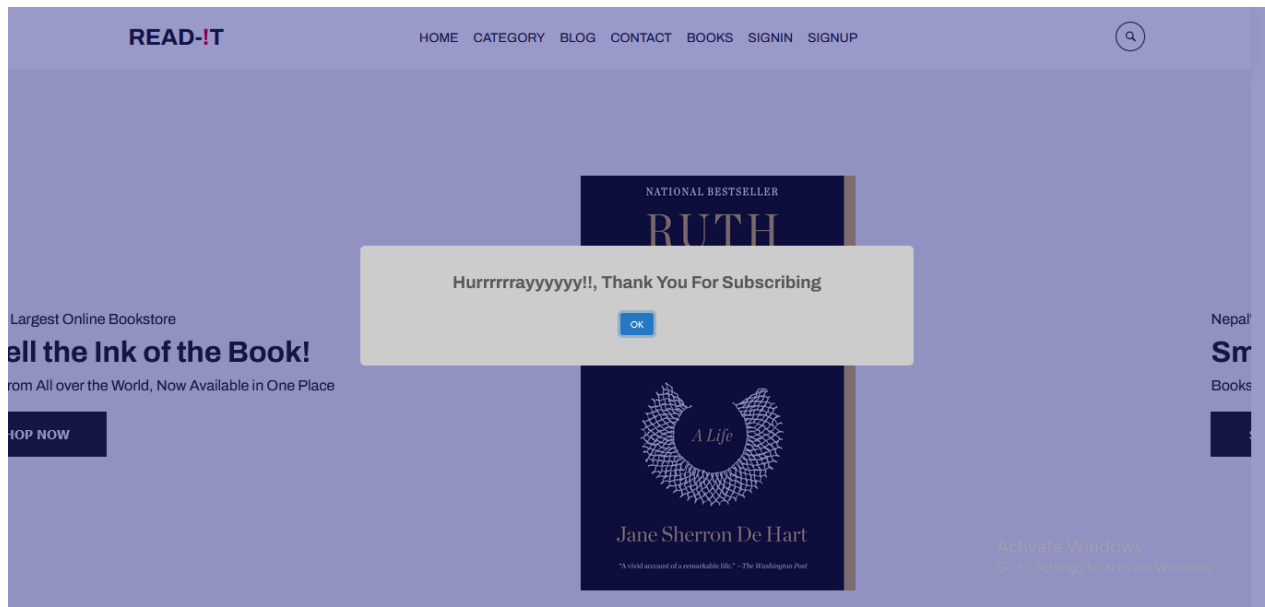


Figure 9 : Dialogue for Closure

3.5. Offer Simple Error Handling

Here the interface tells the user what went wrong while the user is trying to do something which enables user to easily use the website. For example when user forgets to enter data to any field mentioned in sign up page they are requested to fill it before sign up.

SIGN-UP FORM

First Name

Bhuwan

Last Name

Pandit

Password

••••••

Confirm Password

••••••

Gender

Select

Email Address

Please select an item in the list.

Phone Number

9843197848

Address

manamaiju, kathmandu

Postal Code

44600

☐ Agreed to terms and conditions

Register

Figure 10 : Simple Error Handling

3.6. Permit Easy Reversal of Action

Human makes mistakes and it is likely that users make mistakes as well so, the interface that I have designed allows to go back to the initial stage. For example when a user mistakenly adds books to their cart they can easily remove the item from their cart by clicking on the delete icon.

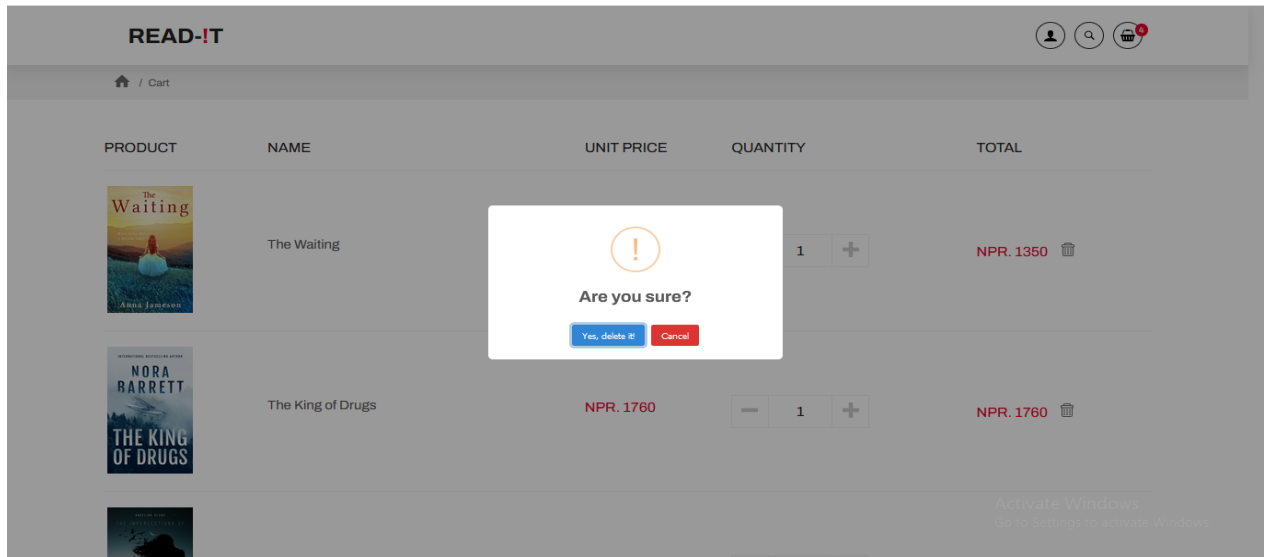


Figure 11 : Easy Reversal of Action

3.7. Support Internal Locus of Support

Users are initiators for the interface that I have designed, they can do whatever they want. When a user goes to the book shop to buy book they choose the book as per their wish and they can either buy it or not so it is necessary for system to behave as they want. For example, they can delete or go back to home page even the user are in checkout page.

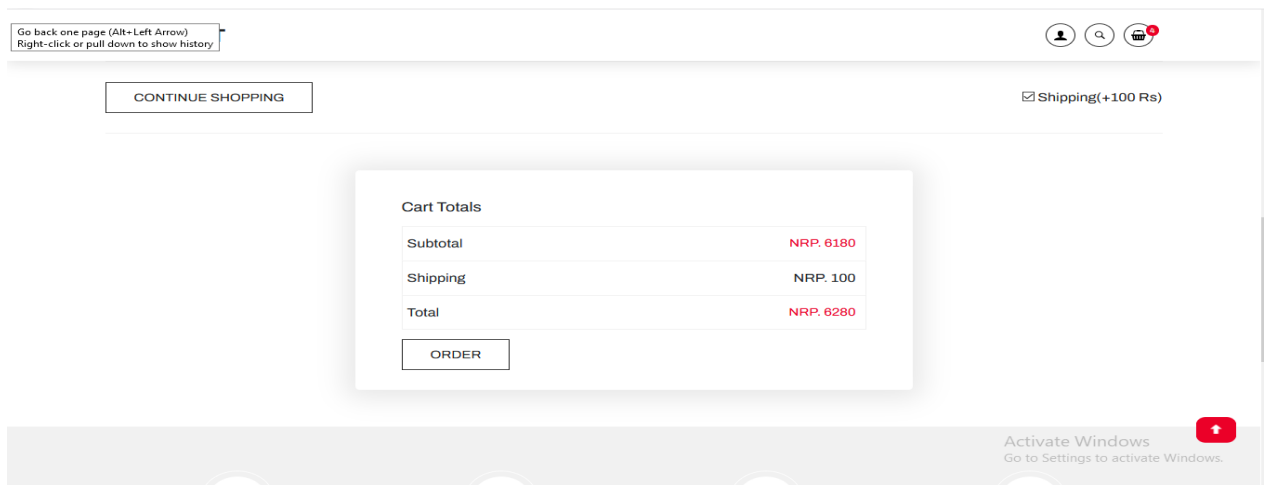


Figure 12 : Internal Locus of Control

3.8. Reduce Short-term Memory Load

The interface that I have designed is simple with proper information hierarchy. The interface supports recognition over recall as user doesn't need to remember anything as there is options available for everything they want in the menu bar such as all books, category, icons that can be recognized.

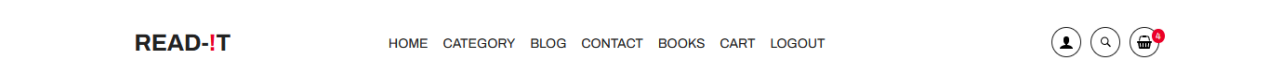


Figure 13 : Short-term Memory Load

While testing the accessibility and performance of the interface, I have used google lighthouse. Google lighthouse is a free tool which gives powerful insights to make the interface better. The interface that I have created consists of proper accessibility feature and have nice performance due to consistent design and proper function usability. Below are the reports generated by google light house.

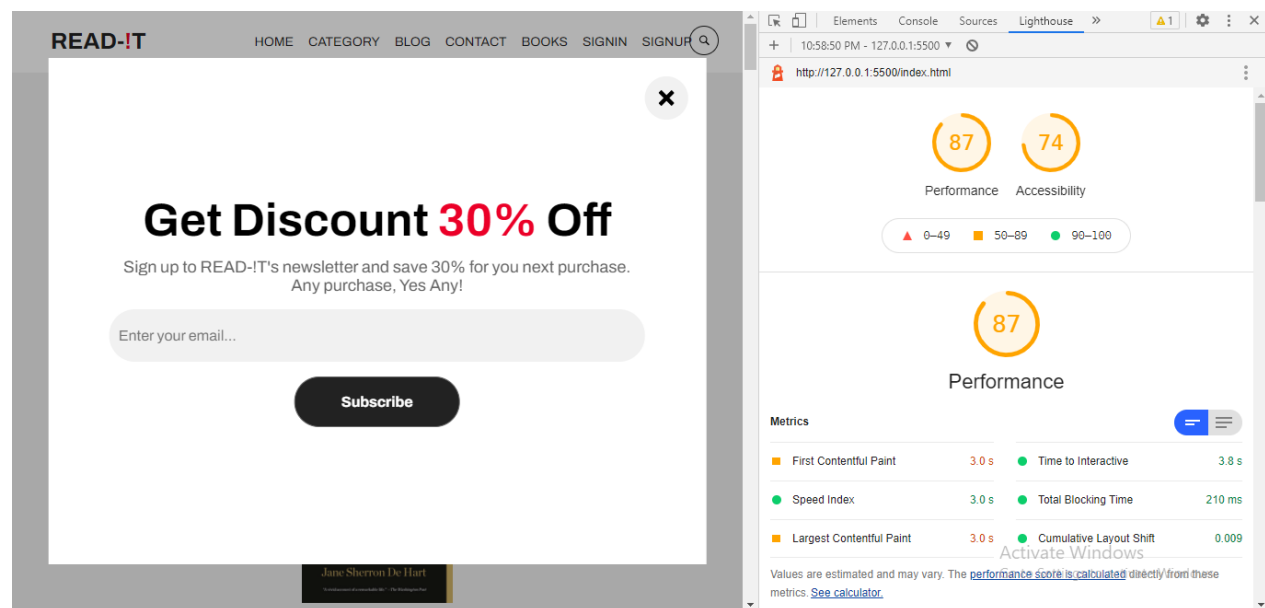


Figure 14 : Overall Score

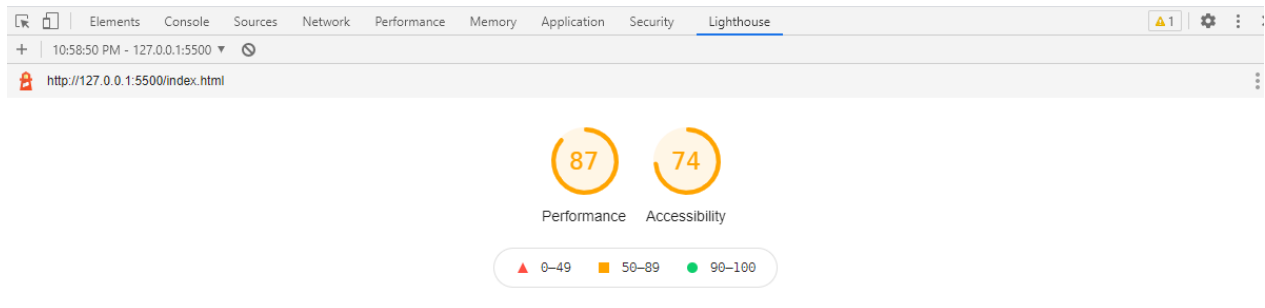


Figure 15 : Performance and Accessibility Score

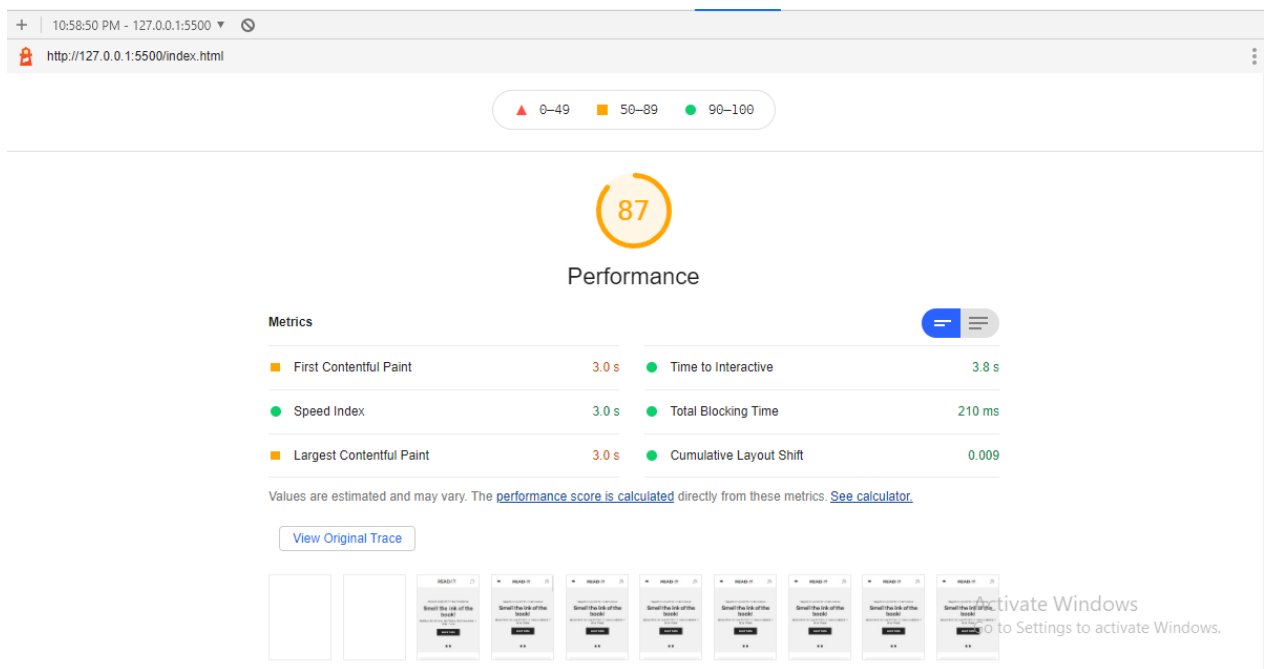


Figure 16 : Performance Report

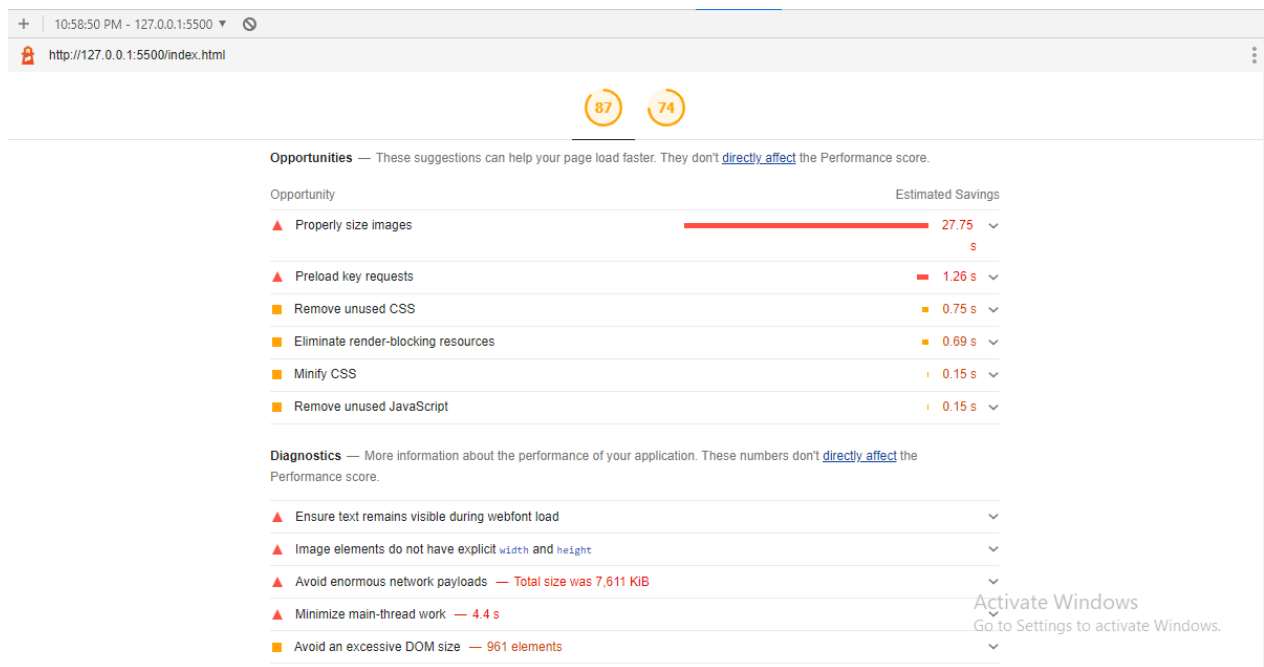


Figure 17 : Performance Report

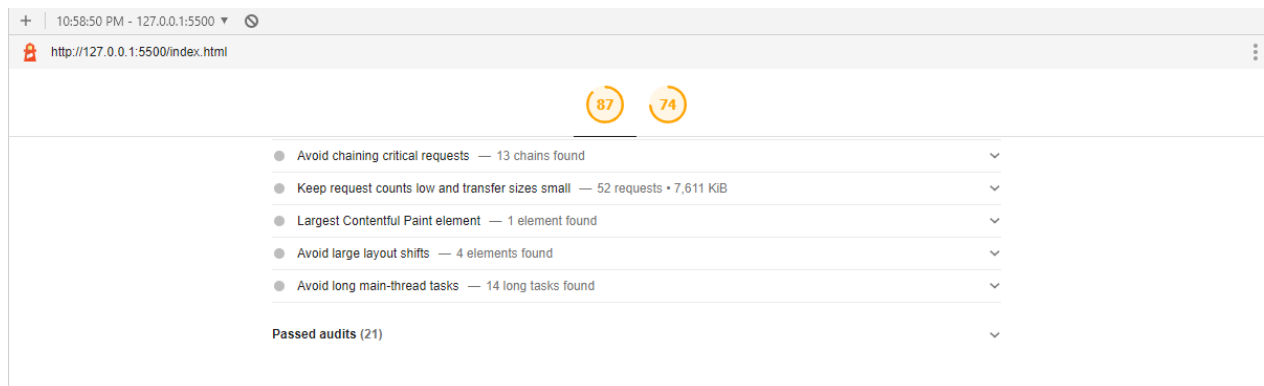


Figure 18 : Performance Report

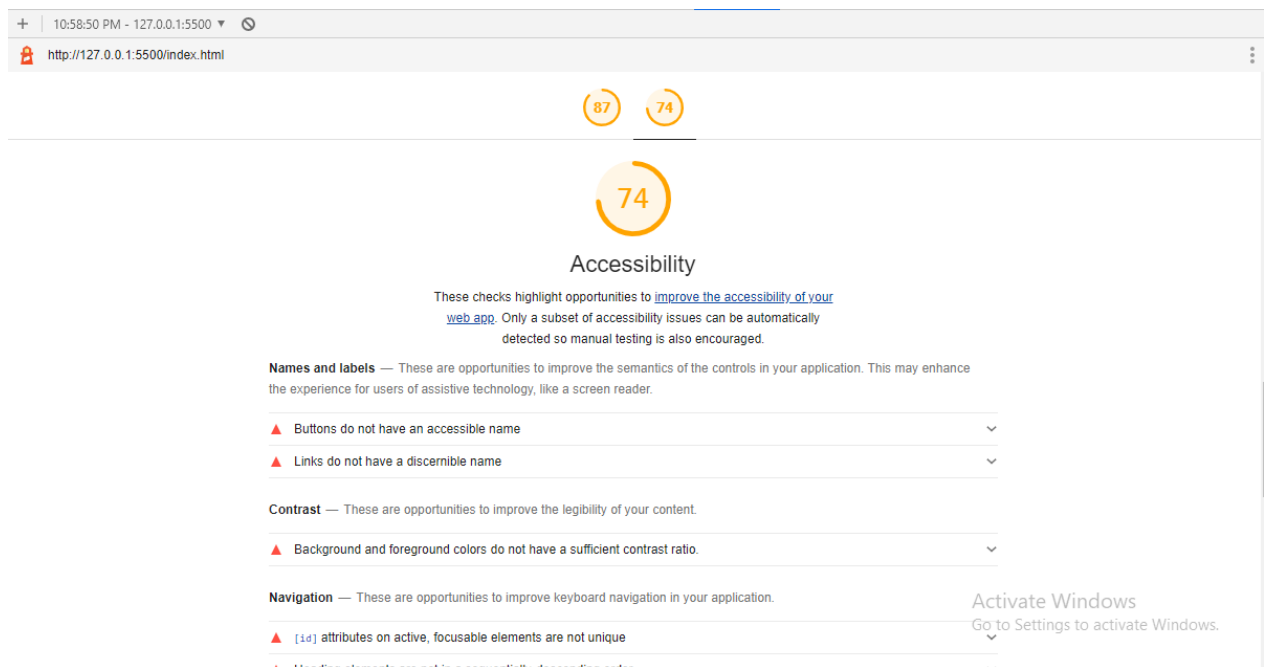


Figure 19 : Accessibility Report

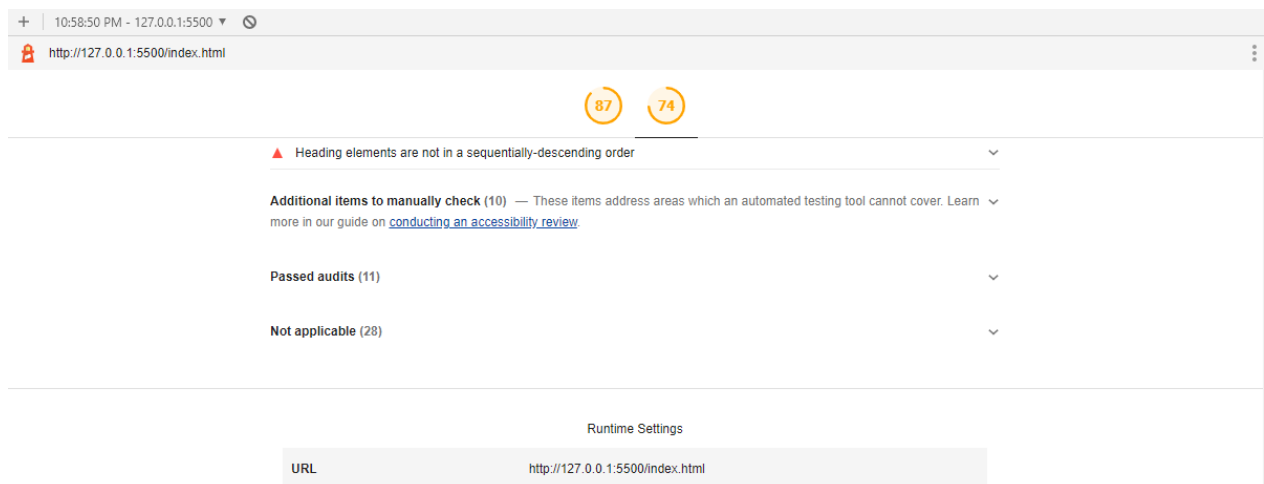


Figure 20 : Accessibility Report

Device	Emulated Moto G4
Network throttling	150 ms TCP RTT, 1,638.4 Kbps throughput (Simulated)
CPU throttling	4x slowdown (Simulated)
Channel	devtools
User agent (host)	Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/90.0.4430.212 Safari/537.36
User agent (network)	Mozilla/5.0 (Linux; Android 7.0; Moto G (4)) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/90.0.4420.0 Mobile Safari/537.36 Chrome-Lighthouse
CPU/Memory Power	1125
Axe version	4.1.2

Generated by Lighthouse 7.2.0 | [File an issue](#)

Activate Windows
Go to Settings to activate Windows.

Figure 21 : Accessibility Report

4. Conclusion

This assignment have taught lots of things regarding interface development. I never imagined that users are attracted by the design of website as well. I learned more about web development technologies as well and learned about the different principals to evaluate and test the interface design.

I used balsamiq tool to develop the wireframe, looked over different interface of online store and selected the most important features and removed the features that are not necessary as well as tried to maximize the accessibility of the interface as much as possible. Both the design process and evaluation process helped to improve the interface design as I had proper guideline to design the interface and I didn't need to stumble to select the functionality of the website as well.

With the help of this assignment which was given to us by our university, I now feel that I have a more understanding of interface design principals, which will come in handy in the coming days in the future. These principles will undoubtedly be applied while creating any type of user interface. I'd want to express my gratitude to all of the professors, friends, and family members that assisted me with my report once more.

5. Appendix

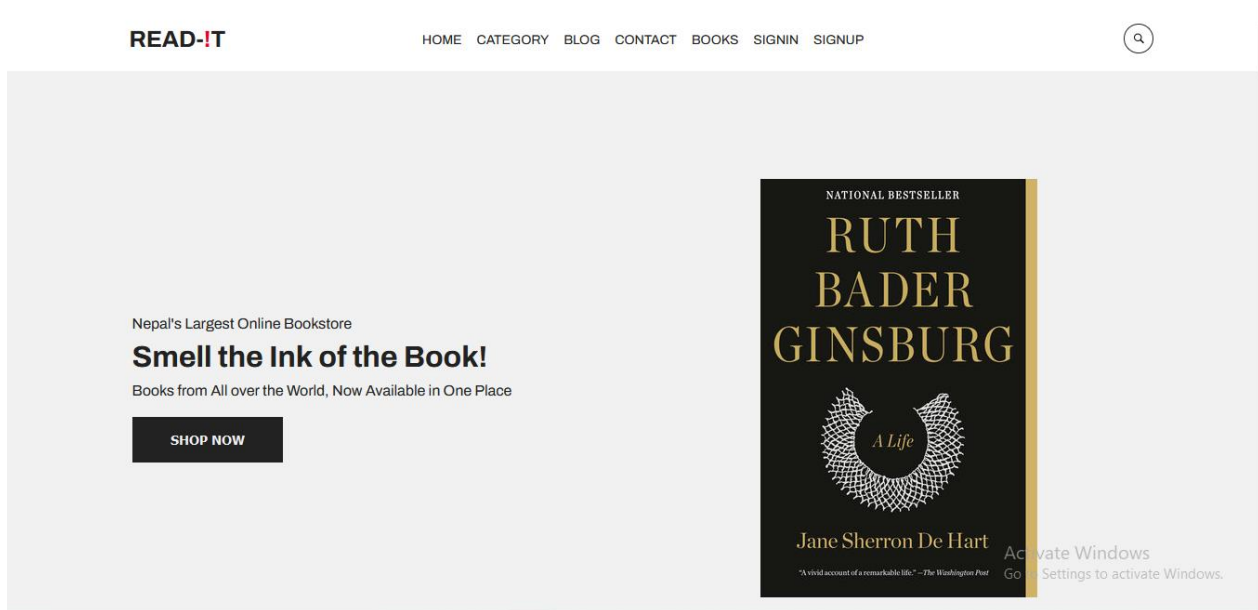


Figure 22 : Landing Page

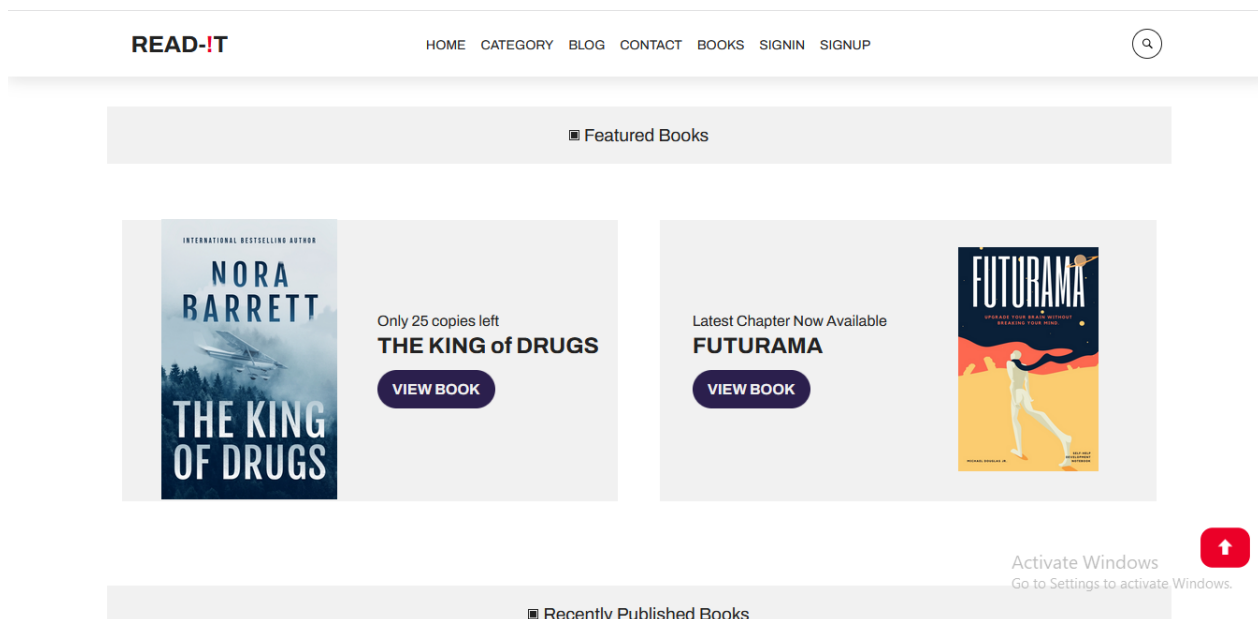


Figure 23 : Featured Book Section

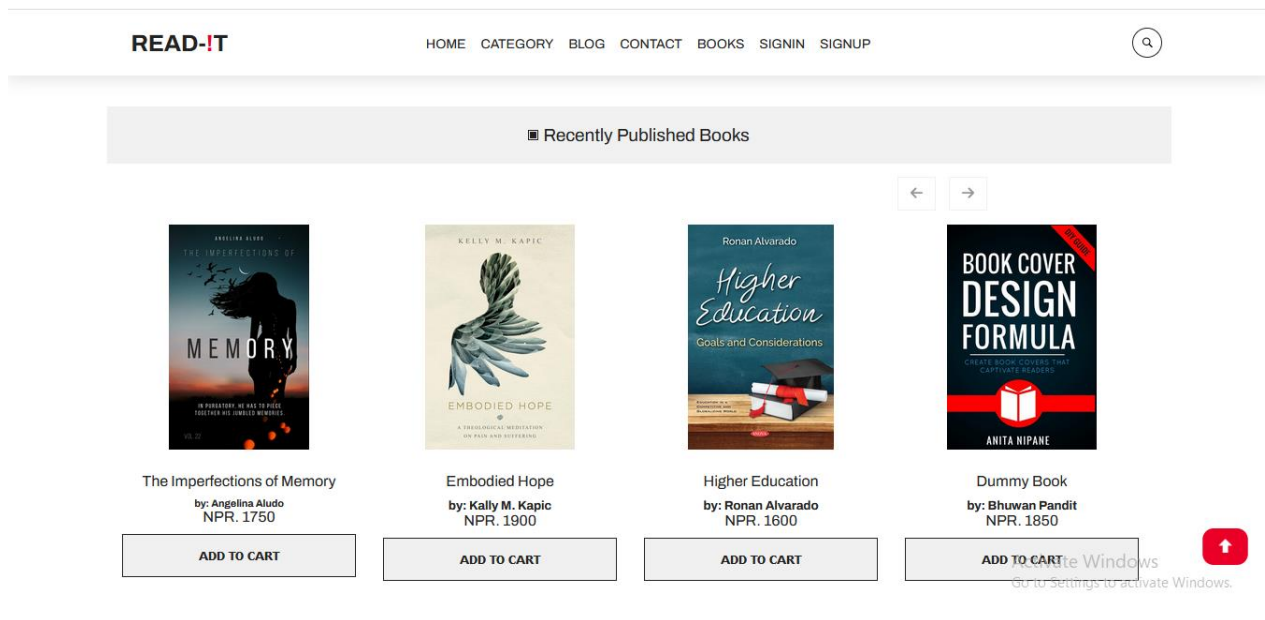


Figure 24 : Recently Published Book Section

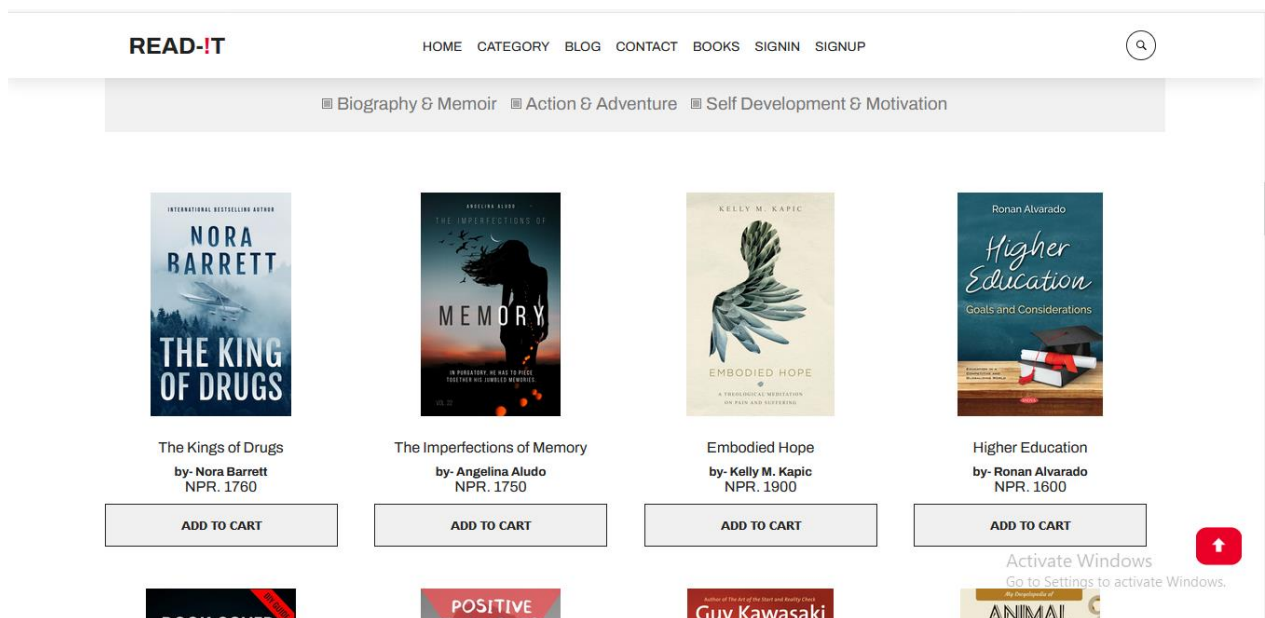


Figure 25 : Category Section

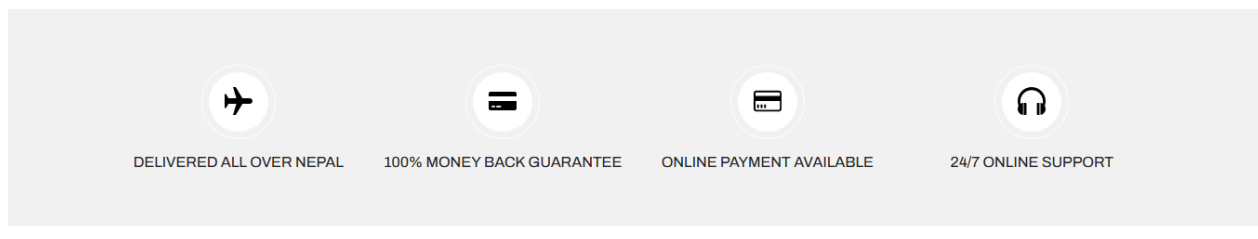


Figure 26 : Services Section

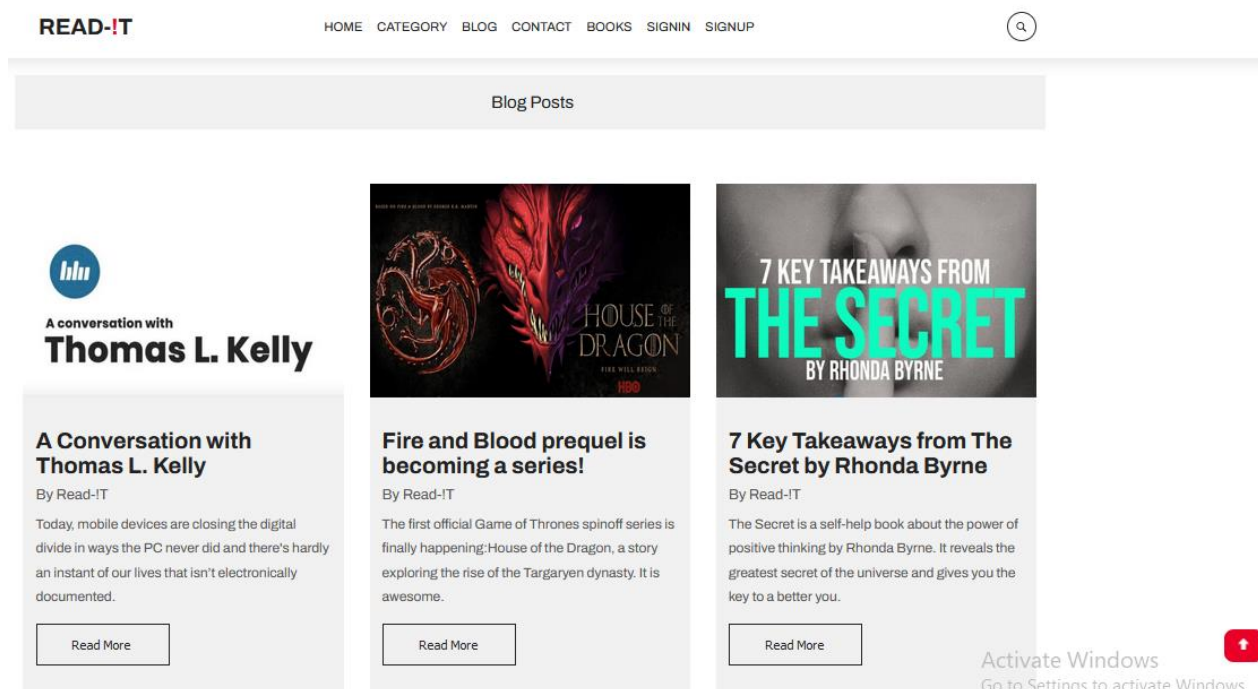


Figure 27 : Blog Section

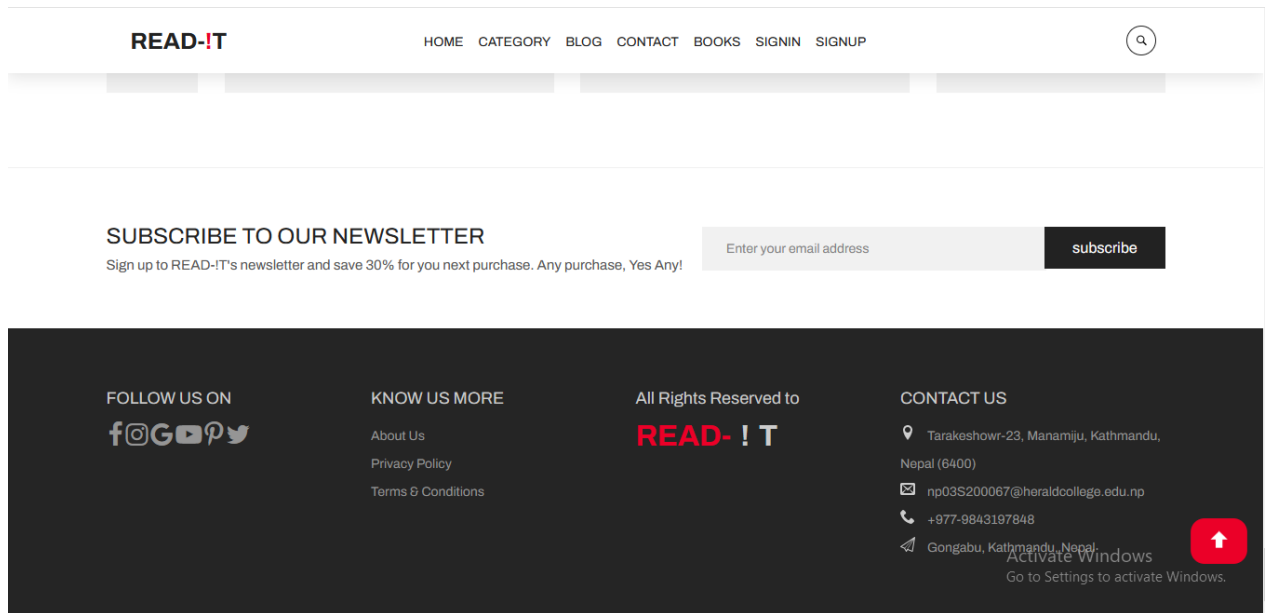


Figure 28 : Newsletter and Footer Section

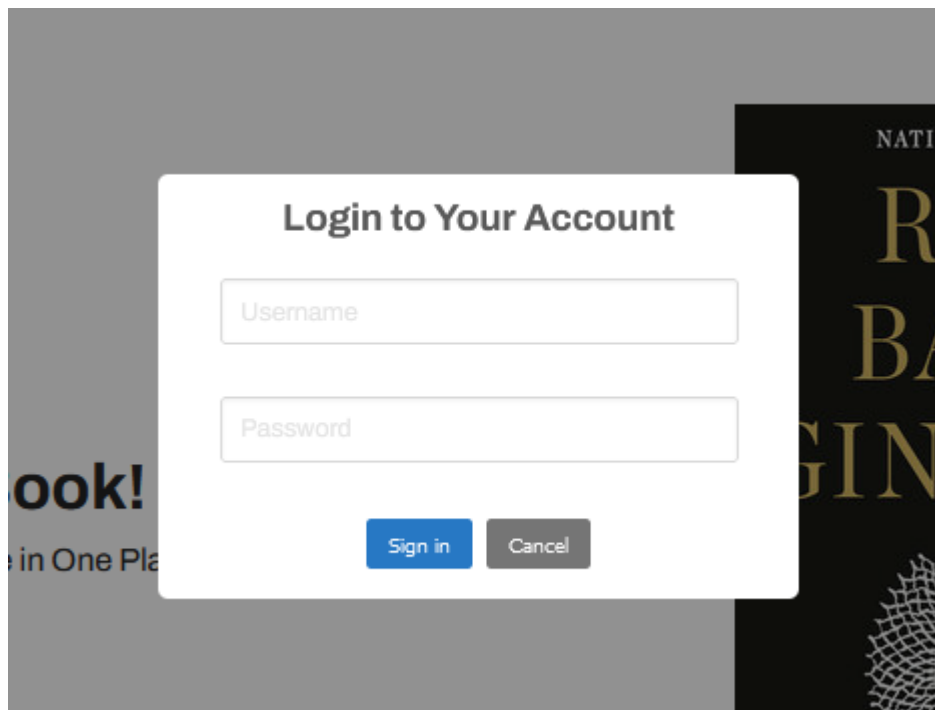


Figure 29 : Login Prompt

SIGN-UP FORM

First Name

Last Name

Password

Confirm Password

Gender

Select▼

Email Address

Phone Number

Address

Postal Code

☒ Agreed to terms and conditions

Register

Figure 30 : SignUp Form

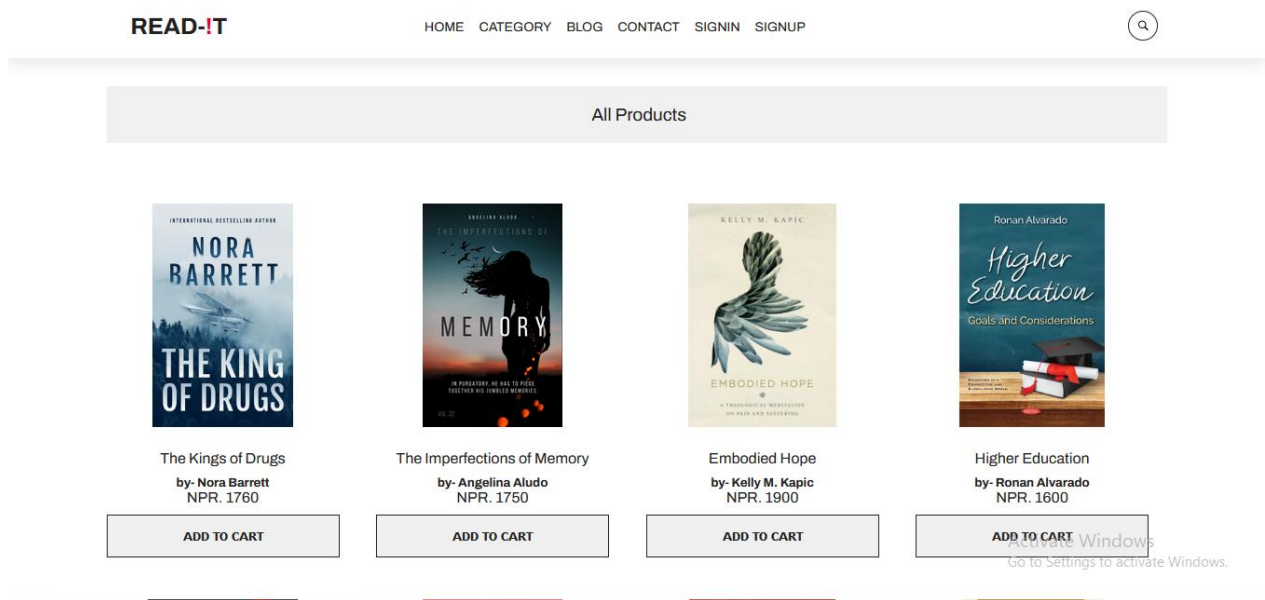


Figure 31 : All Books Page

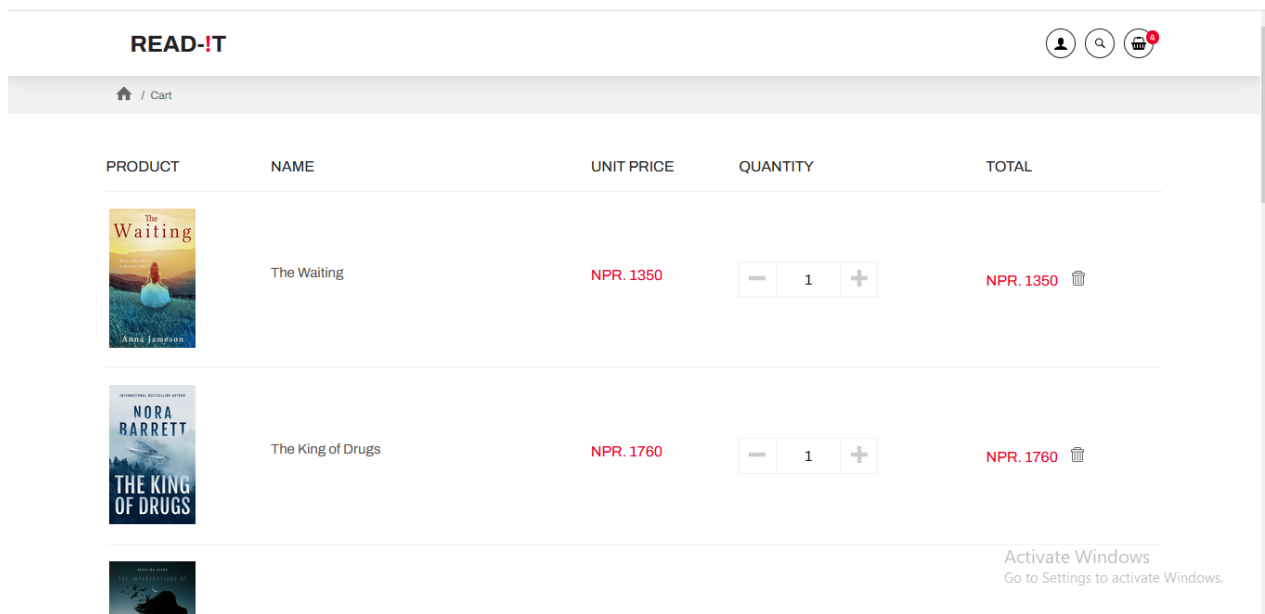


Figure 32 : Cart Page

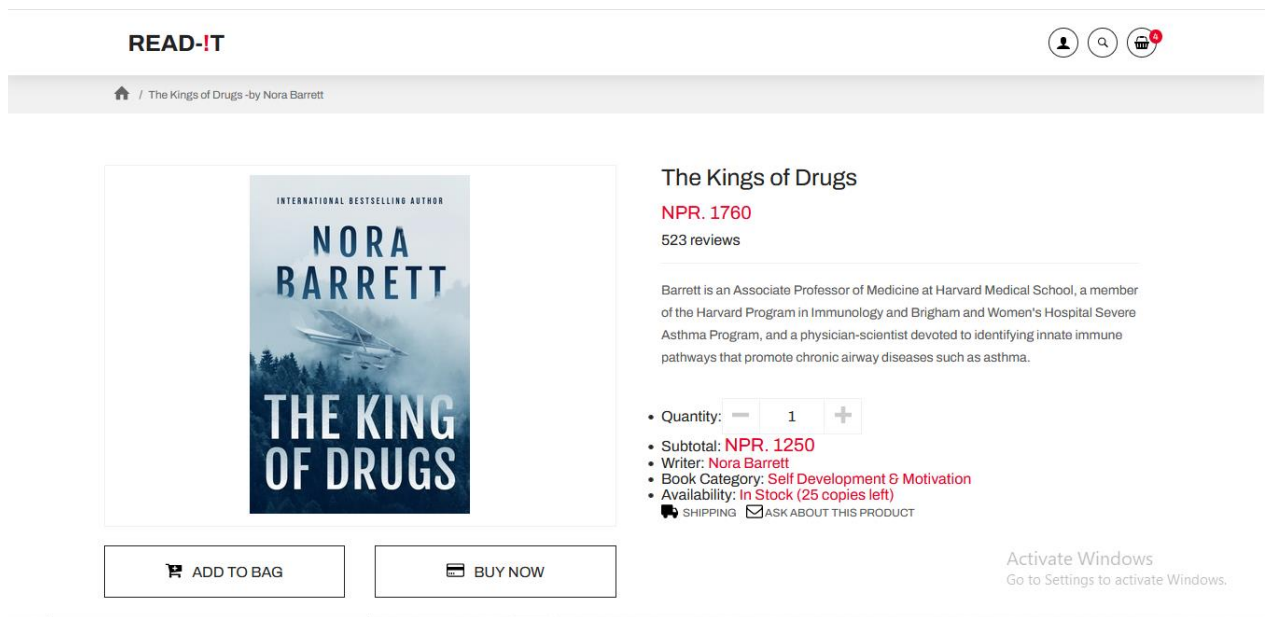


Figure 33 : About Book Page

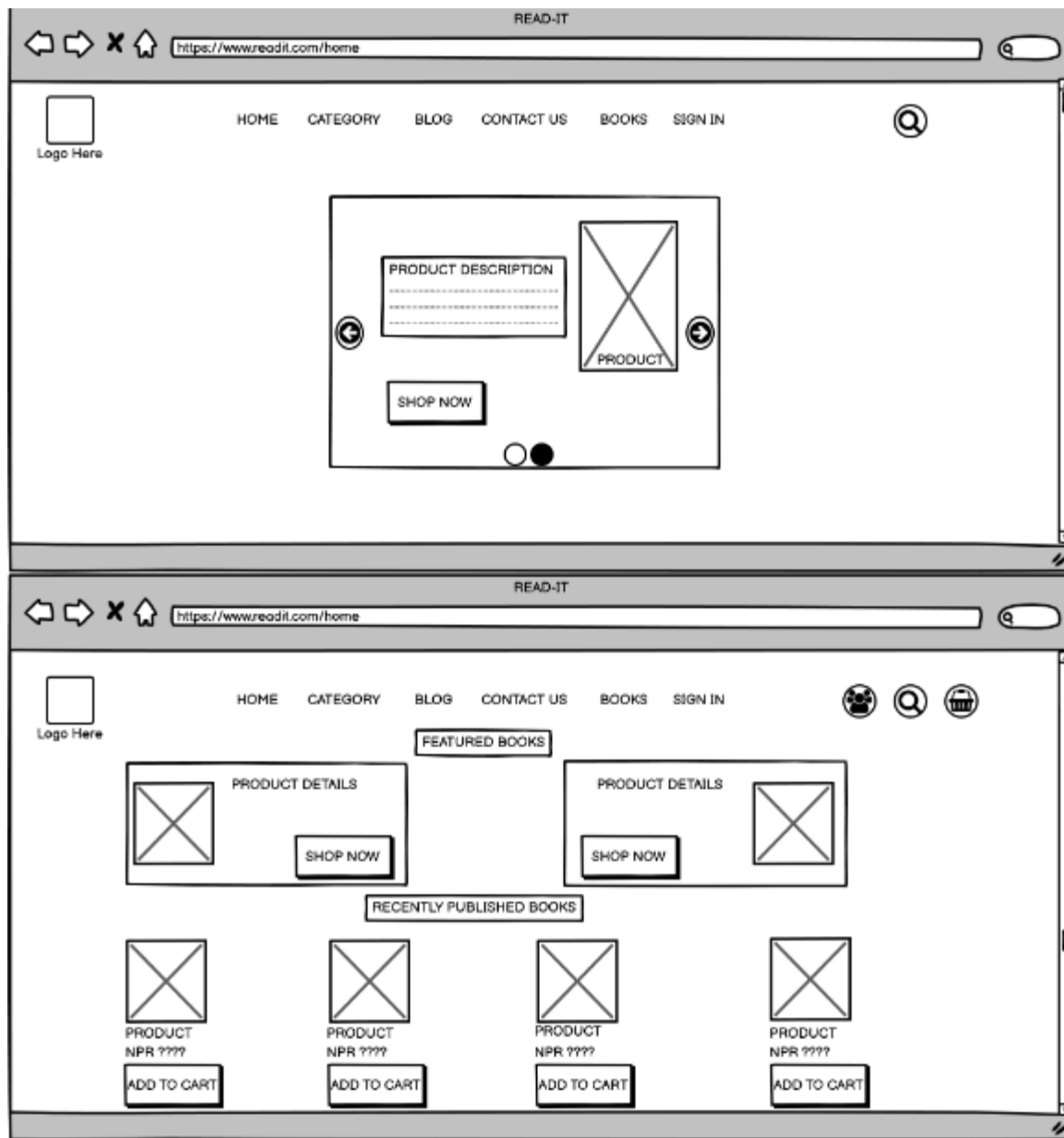


Figure 34 : Landing Page Wireframe

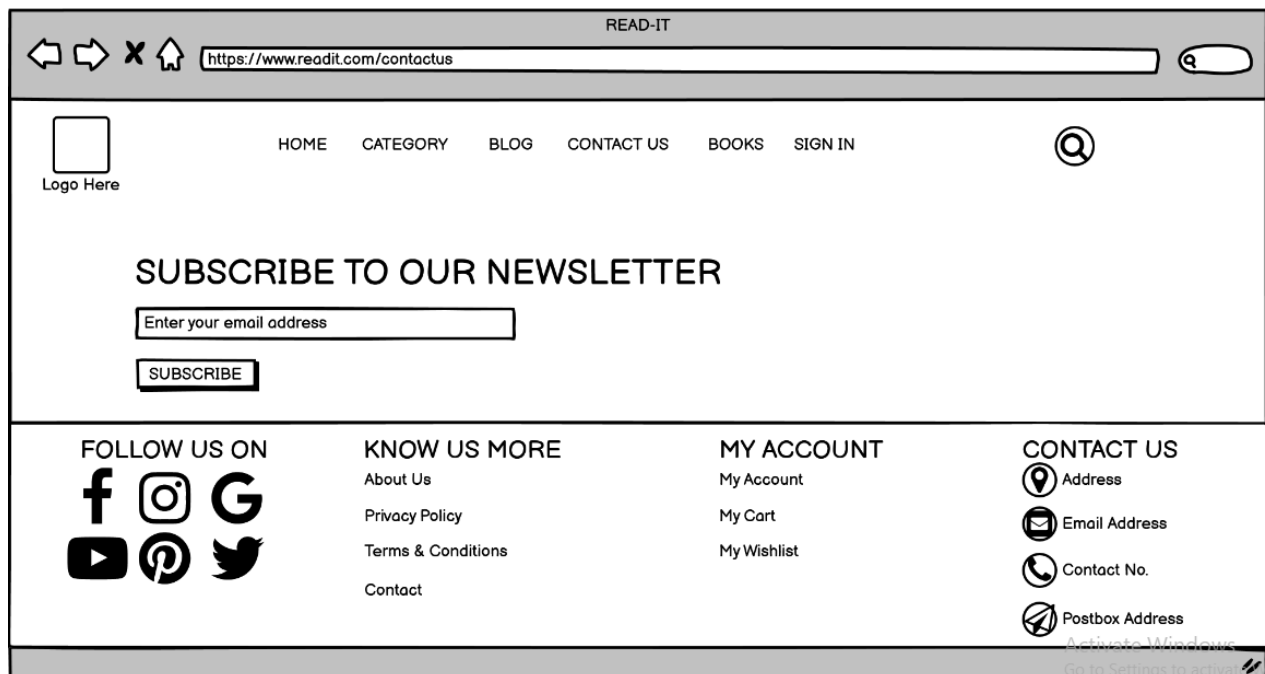


Figure 35 : Newsletter and Footer Wireframe

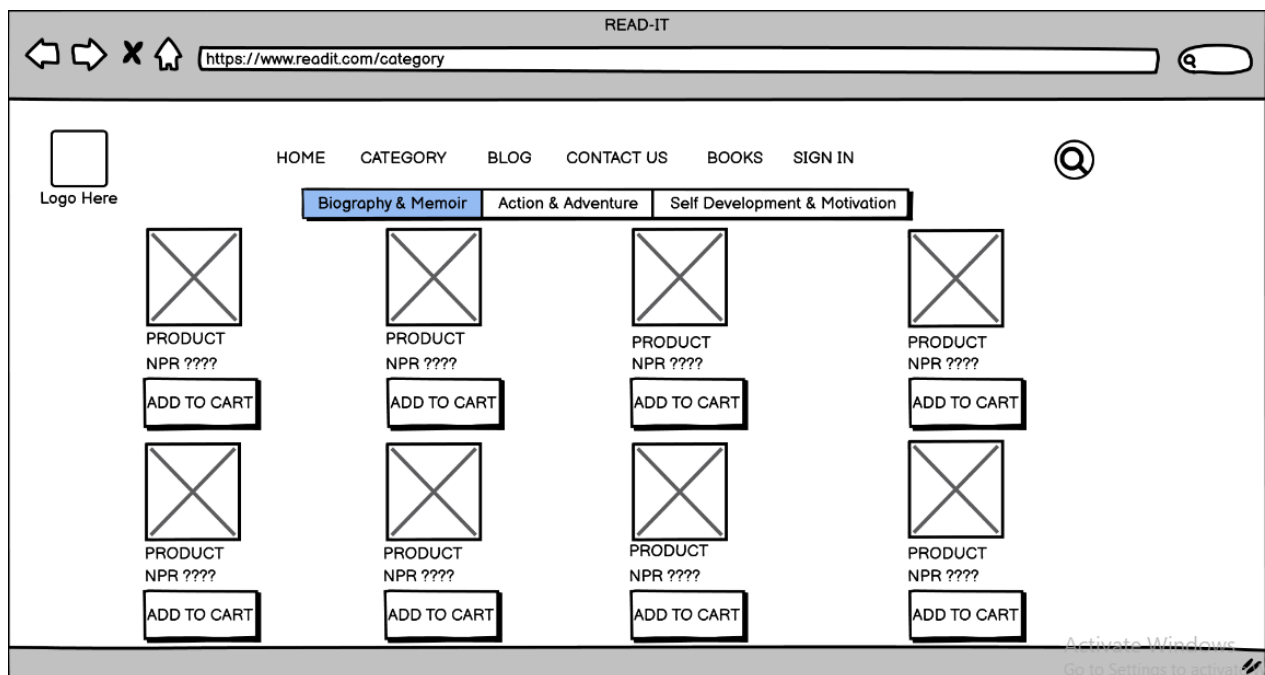


Figure 36 : Category Section

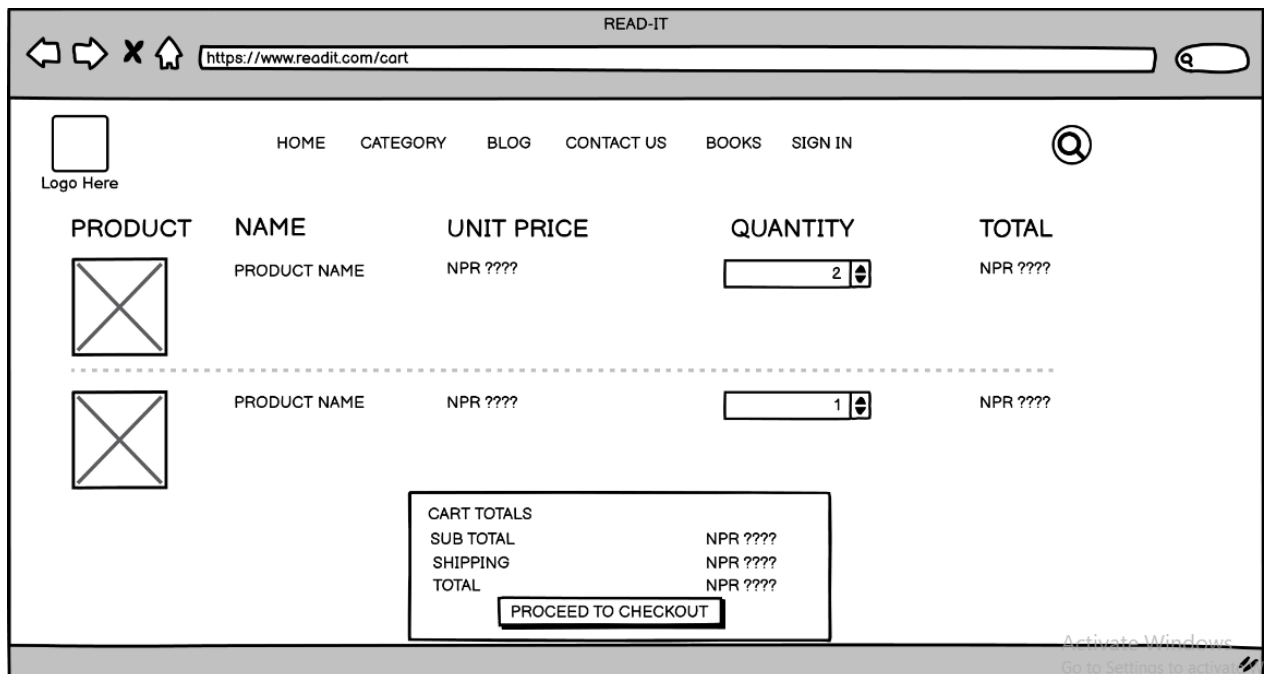


Figure 37 : Cart Page Wireframe

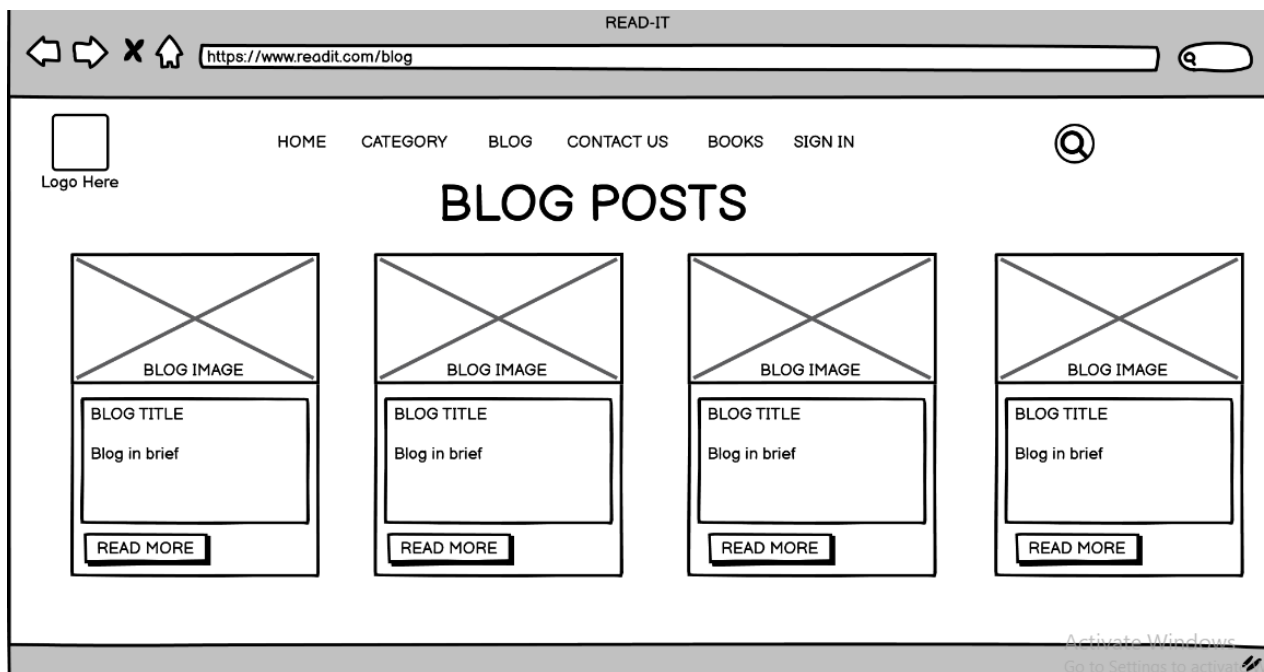


Figure 38 : Blog Section Wireframe

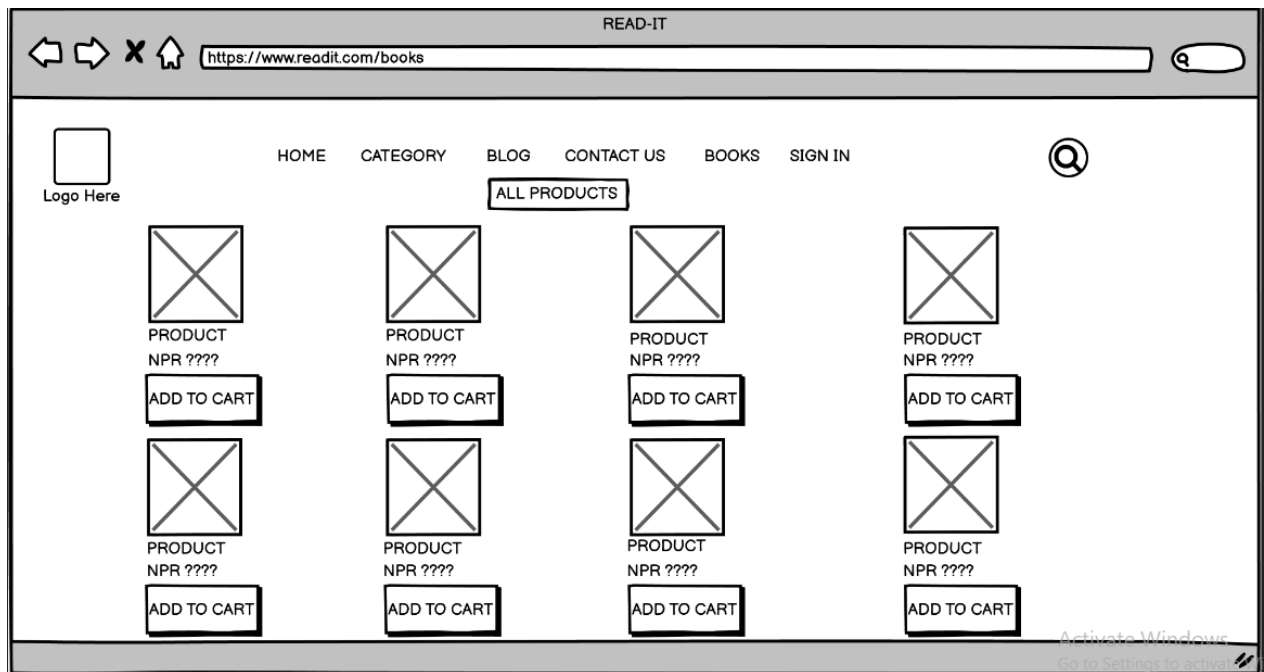


Figure 39 : All Products Page Wireframe

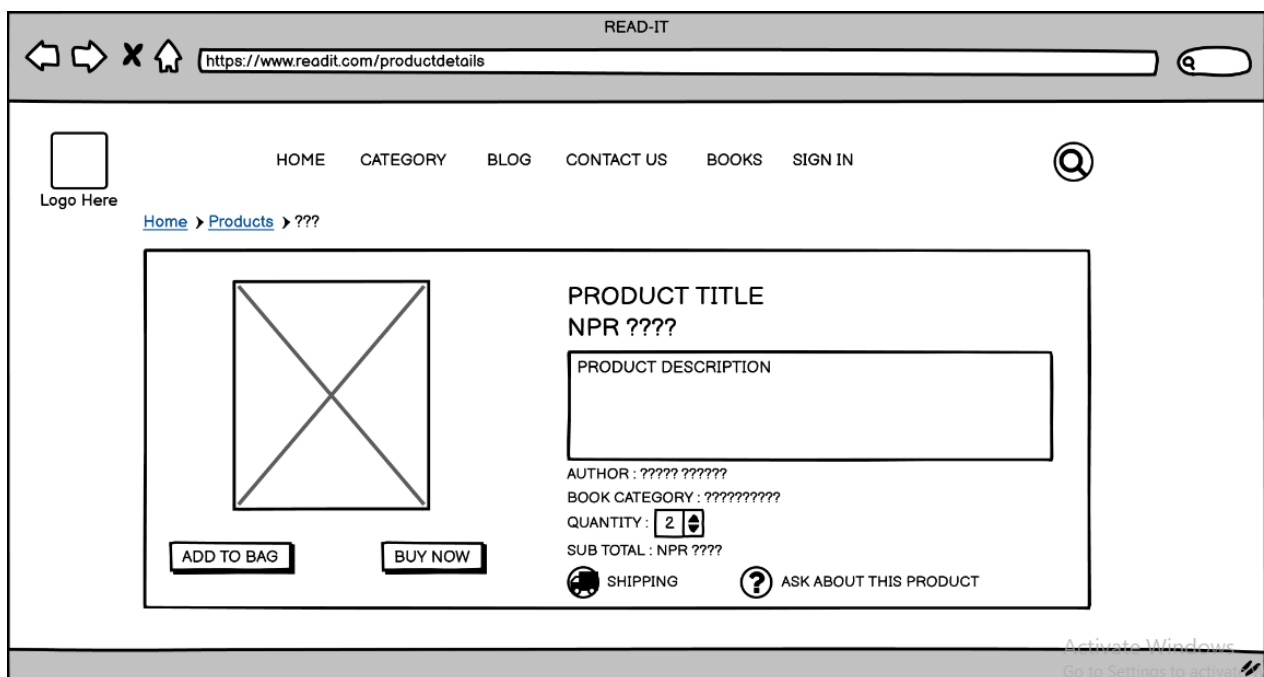


Figure 40 : About Product Page Wireframe