

COMP 3020 – MILESTONE 4

Methodology:

The Heuristic Evaluation we chose to do on our project was comprised of all 5 team members, the process of which is described in the following sequence. Individually each group member will traverse through each page of the website looking for violations of each of Nielsen's heuristics. This will result in 10 passes of the website looking for these violations. Each inspector will then rank the severity of the flaws found, creating a list of issues found ranked by severity. Once each inspector has aggregated their results, we will then come together sharing our findings. Each investigator will take a turn going through and explaining the violations found, allowing for other investigators to either agree or disagree with their findings. Once each investigator has shared their findings, we will then re-rank their importance as a collective. Some additional importance will be given to conflicts found by multiple of the investigators as they are more likely to be detrimental and noticeable to the future users. For the purpose of this report, we will then each select 2 of the heuristic violations we found most important to highlight within our report and leave any extras in the appendix under our individual raw notes. With this heuristic evaluation, we expect to catch 75% of the usability issues and use the information gathered to implement the appropriate changes to our system design in the future.

VIOLATION 1:

Severity: S4

---- *Issue*

Pricing info banner does not come back if someone removes it by mistake by pressing 'x'

---- *Why it's a problem*

Pricing info is very important as it creates transparency for the customers before purchasing anything. The "length" of bike rental also depends on the users knowing the difference between a full day and half day. So, the information banner is very fragile to accidental clicks (or even curious clicks) by the users. It does not come back unless the user refreshes the site and starts over the booking process again. *"Help and Documentation"* (H9)

---- *How to fix it*

A removable banner is not a good choice for important information. A better idea would be to make it a concrete piece of content on the website by using a div or something. It could be placed again on top of the page as well as beside the Length title, just to create supplementary measures to convey important info to the users.



VIOLATION 2:

Severity: S4

----Issue

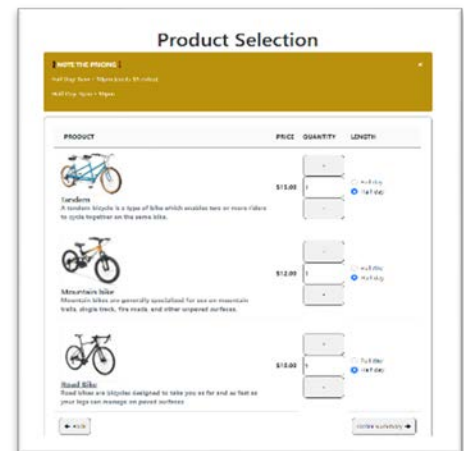
On the bike selection page, with the bike selection counter being at zero, users can still proceed to the checkout page. Even though the quantity selection box requires at least 1 selection for the selection of a bike.

----Why it is a problem

It is a problem because there is no way of telling the user that they have not selected a bike to rent because it is the quantity of the bike that helps to select the type of bike a user wants to use. This does not catch the user's attention that they need to select a quantity not less than 1. "Error prevention" (H5)

----How to fix it

This problem can be fixed by creating an error message that pops up when they click the proceed button e.g., "select a quantity for a bike" to alert the user that a selection is required to proceed to the next page, and they should not be able to proceed if a selection has not been made.



VIOLATION 3:

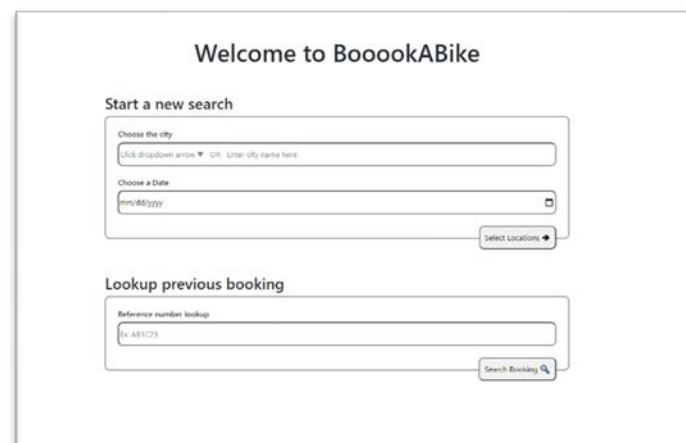
Severity: S4

----Issue

There is no help or support information provided on any page. Furthermore, the page never provides company contact information for users in the case of the users requiring further help or support.

----Why it is a problem

This could cause users to feel helpless when they are facing issues. The help section is one of the last places a website visitor will look before deciding to give up and search for an alternative website that will fulfill their requirements. Thus, the help section is a major key in user retention. This issue falls under "Help and documentation" (H9).



----**How to fix it**

A live chat or a list of frequently asked questions with answers can easily solve this issue. And not to forget, provide company contact information to users, so users can reach to a real representative to discuss their concerns.

VIOLATION 4:

Severity: S4

----**Issue**

On the welcome page, it shows that the user is on a website called BoookABike but doesn't give further indication or assurances that the user is specifically on the website they are looking for. Therefore, this is a violation of "Visibility of system status" (H0).

----**Why it's a problem (Usability safety Issue)**

This could be a problem in a situation where multiple bikes booking websites exist, and a user ends up booking a bike on the wrong website only realizing after going through the whole processes of booking the bike.

----**How to fix it**

A logo is usually an easy, fast, and an accurate way to show and remind that the user is on the right website. Furthermore, an about page is where a user can read about the company and concluded that they are indeed on the right website and have remained on the same website during the entire scheduling process.

VIOLATION 5:

Severity: S4

---- **Issue**

On homepage, the "Select Locations →" button can be clicked with none, or just one of the fields entered. Even though the Search demands both items be filled in correctly to proceed. The button does the error checking only when its pressed.

----**Why it's a problem**

There is no indication for the user on the page that explicitly says both fields are required. Neither the fields nor the button reflects that System requirement at a glance, this creates Gulf of execution for the user as they might not have right idea on what info is required to move further. For example, user might only enter city name and try to search for available locations without entering the date.

The screenshot shows the 'Welcome to BoookABike' page. Under the heading 'Start a new search', there are two input fields: 'Choose the city' (containing 'Winnipeg, MB') and 'Choose a Date' (containing '2022-04-15'). To the right of the date field is a 'Select Locations' button with a dropdown arrow. Below this is a 'Lookup previous booking' section with a 'Reference number lookup' field (containing '48123') and a 'Search Booking' button with a dropdown arrow.

This screenshot is similar to the previous one but shows a different state. The 'Choose the city' field now contains 'some random input blah blah'. The 'Choose a Date' field contains '01/01/1111'. The 'Select Locations' button now has a right-pointing arrow instead of a dropdown arrow, indicating it is active or has been clicked.

The button, however, creates alerts on click to inform about the invalid inputs, but it means that the user is not corrected instantaneously, therefore, resulting in frustrations for them for having to redo the form filling from beginning. *"Visibility of system status"* (H0)

----How to fix it

Put asterisk or similar indications to convey that those fields are required to proceed. Also make instantaneous checks for City and Date field that alerts the users as soon as they Type or select the wrong input.

We could also make the "Select Locations →" button greyed out and only make it clickable when all the inputs are valid. (Note: this idea could be used throughout the UI at places where it requires input validity)

VIOLATION 6:

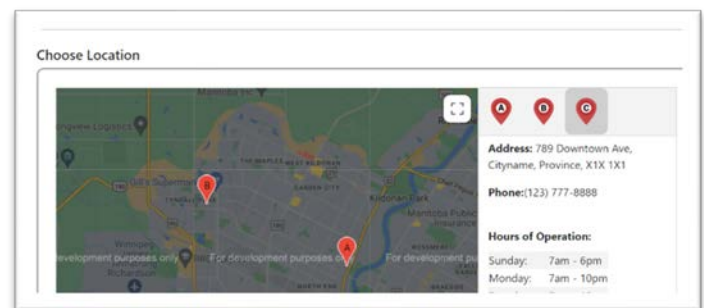
Severity: S3

---- Issue

Clicking pins on map does not consistently select Location pins on the right side which show details.

----Why it's a problem

Users can't be expected to click only on non-map pins to select locations. A modern user is accustomed to seeing pins on digital maps and clicking them to see more information. In this UI, if they click the map pins to select a location, nothing will happen on the page which will result in another Gulf of execution for the user. *"Flexibility and efficiency of use"* (H7)



----How to fix it

Connect the map pins functionality to the info section on the right side allowing for a more seamless use of the system without faults.

VIOLATION 7:

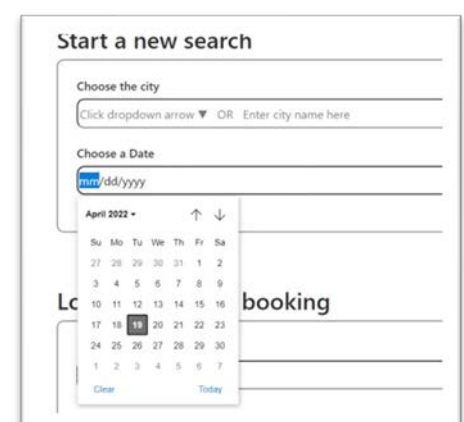
Severity: S3

----Issue

The issue as seen in this screenshot is the ability to pick dates that are in the past when selecting the date of the booking. An error message does pop up to correct the user after the incorrect date has been selected however the dates on the calendar are indistinguishable.

----Why it is a problem

This is an issue with the design under the heuristic *"Error Prevention"* (H5). The goal of the heuristic error prevention is to make it extremely



hard for the user to make the error in the first place. Even though the error does have a message that corrects the users we must still have systems in place to prevent the user from making that error in the first place.

----How to fix it

To fix this issue we must change the calendar dates that are in the past to be unselect able. By doing this we will almost completely eliminate the users' error of selecting a date in past. The only way the error could continue to happen would be if they chose to type in the wrong date into the date field. This would be a simple yet effective fix and would also make the current date more visible to the users.

VIOLATION 8:

Severity: S2

----Issue

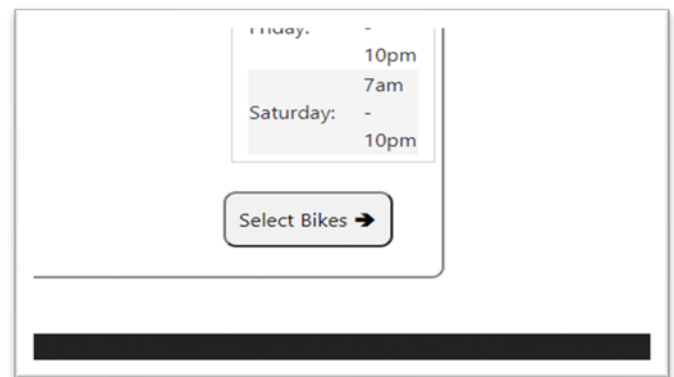
On each page, there is a confirmation button that allows users to confirm what they just entered for their order, and this confirmation button also directs users to the next stage of their processing order. However, there is no further confirmation for users to ensure what they just selected(entered) once again before they go to the next stage.

----Why it is a problem

It does not allow users to ensure their order again before going to a new page. So, users might miss their chance to diagnose their mistakes on the current page. Therefore, this does not really help users to "Recognize, Diagnose, and Recover from Errors" (H4).

----How to fix it

The easiest solution to this issue would be to add a pop-up box that contains a summary of the current order. This pop-up box would be triggered by clicking the confirmation button, so the user will have a second chance to confirm what they have done for the current stage before continuing to the next stage in the scheduling process.



VIOLATION 9:

Severity: S1

----**Issue**

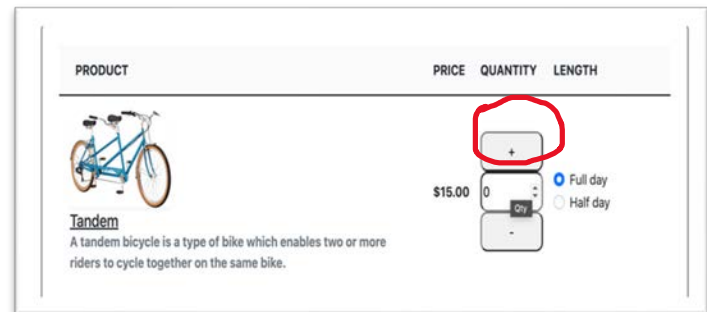
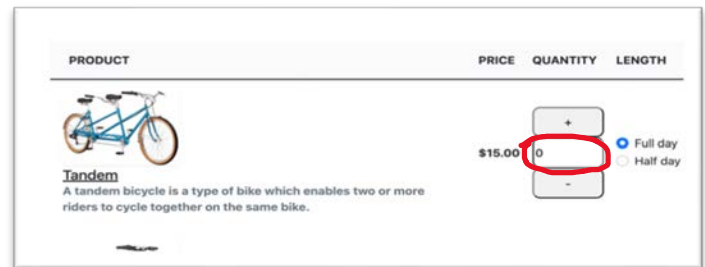
On the product selection page, the add and subtract button for bike quantity are not instantly visible which can lead to confusion with users of all types. This is a visibility of system status as the user will have to hover around the text to see the button to add or drop a bike.

----**Why it's a problem (Usability safety Issue)**

It hinders the effectiveness of the website as the main purpose of the website is to enable a user to choose from several bikes and to pick as many as they want for booking. It also leaves user confused affecting the user experience. *"Visibility of system status"* (H0)

----**How to fix it**

A visible button like the one above the quantity box that would enable the user to add or reduce quantity of the bike. It is bigger, clearer, and very visible for user and it improves user experience.



VIOLATION 10:

Severity: S1

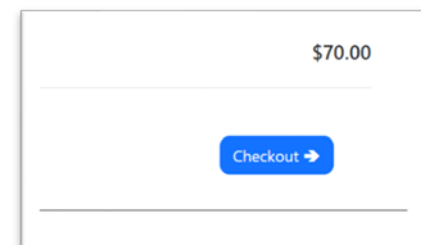
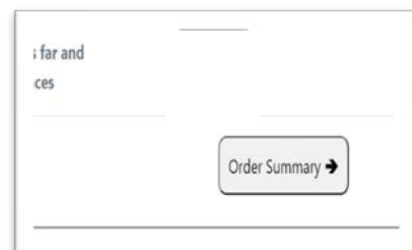
----**Issue**

Next buttons i.e., checkout and order summary are not all same color, and the full day/half day selector is not plain or greyed out clear when zero bikes are selected.

----**Why it is a problem**

It is a problem because firstly, the next buttons being different colors can also be confusing to users and they may think each next buttons serves a different purpose due to inconsistency in the look.

The issue of the half day/full day selector being selected already – when 0 bikes are selected – can be misleading and can lead to potential errors being made by the user and may not be noticeable until they get to the checkout page where they realize what they wanted to order does not correspond with what they actually ordered. *"Consistency and standards"* (H3)



----How to fix it

This problem can be fixed by making the half day / full day selection slot blank / plain white therefore not creating any room for mistakes in case the user thought they had selected when they had not and by making all next buttons the same color to avoid confusion and create consistency across all pages.

Summary:

After completing the entire process of generating an idea, creating a low fidelity prototype, acquiring user feedback, implementing the user feedback into a high-fidelity prototype and finally performing an in-depth heuristic evaluation on our Bike rental scheduling system. With all that experience under our belts as a group in mind we can confidently say that in the system's current state we would not recommend its use. The system is currently riddled with multiple S3 and higher severity heuristic violations making the system very unstable and unready for deployment. With all that said and our in-depth look at the many issues that are currently plaguing the high-fidelity prototype we do still believe that this idea has a tiny hint of promise if we had much more time to keep iterating and developing with all the new information we have found in this heuristic evaluation. A couple of the concepts we were excited to implement did end up working to a good extent like the map API, page navigation and product descriptions. As rather unexperienced and beginner HTML coders we were very proud of the way those three features turned out. We tried our hardest to use the product descriptions to show our class knowledge of layout and design while using the Google Maps API to show our abilities to push the limits for beginner HTML coding. With all that being said and all that we have learned throughout the process the amount of work required to bring our system to a place where we would be comfortable recommending its use is extremely far down the line with many further hours of coding required to fix some of the many following issues. Those issues include but are not limited to the great deal of error handling and error prevention still required to be implemented in the input locations, the addition of color and design work to the interface and finally the page mathematics behind the checkout page, order summary page and addressing each heuristic violation found and even those not included in this report. Ultimately this was a great effort by our team and even through our failures we only uncovered further ways to continue improving our system if we so desired. The heuristic evaluation truly uncovered many more hidden issues in our system that without the fine-tooth comb of 5 "experts" we would have never uncovered or thought to improve.

Appendix:

Raw Notes

1. No extra confirmation like a pop box that allows users to ensure once again after they click the confirmation button. (**Help users to recognize, diagnose, and recover from errors**)
2. **Help and documentation:** It does not offer a "help " or "support" section that lets users get extra help. (
3. Within the checkout page, it does not have a clear button. So, users must go through text one by one if they want to use another card or use different contact information.
4. **Visibility of system status:** add or minus button not very visible, user would have to hover around the box before its visible.
5. **Consistency and standards:** attention messages should be the same color and consistent (usually red). We used two different colors for attention messages which makes our website inconsistency
6. **Aesthetic and minimalist design:** add or minus button does not work and is unnecessary and confusing.
7. **Help and documentation:** help/ support page missing for users when they need help navigating the website.
8. No return button on confirmation page or summary of order when looking up past booking (user control and freedom)
9. Next Buttons should all be blue (consistency)
10. Dates in the calendar that are in the past should be greyed out (Error prevention)

Visibility of system status	Make the select locations button greyed out until both valid information is entered, that also means provide real time validity info on boxes as user types stuff
User control and freedom	No way to reach homepage for new search after being on barcode lookup/checkout page
Help users recognize, diagnose, recover from errors	Its probably just the prototype, but on Bike selection page, if we select all 0's in quantity, the page should not let us go further to checkout for 0 bikes
Error prevention	Pricing info banner does not come back if someone removes it by mistake
Flexibility and efficiency of use	Clicking pins on map does not consistently open/select location pins on the side. Users cant be expected just to non-map click pins to select locations