Accessibility Inspection
Rusutsu Resort: https://rusutsu.com/en/
Caroline Berger

1) What webpage did you choose to evaluate? Why did you choose to evaluate it? Please include the URL
I chose to evaluate Rusutsu Resort website: https://rusutsu.com/en/. I've noticed that there are learn to ski programs for people with varying disabilities (e.g. Blind people with a ski guide) and I'm curious how they would use a ski website to book their tickets. Another driver for my selection is accessibility in cross-cultural design. By evaluating a website of a Japanese ski mountain, I have the opportunity to identify accessibility issues that stem out of attempting to design for a multilingual, multinational set of users. I'm curious if accessibility issues are generated out of the translation of the website.

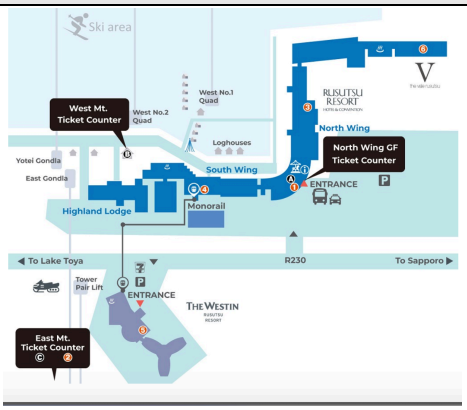
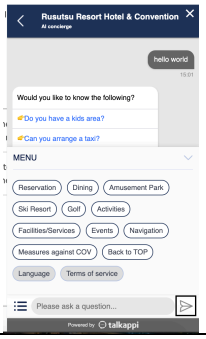
2) Who would be the typical users for this type of interface? Please discuss their age, computing experience, computing environment, job responsibility, and education level.
Typical users are skiers and span ages from teenagers to adults to senior citizens. The majority of skiers in 2016-17 in the USA was between the ages of 25 and 54[1], although ski demographics may vary in Japan. Typical users' computing experience varies widely. Some skiers may opt to learn about the mountain and purchase tickets at the mountain itself or via phone as opposed to going through the website. I am curious if Blind people typically make purchases via phone. At work, my colleagues work with the Federal Communications Commission and I have heard that bill payment services for some industries (telecom, for example) must be offered via phone.

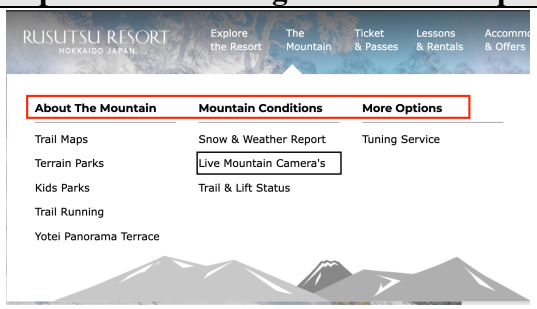
The interface may be accessed from desktop, mobile or tablets. Users may or may not be employed, although based on the NSAA National Demographic Study from 2016-2017, American skiers tend to be affluent[1]. Based on Rusutsu located in Japan, there is a mix between domestic Japanese visitors and international visitors. Travel agents and tour guides are potential users of the website and may use it when booking vacations for their clients.

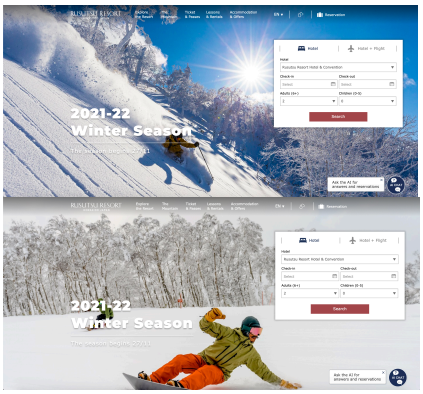
3) What screen reader (include the version) and web browser will you be using for the manual inspection?
Voice Over on macOS Mojave version 10.14.6, Chrome Version 96.0.4664.55 (Official Build) (x86_64) accessed on MacBook Pro (Retina, 13-inch, Early 2015)

4) Do a manual inspection of the webpage, using a screen reader to do a first pass and identify potential WCAG violations, and then following up with an inspection of the HTML code on the page. Briefly list and describe the accessibility violations that you identified in the manual inspection and include screenshots or code, identifying where on the page the violations were. For each violation, identify the specific WCAG success criteria that was violated. For instance, (WCAG 1.1.1. there was no ALT text for the picture of the dog, which is located on the upper right hand corner of the page, *<img src="fido.jpg">* or WCAG 1.2.2, there was a video embedded in the center of the web page that had no captions available).

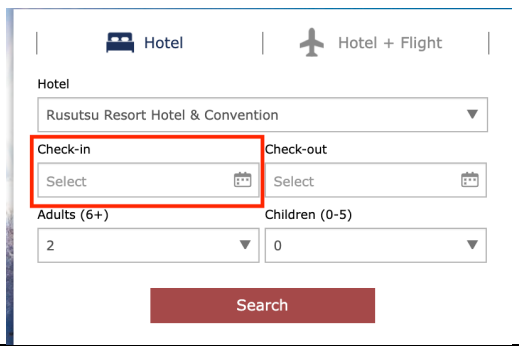
[1] RRC Associates, "2016-17 National Demographic Study Short-Term Dynamics & Long-Term Trends Illuminate the Participant Profile" NSSA Journal, Early Winter 2017. https://www.rrcassociates.com/wpcontent/uploads/2018/08/DemographicResults.EW1617.compressed.pdf

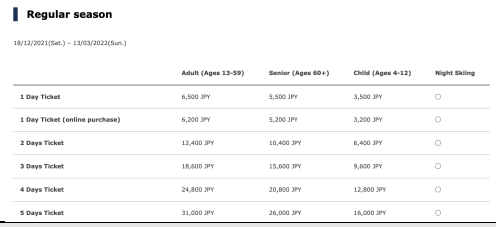
#	WCAG Success Criteria Violated	Issue description	Details
Principle 1: Perceivable - Information and user interface components must be presentable to users in ways they can perceive.			
M1	1.1.1 Non-Text Content	Alternate text fails to describe the map's details, text, and directions **Location**: On the bottom, left side of the Winter Lift Ticket Page	 <img src="https://rusutsu.com/wp-content/uploads/gondola-lift-ticket-office_en.jpg" alt="gondola-lift-ticket-office">
M2	1.1.1 Non-text Content	Menu and send control on the chatbot feature lack alternative text labeling and instead the voice over reads aloud the id, svg-send and menu_button **Location**: Chatbot feature on each page	<img id="menu_button" src="/assets/webchat/images/web_menu_dark.svg"> <img id="svg-send" src="/assets/webchat/images/send_message.svg"> 

M3	1.2.5 Audio Description Prerecorded	There are no descriptions for the actions and images in the videos, there is only the caption [Music] which fails to describe what visually occurs throughout the video **Location**: For each video in the center of the page video library	https://rusutsu.com/en/video-library/ in video library 
M4	1.4.3 Contrast minimum	Color of foreground (text) does not have sufficient contrast with color of background (1.8:1 Contrast Ratio WebAIM.org) **Location**: On the homepage, in the center on the top	 Foreground: #FFFFFF Background: #C8BDCD
Principle 2: Operable - User interface components and navigation must be operable.			
M5	2.1.1 Keyboard	Second level menu (About The Mountain, Mountain Conditions, More Options) is not possible to navigate to via keyboard interface **Location**: On the menu in the second-level menu (of 3 levels) above the third-level items	

M6	2.2.1 Timing Adjustable	Home page background image changes every 5 seconds (immutably) **Location**: On the homepage, in the center on the top	Screen reader announces “Chrome has a new tab” 
M7	2.2.2 Pause, Stop, Hide	There are no controls to pause, stop or hide the pictures or change the frequency of changing of the background home page images **Location**: On the homepage, in the center on the top	See screen shot for M6
Principle 3: Understandable - Information and the operation of user interface must be understandable.			
None found via manual inspection			
Principle 4: Robust - Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.			
None found via manual inspection			

5) Do an automated accessibility scan of the same webpage using WAVE. Briefly describe the accessibility violations identified by WAVE. Include screenshots or code, identifying where the violations were. For each violation, identify the specific WCAG success criteria that was violated. If there were “warnings” from WAVE which you think were false positives but were not actually violations, please discuss those here.

#	WCAG Success Criteria Violated	Issue description	Details
Principle 1: Perceivable - Information and user interface components must be presentable to users in ways they can perceive.			
A1	1.4.3 Contrast minimum	Several items of text had below the minimum required contrast between foreground color of text and background color **Location**: Throughout the site, almost everywhere there is a picture with text on top and notably in the menu bar	
Principle 2: Operable - User interface components and navigation must be operable.			
None found via automated scan			
Principle 3: Understandable - Information and the operation of user interface must be understandable.			
A2	3.1.2 Language of Parts	Label and input programmatic names do not match **Location**: On homepage, reservation panel, check-in control	<label for= "check-in"> Check-in </label> <input type="text" value="" name="rcheck-in" class="datepicker rcheck-in hasDatepicker" placeholder="Select" readonly="readonly" id="dp1638724299541"> 

A3	3.1.2 Language of parts	Table header is empty **Location**: On all tables on the site	<th></th>  **Regular season** 18/12/2021(Sat.) – 13/03/2022(Sun.) Adult (Ages 13-59) | Senior (Ages 60+) | Child (Ages 4-12) | Night Skiing 1 Day Ticket: 6,500 JPY | 5,500 JPY | 3,500 JPY 1 Day Ticket (online purchase): 6,200 JPY | 5,200 JPY | 3,200 JPY 2 Days Ticket: 12,400 JPY | 10,400 JPY | 6,400 JPY 3 Days Ticket: 18,600 JPY | 15,600 JPY | 9,600 JPY 4 Days Ticket: 24,800 JPY | 20,800 JPY | 12,800 JPY 5 Days Ticket: 31,000 JPY | 26,000 JPY | 16,000 JPY
Principle 4: Robust - Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.			
None found via automated scan			

False positives
WAVE noted redundant alternative text which corresponds to violation of WCAG criteria 1.1.1 Non-Text Content. However, it was appropriate to provide alternative text to an image that matched a nearby label.
For example, *Japan's Best Ski Resort* is a fitting alternative text for the images of the awards for Japan's Best Ski Resort. Perhaps *World Ski Awards Winner 2017*, *World Ski Awards Winner 2018* and *World Ski Awards Winner 2019* would be more appropriate alterative text.

Good

6) Compare and contrast what you found in the manual inspection using a screen reader and the automated accessibility scan. How did your findings differ? Did any findings conflict with one another?
On both inspection methods, I found issues with the contrast of the foreground text and background (A1 and M4). The automated scan produced many additional violations of color contrast than I had uncovered with my plain eye.

In terms of static code analysis, since I rely myself on linter tools in the IDE I have a hard time detecting omissions of information (A3) or naming errors (A2) in a long corpus of code.

In general, the automated scan is successful at identifying issues that can be quantitatively deduced, for example the difference in hex numbers for contrast problems (A1). The automated scan acts as a linter for the text, that is a static code analysis tool to find accessibility issues in the tool such as omissions in naming the parts of a control (A2). If the automated scan tool incorporated image recognition and image to text tools, incompleteness of captions and descriptions of images and videos would be more readily caught (M1 and M3). Using both methods is a demonstration of the power of human-machine teaming, in that the human can catch errors that the computer cannot and vice versa.

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7) Based on both the manual inspection using a screen reader and the automated accessibility scan, identify the three most important accessibility improvements that could be made, and offer very specific suggestions on what the fixes should be.

1) **Textual description of the map**, as this is a mission-critical activity. All people need to be able to find different areas of the mountain. Wayfinding is especially important for Blind users (M1). To resolve this issue, I recommend written instructions on how to get arrive at different parts of the mountain based on which direction you are arriving from. To support technologies Blind uses may already have, I recommend supporting the different points on google maps, to leverage detailed voice guidance.

2) **Text contrast with background** should be addressed due to frequency of the error occurring. On every page, the automated scan reported a violation of minimum contrast. To resolve the issue, I recommend highlighting text with a dark background, as shown below:

3) **Missing table headers** should be addressed due to how pervasive the error is through the site, paired with the low amount of fix . To fix the missing table headers, in between the table header tags insert a meaningful name of the table, for example <th>Regular Season Day Tickets</th>

Regular season

18/12/2021(Sat.) – 13/03/2022(Sun.)

Regular Season Day Tickets	Adult (Ages 13-59)	Senior (Ages 60+)	Child (Ages 4-12)	Night Skiing
1 Day Ticket	6,500 JPY	5,500 JPY	3,500 JPY	○
1 Day Ticket (online purchase)	6,200 JPY	5,200 JPY	3,200 JPY	○

8) Please describe what you feel that you learned about accessibility testing from this assignment.

I felt like a novice with the screen reader and sort of stumbled through using it, referencing documentation along the way and needing to turn and turn off the screen reader and revisit this portion of the assignment at several points. Ideally, I would love to do a paired evaluation with an expert user or shadow an expert screen reader user to learn the techniques and work arounds before using the screen reader to assess a future interface.

I'm familiar with static code analysis to discover security vulnerabilities and to improve the readability and quality of software, but it was a new for me to look at code through the lens of

accessibility. Since many of the code changes were simple fixes, I'm curious if there's any automated tests that developers can run before deploying code to check for accessibility issues. Most of the fixes seemed like small lifts, but there is added effort to fix an already deployed site.

I talked about accessibility testing at work, and was recommended to use the Deque axe extension. I'm curious if using the Deque axe extension would yield the same results as the Wave extension.

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