Semester 5
17 june 2024

RESEARCH REPORT

Product Suggestion Tool
for Low Pressure Studio B.V.

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ABSTRACT

This report describes research conducted for creation of a Product suggestion tool for Low Pressure Studio. The main research question answered was “How can we
make the best snowboard suggestion tool for snowboarders of different levels which is based on available stock and user input?”. This question was also supplemented
by several subquestions, regarding various elements of the finder. Findings indicate that a question-based system is the most appropriate since similar solutions are widely used for user input across different industries. Beneficial features such as progress bars, navigational buttons, and options for closest matches are paramount in providing good customer experience. Key decision factors for beginner users typically include size, weight, and terrain, whereas more advanced users also consider shape, camber, and flexibility. A methodical, question-by-question approach is deemed the most efficient for data collection. For selecting products, a scoring system that ranks the top three results based on user input is highly effective.

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CONTEXT

Low Pressure Studio has over 20 years of experience in creating quality snowboarding equipment. Currently it’s selling under 3 brands: Bataleon, Rome and Lobster. Low Pressure Studio's practice of tailoring designs and products to distinct target users facilitates portfolio diversification and enhances the ability to cater to individual needs effectively. This approach ensures the provision of products that resonate more closely with their unique preferences and aesthetics. My tasks are going to be oriented around the Bataleon website.

Currently Bataleon shop offers many options for Snowboard equipment for many different users. Problem however presents itself when beginner users are faced with sophisticated options to choose from, such as snowboard flexibility. Term itself is pretty self explanatory, but the meaning behind it would be hard to grasp by someone with no snowboarding experience. On the other hand, more experienced users might want more specific parameters that would better accommodate their riding style, a need that also needs to be fulfilled.

To resolve this issue a solution is needed that will help both experienced and beginner users. Common solutions to similar problems are often resolved by some kind of filter function included on a main page.

The main research question for this research was “How can we make the best snowboard suggestion tool for snowboarders of different levels which is based on available stock and user input?” This question is intentionally broad so that it could be answered in different ways. To determine the details there were 7 sub questions
in total which are :

1. How competitive brands are making similar product suggestion tools? What are their strengths and weaknesses?
2. What are the KPI’s on which beginner users are basing their decision while purchasing a snowboard? How different are they from the ones for Advanced snowboarders ?
3. How should the UI of the product suggestion tool be made while following Bataleon style guides?
4. How can we sufficiently extract valuable information from the user using the UI?
5. How can we use user in put to find appropriate products in Bataleon DataBase, within the Shopify environment?
6. How can we implement available stock into the product suggestion tool, keeping in mind that the amount of available stock will change over time?
7. How can user testing and feedback be incorporated in the design process of product suggestion tool to ensure the final product meets client’s needs?

Main goal of this report is to answer those research questions. Besides research reports, and a research summary it also includes a design report because that's where I’m answering research sub questions 6 and 7.

METHODOLOGY

In total 6 different research methods were used, and they can be divided into 3 phases.

First phase is an Analysis phase, during which I was focused on determining which mechanisms and features should be included in the product suggestion tool developed for Bataleon. Those elements were determined by using **Competitive analysis, Best, good and bad practices** and **Peer review** methods.

Considering that there are quite a few different ways a company can create a product suggestion tool, and the fact that multiple companies are currently using similar tools has led me to believe that picking **competitive analysis, and Best, good and bad practices** as a research methods will be the most fruitful way of finding results for the ideation phase.

For analysis I have picked 7 different product suggestion tools. 4 of which are specifically for finding the best snowboard since they'll be most relevant in the Bataleon application. The rest are related to shoes, jackets and headphones. I have made a decision to analyse tools outside of an industry as well, since they might include useful functionalities that haven't been incorporated in any snowboard finder.

The analysis of each of the product suggestion tools is divided into 3 sections. They are:

- Introduction-ashortintroductionthatismeanttofamiliarisethereader with a described company as well as describe their version of product suggestion tool
- Analysis-analysisofproductsuggestiontools,withhighlights regarding their functionality, possible breaking points, as well as positive elements that could be used in development of Bataleon product suggestion tool, and negative elements that should be avoided.
- Conclusion-asummaryoffindingswithlistedelementsthatwouldbe beneficiary in Bataleon application, as well as explanation why they would benefit the project of included.

The second phase is a design phase in which I'm designing a solution . The goal of this phase is to prepare a prototype for the first round of testing with peers in order to find as many errors and imperfections as possible, before beginning **usability testing** with users, as well as to verify if assumptions made during the previous phase were accurate or not. At first I created a prototype of User Interface(UI) in figma, a full report for which you can find at **Prototype report**.
For testing purposes **Peer review and benchmark test** were performed, together with 2 company peers, both of whom have extensive designing experience. First peer is Ronald, who is my company mentor and is responsible for creating various designs for the company Low Pressure Studio. He has years of experience in designing websites and in developing them, therefore he was a suitable candidate. Second peer is Robin who is one of the Low Pressure Studio employees who is responsible for the development of the website and because his responsibilities are quite similar to mine within a company, he was a suitable candidate to be considered a peer. Both interview and benchmark test were performed in an offline environment, by analyzing and gathering peers' opinions on each of the analysed page elements in the form of notes regarding each analyzed element and website. Me and Ronald have determined before the meeting which elements of the website we should focus on based on his expertise.

Elements that were analyzed in detail are: ● Headerandsystemstatusvisibility ● Mainpageandcardbuttons ● Positioning ● ManualInput ● StepsandCompanystyleguide.

Lastly there are going to be additional comments made by both Peers regarding overall impressions.

Together with peers, we analyzed the brands that Ronald and I deemed the best from our competitor analysis. Those brands consist of :

- Arcteryx
- Asics(US)
- Behindthepines
- JonesSnowboards.

Our goal was to identify their most useful functionalities and determine which ones would be desirable for the Bataleon product suggestion tool, as well as to find and fix any clearly visible issues. .

The last phase, which contains 2 research methods of **usability testing** and **benchmark testing**, is a realization phase. Its main goal is to eliminate any present bugs that are left, as well as verify user usability of the product. Benchmark test was executed with peers and was performed on a final figma prototype. For **usability testing** with users there was a working version of a product suggestion tool developed for Bataleon which was used for testing. Testing itself is going to consist of asking 4 to use the product suggestion tool in both online and offline environments. Users were asked to fill in the product suggestion tool the way that they would fill them in. Users that have tested the system offline were also asked to fill in the details 2 more times, selecting an option that they haven't picked before. This way we can increase the number of test runs with one user, which will help us in identifying any bugs that might occur, as well as gathering more of users' opinions. Only the offline users are going to be asked to do so because in the offline setting we can gather more data and users opinions, and it should provide more insights from users perspective. Testing will be recorded with screen and voice recording software, and additional notes will be taken during the testing when necessary.

RESULTS

Competitive comparison & Best, good and bad practices [9]

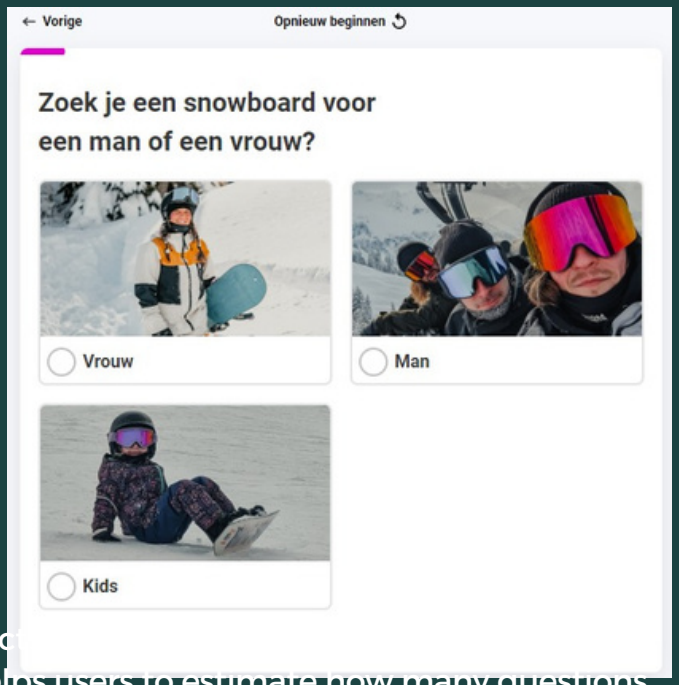
Snowboard Finders
Behind The Pines [2]
(Behind the Pines, n.d.)

Introduction

Behind the Pines is a store located in Amsterdam whose theme is focused on widely understood “Outdoors”. That includes but is not limited to things like, hiking, camping, surfing and snowboarding so it incorporates a wide selection of products from backpacks and running shoes to snowboards and surfboards. Despite providing users with a multitude of available items, only the snowboard section has a product suggestion tool, therefore it won’t be possible to compare different suggestion tools within one website.

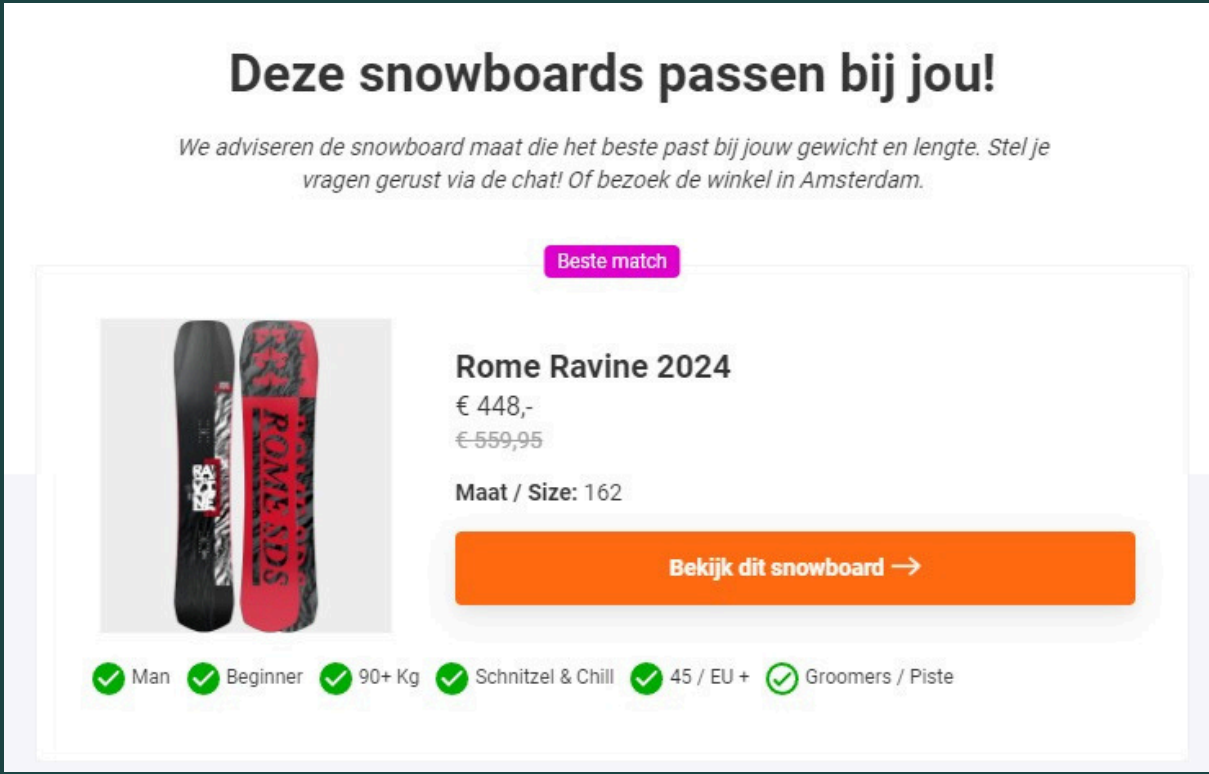
Analysis

The snowboard finder used by Behind the Pines is oriented on asking users a series of questions. Questions are asking users about Gender, Estimated weight range, shoe size range, declared advancement level, preferred terrain and style of snowboarding, 2 last ones (terrain and style) are allowing for selection of multiple choices. Based on user input, the system is selecting 3 best matches for the user, based on available stock.



There are quite a few positive aspec
visible at the top of the finder. It helps users to estimate how many questions they have left to answer and discourage them from leaving the website before receiving their matches. Speaking of matches, another positive aspect is in a way in which users are presented with the snowboards that suit them. There are only 3 matches, so users won’t feel overwhelmed with too many available options. Additionally the first one to display is

labeled as “best match”, which is based on the number of answers that this particular board fulfills, which are also shown when displaying the board.



However no system is perfect, and this one is no exception. First issue is that despite the website having 4 different language options, the snowboard finder is only available in dutch. Fortunately most of the answers are supplemented by corresponding pictures, and are written in mostly self explanatory way, with an exception on riding style which is very subjective, and open to interpretation, especially when someone is not proficient in Dutch language. Another spotted issue is that it is possible to provide such answers that there will be no match. It’s not easy to achieve but has still happened on more than one occasion, while I was testing this system.

Conclusion

Overall despite having a bit of mundane design, this product suggestion tool is fulfilling its purpose very well. It provides users with a practical selection of boards, and is highlighting the best match on easily understandable metrics.

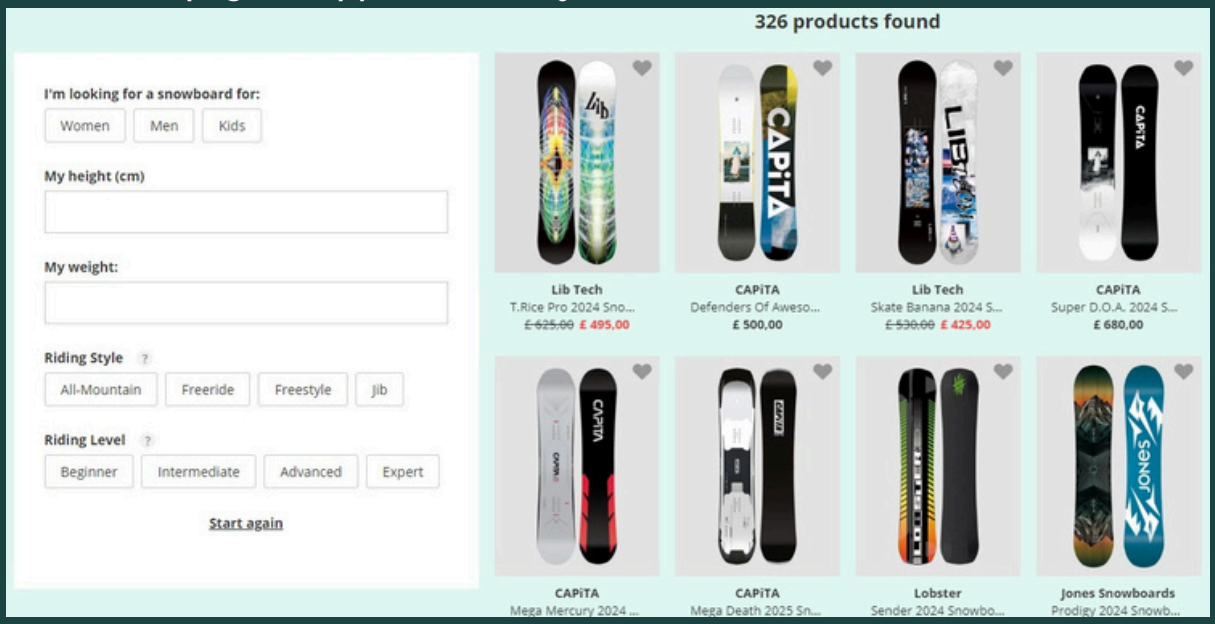
Best Match: Providing users with the best match would greatly increase usability of the product suggestion tool, especially if we can provide users with a simple explanation on why the best match is considered best. Limiting matches to top 3: Limiting number of matches to max 3-4 options would reduce a possibility of user anxiety, correlated with an abandonment of choices according to study made by Chernev et al. (2014) [1]

Progress Bar: Including a progress bar will encourage users to complete prepared questionnaires and decrease the possibility of frustration related to prolonged questioning. Simple design: A minimalistic design helps to keep users' attention and priorities informed by product suggestion tools.

Blue-tomato[3]
(Snowboard Size Calculator - Your Snowboard Finder | Blue Tomato, n.d.)

Introduction

Blue-tomato is a retail store from Austria that is currently operating in over 14 countries. Despite having a wide selection of different products ranging from t-shirts to exchange parts to skateboards, for some reason only their snowboard page is supplemented by snowboard finder.

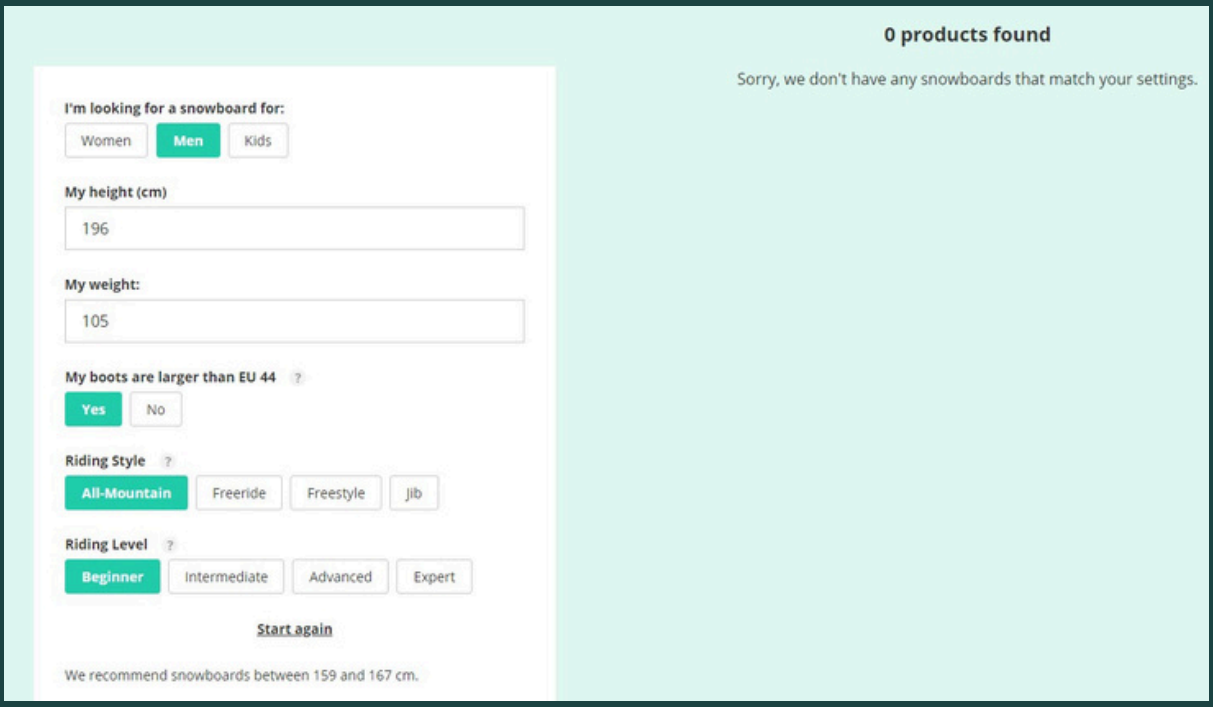


Analysis

Contrary to Behind the Pines, which is a question based tool, Blue-tomato's product suggestion tool is working more as a live filter for available products. Instead of asking user questions and providing them with a certain number of matches, it starts by loading 30 products on the page, but is also displaying how many there are based on current filter options.

Filter based system is quite different to a question based one. Like everything it has its positives and negatives. First thing you notice is that this system, in contrast to question based systems, instantly presents the user with a multitude of choices. This can be both a good and bad thing, depending how you look at it. On one side users

can easily observe how the number of matches changes depending which options they choose. At the same time this can be a bad thing, because users could feel overwhelmed with the number of choices, if their metrics and preferences match a big number of snowboards. Blue-tomato product suggestion tool, also has some drawbacks unrelated to its filer-like structure. First of all it's very easy to receive an empty outcome. All that was necessary was to provide my own details, and mark myself as a beginner user, and the outcome that I have received was 0 boards. This is something that should be avoided during the development of product suggestion tools for Bataleon. Even if there is technically no outcome based on details provided by the users, system should either display products that are not a perfect match, or display a message of something along the lines of "oops we don't have anything that fits your description, but here is the closest one", and then display a product that closest matches users needs.



Conclusion

Despite not providing sufficient outcome at every try, the product suggestion tool used by blue-tomato has some attributes that are going to help me develop a product suggestion tool for Bataleon. Its main issue is displaying no outcome at all. This can be easily avoided by providing users with the closest match, which will be especially useful, if we were to implement some sort of an additional display for each of the outcomes where we can highlight which attributes were a match, and which weren't, similarly to how Behind the pines implemented it. Additional disadvantage of this system is that Bataleon already has quite a good working filtering system on their website, further decreasing the usability of this approach.

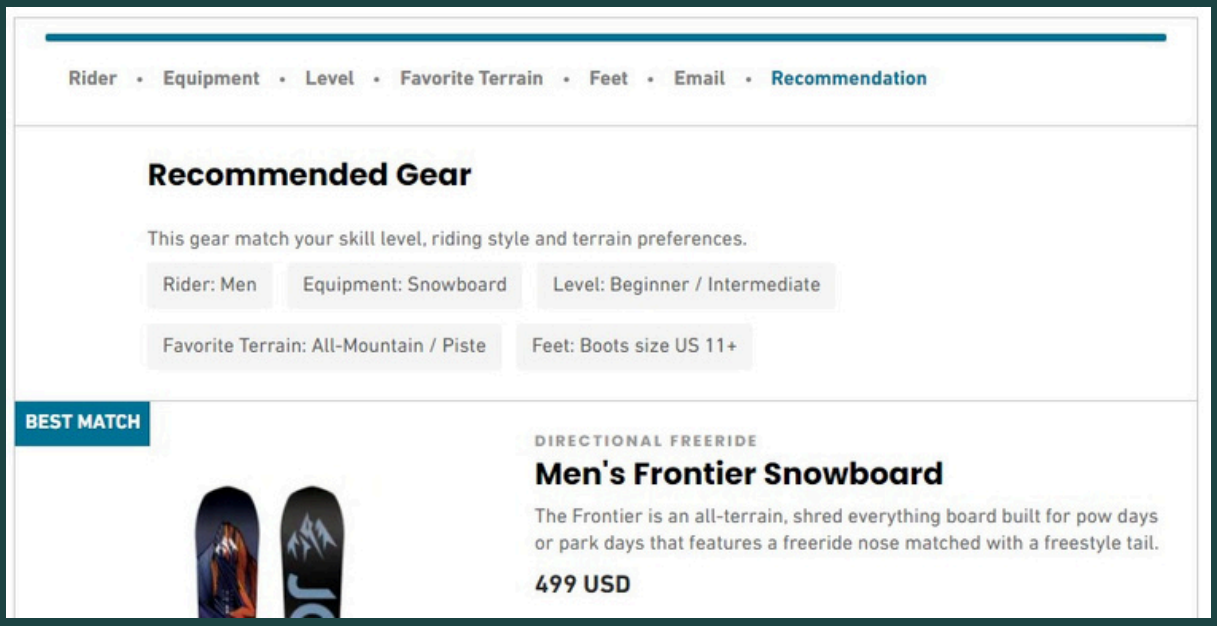
Avoid lack of matches: Lack of matches in certain conditions, is a main disadvantage of this system, and is something that we should avoid at all cost, while implementing Bataleon product suggestion tool.

Jones[7]
(Jones Snowboard and Splitboard Finder | Jones, n.d.)

Introduction

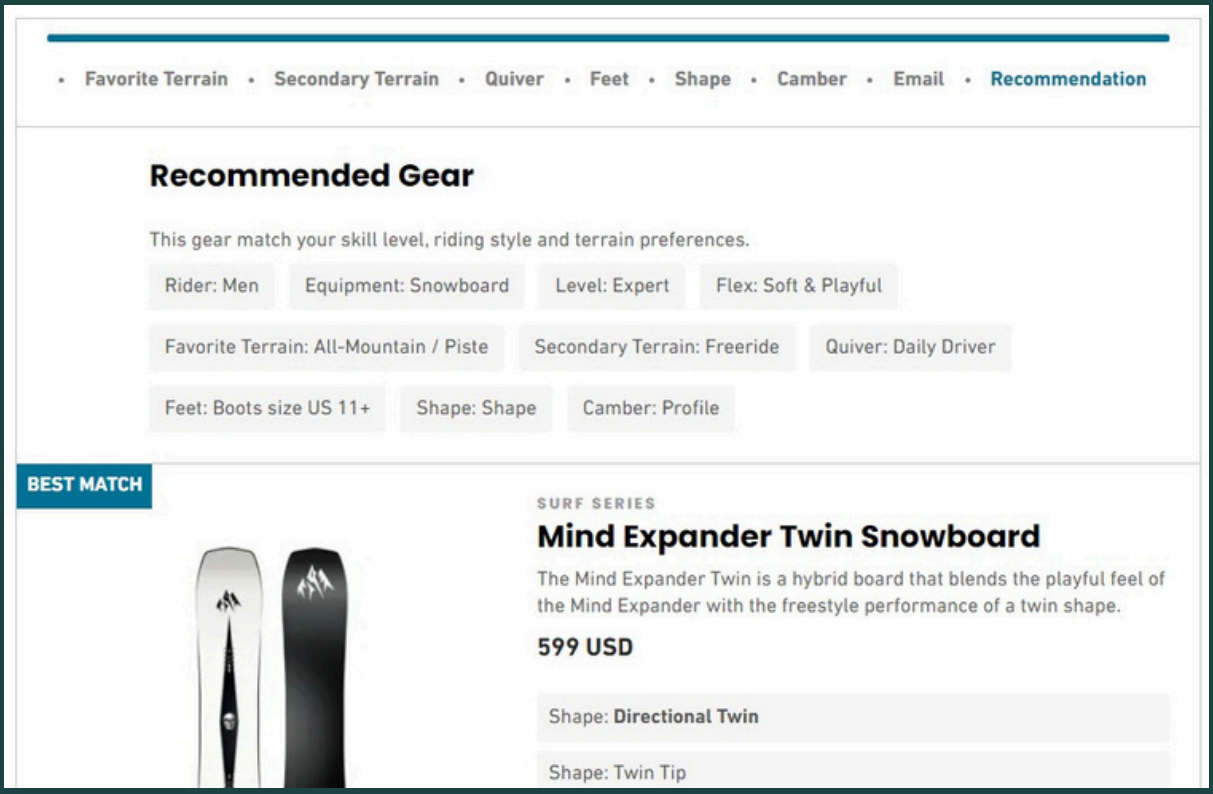
Jones is the most friendly competition out of the analysed stores, since both Jones and Bataleon, have the same mother company, the Nidecker Group. Currently Jonessnowbords uses a product suggestion tool, powered by ebbot AI. Based on my conversations with my supervisor, Jones' product suggestion tool contains the most elements that they would like to include in Bataleon product suggestion tool, however we won't have the luxury of supplementing it with an AI tool due to the low budget of the department.

Analysis



First thing you notice about Jones product suggestion tool is that it not only has a progress bar, that was also utilised by Behind the pines product suggestion tool, but further improves the header design, by implementing a series of buttons that appear after their representing questions are asked. This solution helps the user to change the answer should they need to. Another benefit of this system is the implementation of different questions based on answers. Above you'll find a screenshot that was taken after selecting the "Beginner" option while selecting an answer for the "level" question. As you can see it provided users with a set of 5 questions in total, since an email is optional and only used for a newsletter. That contrasts with 10 questions that are asked to the user after selecting the "Advanced" option, and 7 questions after

selecting “Intermediate”. This provides more advanced snowboarders with more sophisticated options for choosing their snowboard while providing beginner users with questions that would be more relevant to them.



Despite being a very good system, it isn’t completely perfect. The biggest issue is in the header buttons. They’re a very good idea that I aim to implement in the Bataleon product suggestion tool, but in a situation when the user picks ”advanced” while answering the “level” question, the first 4 questions become unclickable in the header (which you can see on the provided screenshot). The system provides the user with a button to restart the product suggestion tool, and the 4 first questions are of relatively low importance to advanced users, but it’s something worth noting nonetheless.

Conclusion

The Jones product suggestion tool is probably the best one of the ones that I have analysed. It very sufficiently combines all of the important aspects that I have already mentioned e.i. Progress bar, ability to change previously given answer in a form of header buttons, best match, 3 matches total, displaying fulfilled requirements. However great, their solution cannot be implemented into Bataleon website, since outsourcing product suggestion tool would be too expensive, summing up to over 25000 $ a year.

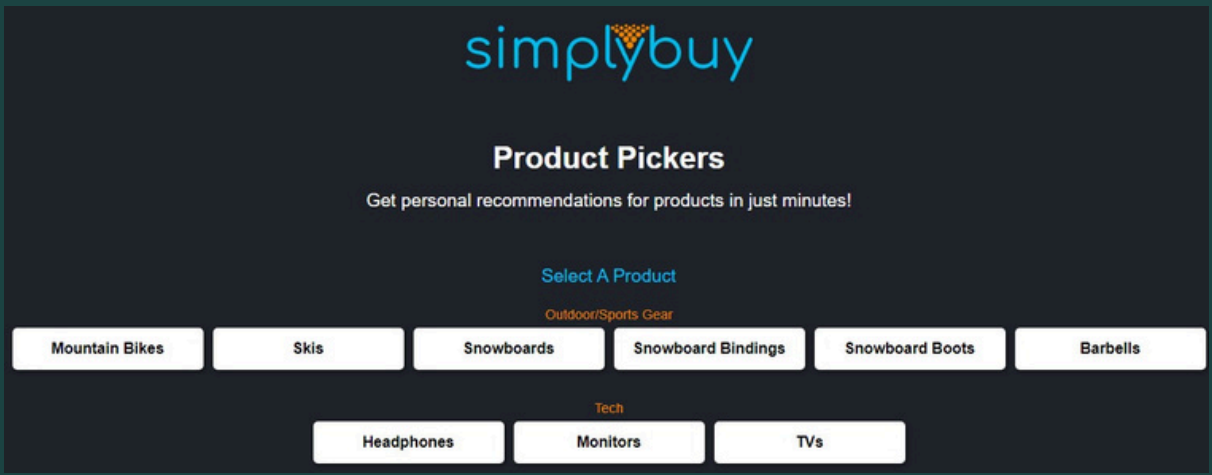
Progress bar: Including a progress bar will encourage users to complete prepared questionnaires and decrease the possibility of frustration related to prolonged

questioning. Best Match: Providing users with the best match would greatly increase usability of the product suggestion tool, especially if we can provide users with a simple explanation on why the best match is considered best. Limiting matches to top 3: Limiting number of matches to max 3-4 options would reduce a possibility of user anxiety, correlated with an abandonment of choices according to study made by Chernev et al. (2014) Displaying fulfilled requirements: By displaying fulfilled requirements, we will ensure that the user is informed on specifics of the board that is displayed. It will be especially beneficial in a situation, when there is no perfect board available based on user input. Changing previously given answer : Allowing users to change previously needed answers without the need of restarting the whole system, will increase usability, and user satisfaction with the tool.

Simplybuy[8]
(Find Your Ideal Snowboard With SimplyBuy's Snowboard Picker , n.d.)

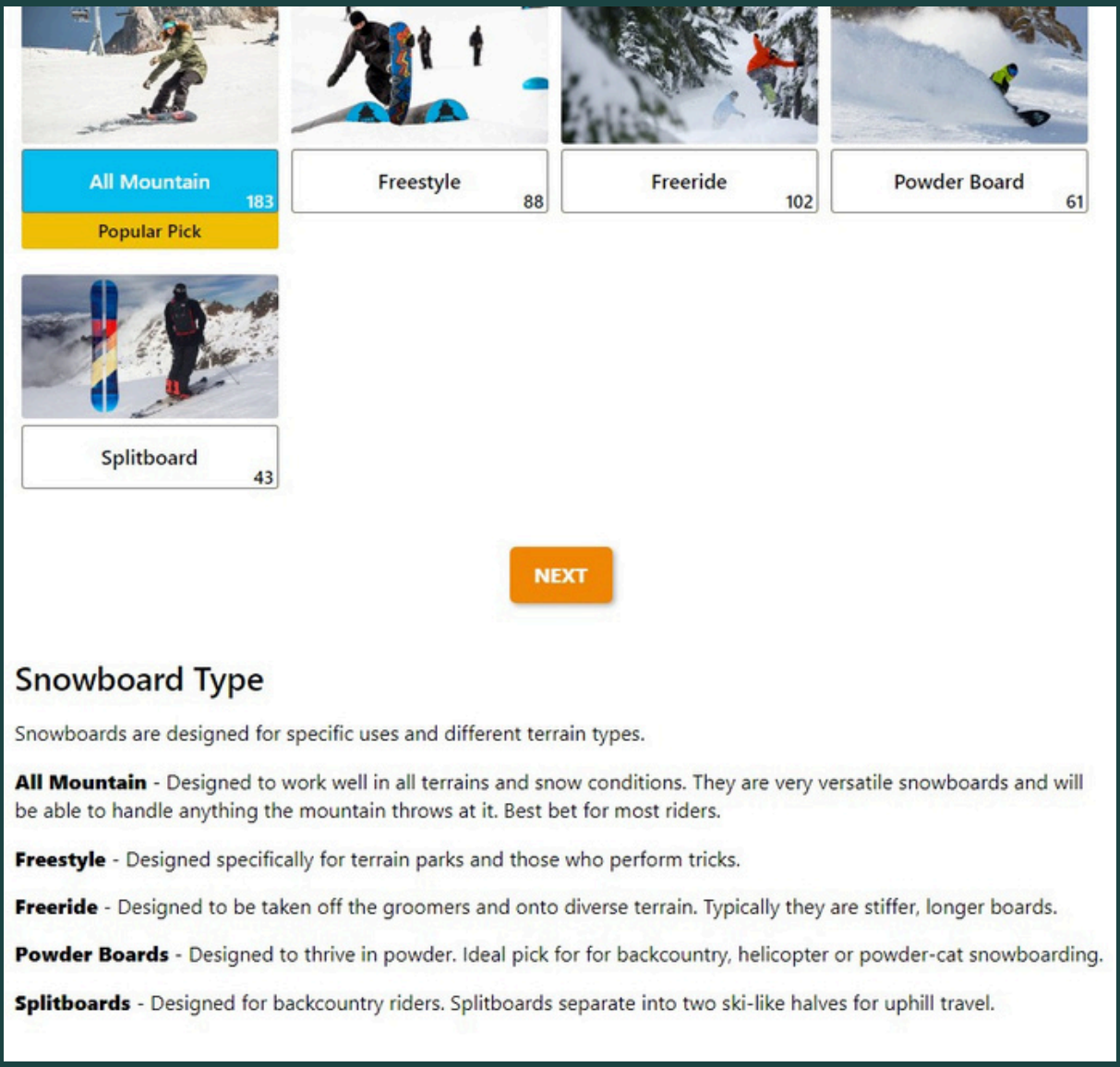
Introduction

Previously analysed product suggestion tools, were from websites of either shops that sell multiple brands or directly from brand stores that sell one brand exclusively. Simplybuy on another hand is a website, specifically dedicated to provide multiple product suggestion tools on different products.

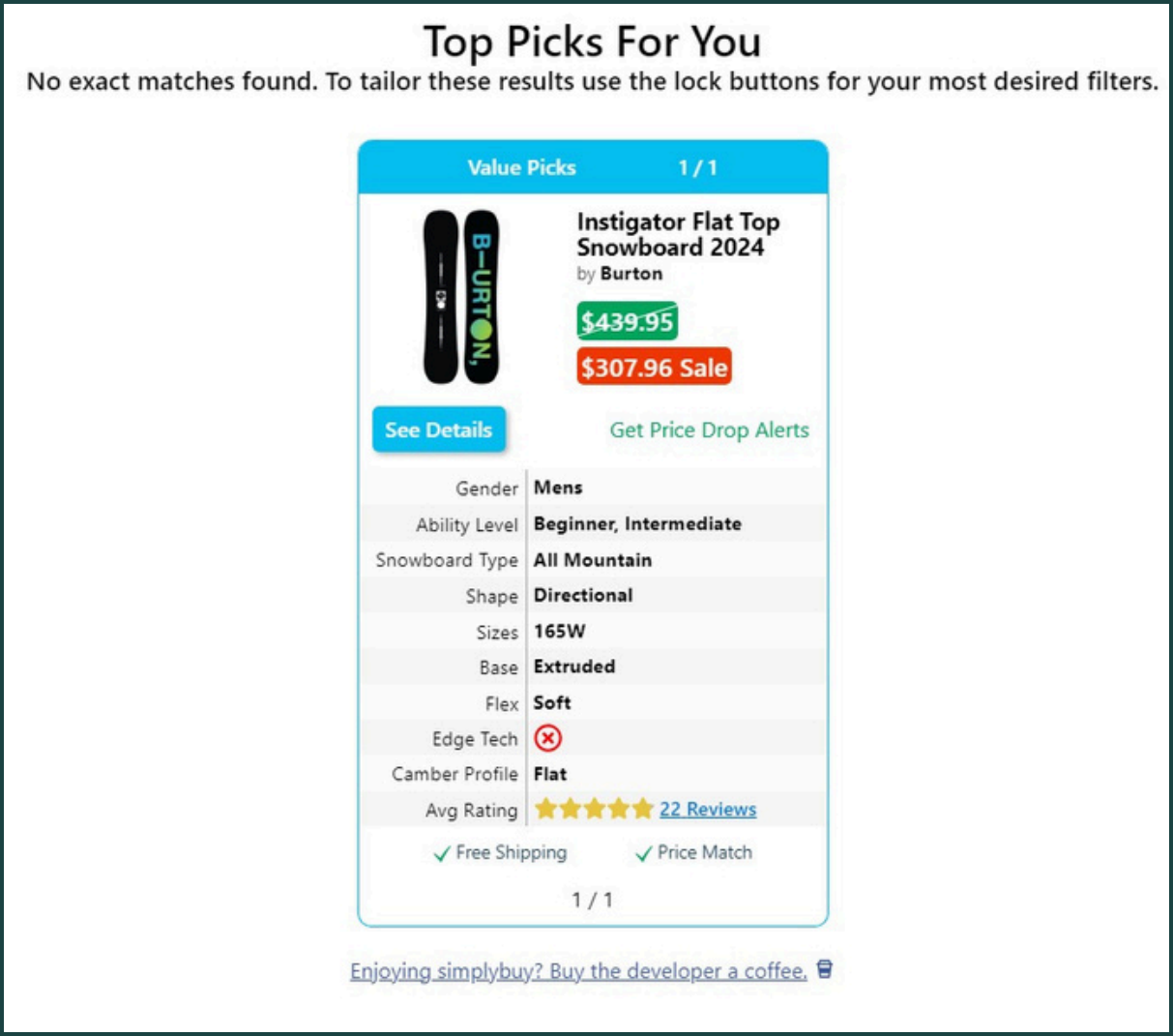


Analysis

Simplybuy product suggestion tools, all work in the same manner, just on different products, therefore we'll be focusing on the snowboard one, since this area is the most important to Bataleon.



There were 3 things that I immediately noticed when I first opened the Simplybuy product suggestion tool. First is at the bottom of the picture above. For all of the questions that were asked while I was answering all of the questions, there was an explanation for all of the answers. The system does include a separation of “beginner” users and more advanced users, but an additional explanation if included regardless, which helps with keeping users informed. Another easy to notice feature is the number in the lower right corner of each of the answers. This represents how many options for products each of the answers currently has. It’s a great, and simple way of informing the user about how many possible choices they’ll have if they choose an option. Lastly the least important characteristic, but a nice addition nonetheless, is a “Popular pick” option, which highlights which options were the most popular among the users.



One of the most useful features provided by simplybuy, is that even if selected options do not result in an outcome, the system provides the user with the closest option nonetheless. It also notifies users that no option for their specific features were found, and offers an option to prioritise selection of certain features by an option to lock filters.

Conclusion

Answer Explanation: Including an explanation of answers would help keep users informed, so they could make the most informed decision. Number of products after answering: If the user isn't sure between 2 different options, an indicator which option possesses more matches, could be beneficial to them. Best option even if nothing matches: Providing the closest option, even in a situation with no match, will help Bataleon to keep users interested, but it would be best to inform them that the option that they have received is the best option, but not a perfect one. Lock filters: An option to lock filters will help users to prioritise a feature that they

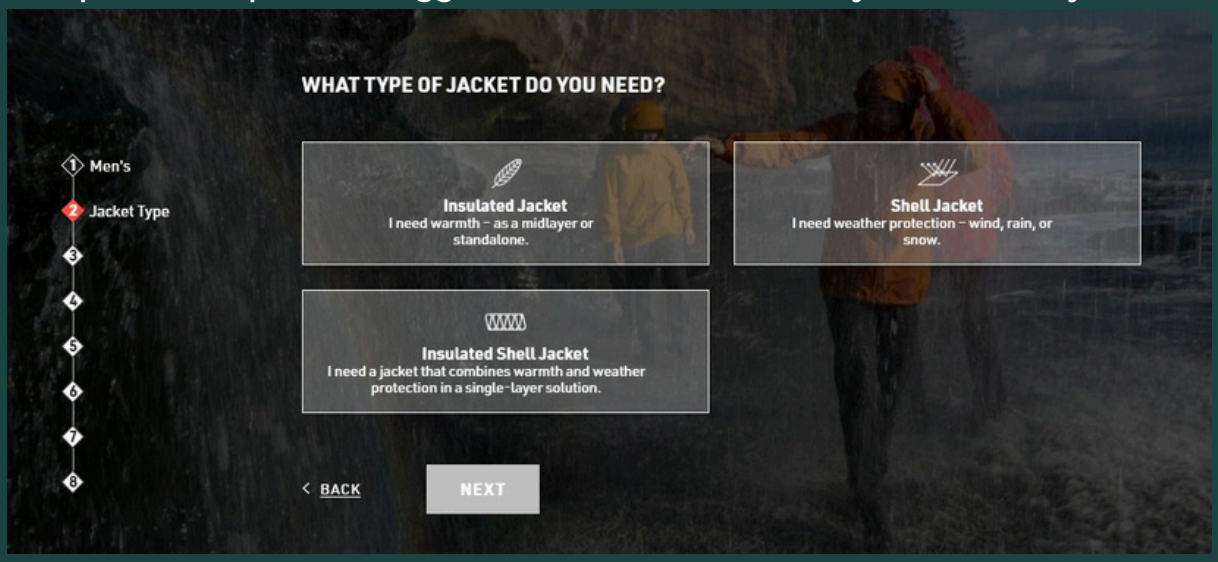
would like to be included in a match.

Other Product suggestion tools

Arcteryx [1]
(Jacket Finder, n.d.)

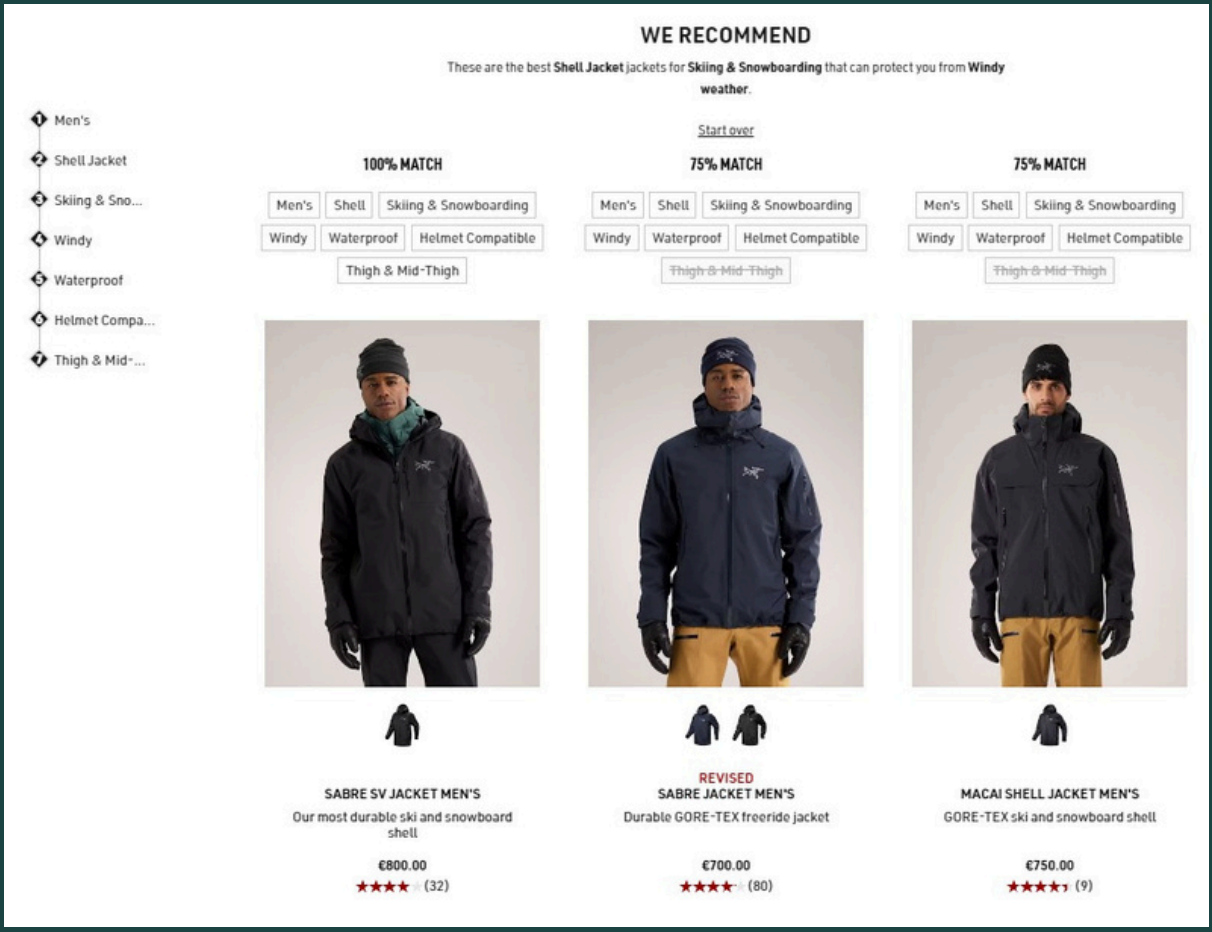
Introduction

Arcteryx is a Canadian company that specialises in jackets aimed at Canadian winter conditions, but also sells other hiking equipment, from shoes, to backpacks. The product suggestion tool however, is only available for jackets.



Analysis

Arcteryx is a question-like system that incorporates a lot of characteristics that are present in previously mentioned snowboard finders. As far as I'm aware, the only new functionality that it brings are different answers for further questions based on previously given answers. It very successfully integrates buttons into the system, and is providing users with 3 best options based on input, while also notifying users which parameters were a priority. While receiving an answer, user also is presented with a percentage of match for each of displayed products, as well as clear indication which parameters were fulfilled and which weren't.



Conclusion

Arcteryx has a great product suggestion tool. It utilizes a lot of important principles that are important in creating a product suggestion tool.

Best Match: Providing users with the best match would greatly increase usability of the product suggestion tool, especially if we can provide users with a simple explanation on why the best match is considered best. Displaying fulfilled requirements: By displaying fulfilled requirements, we will ensure that the user is informed on specifics of the board that is displayed. It will be especially beneficial in a situation, when there is no perfect board available based on user input. Limiting matches to top 3: Limiting number of matches to max 3-4 options would reduce a possibility of user anxiety, correlated with an abandonment of choices according to study made by Chernev et al. (2014) Matching percentage :Displaying which option is the best match, is a simple way of informing users which of the options should suit them best. Progress bar: Including a progress bar will encourage users to complete prepared questionnaires and decrease the possibility of frustration related to prolonged questioning.

Brooks[4]
(Find the Perfect Running Shoe: Running Shoe Finder | Brooks Running, n.d.)

Introduction

Brooks is a shoe company that specialises in shoes but also produces running equipment like shirts, shorts or light jackets and they have over 100 years of experience.

Analysis

Brooks shoe finder introduces quite a few innovations compared to previous product suggestion tools. After asking a few basic questions about the desired terrain, average distance runned, and running experience, it asks users if they experienced an injury in recent months. Understandably it's not a question that every product suggestion tool is asking, however it also provides users with an explanation, in which it states that this information will help the system determine which part of the foot should receive an additional support. Later the system asks users to perform a few exercises in order to determine in which way their feet are pointing, their knees direction, and how stable they are. This helps to determine what kind of support the user needs in their shoe, and also makes the shoe finder more scientific.

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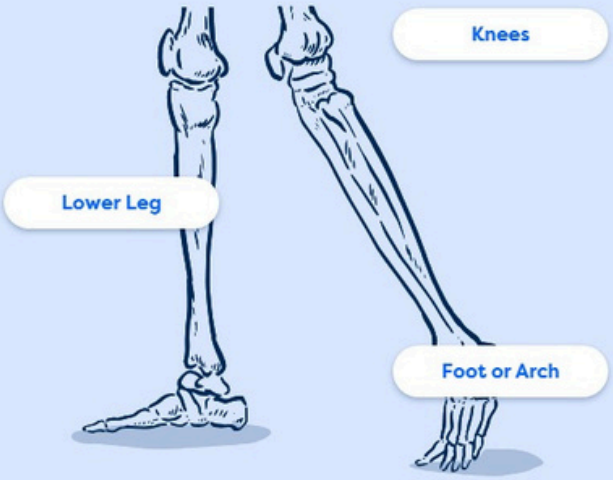
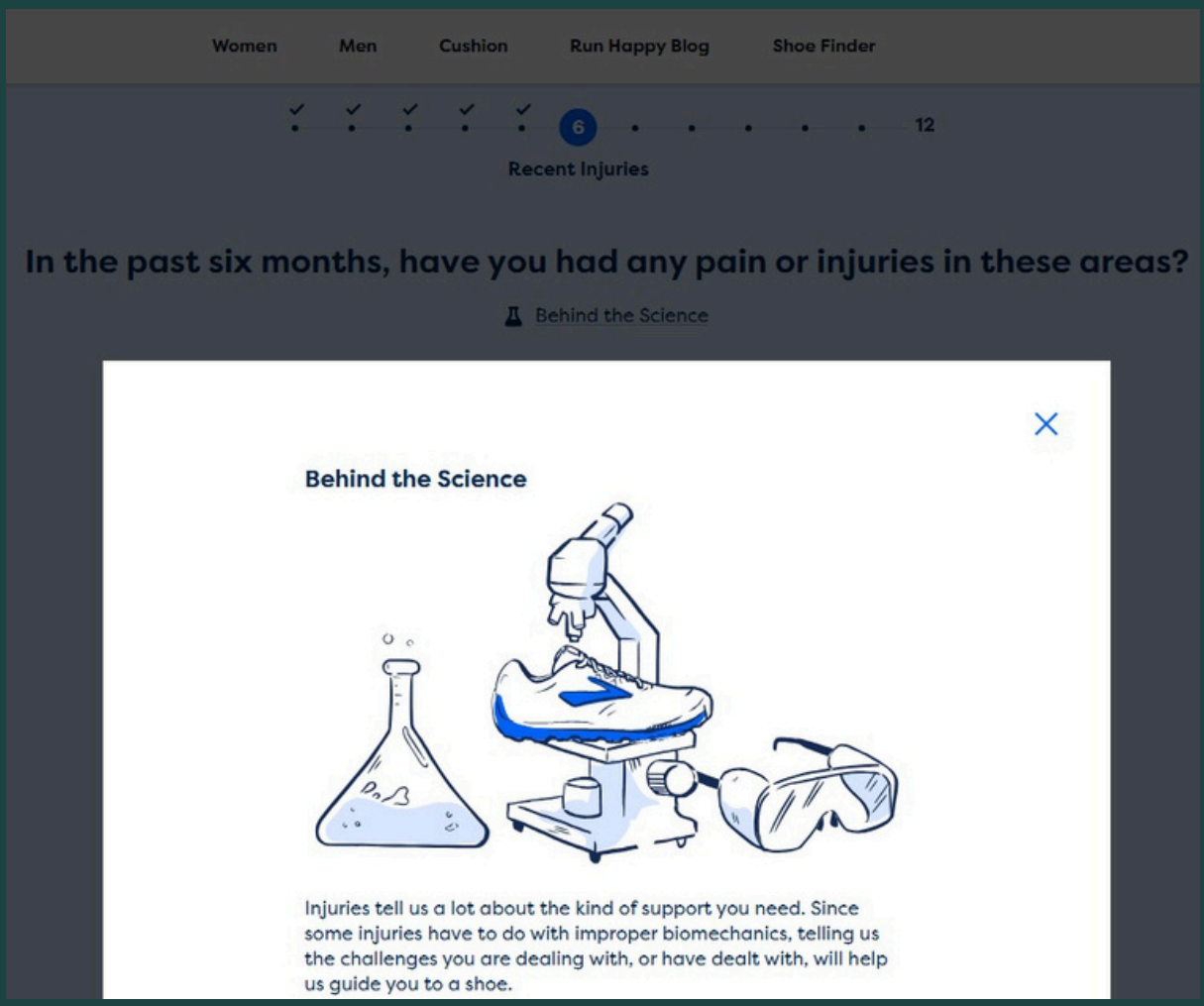
Recent Injuries

In the past six months, have you had any pain or injuries in these areas?

Behind the Science



None of these



Conclusion

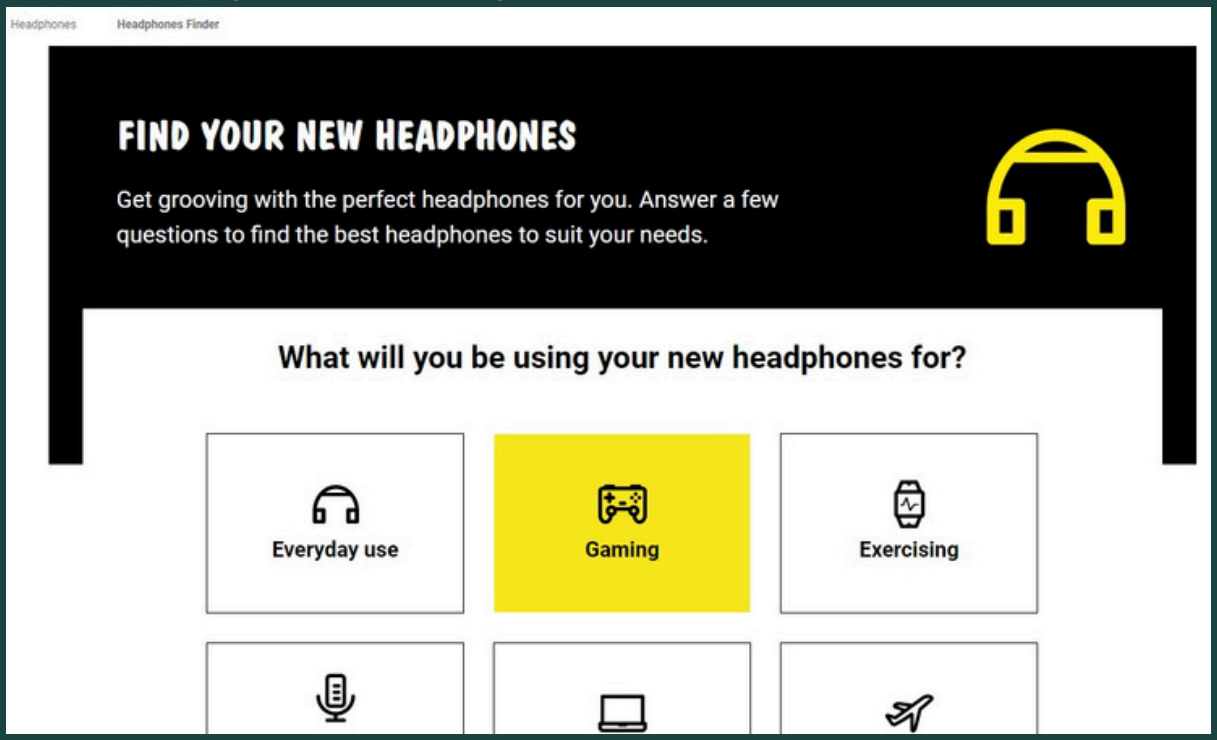
Brooks product suggestion tool, is a really good tool, but unfortunately it is also very directly aimed at providing users with appropriate shoe options. Because of that it would be hard to implement a system similar to a snowboard product suggestion tool.

Progress bar: Including a progress bar will encourage users to complete prepared questionnaires and decrease the possibility of frustration related to prolonged questioning. Question Explanation: Including an explanation of questions would help keep users informed, so they could understand why the question is being asked.

Jbhifi[6]
(Headphones Finder, n.d.)

Introduction

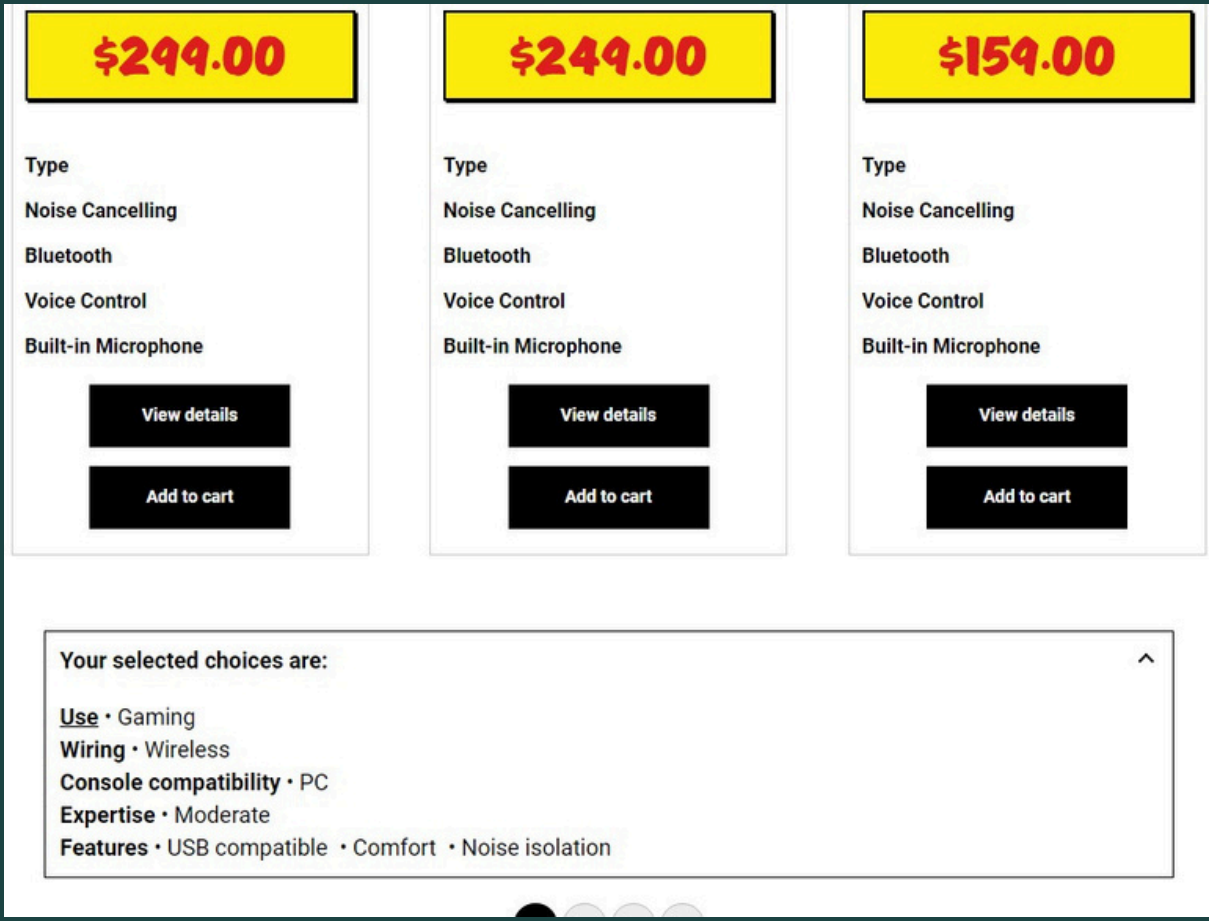
Jbhifi is an Australian electronic retailer that is selling a variety of electronic equipment. From phones to electric scooters, they offer multiple choices on multiple tools that you might and might not need, similar to the media markt. Besides their usual offer, on their website you can also find a tool that is meant to help users find headphones that should best suit their needs.



Analysis

Headphones finder utilised by Jbhifi is probably the most unique out of the analysed ones. It is due to the fact that up until this point, all product suggestion tools were focused either on snowboards, or outfits, and this is the only one that is focusing on electronics. Despite not having as much in common with our main focus area as the previous ones, this one also has some interesting mechanics. It utilises a question-based system, that is adjusting questions based on given answers, to best fit the users needs. Thanks to asking different questions, the system can then ask more detailed questions, based on answers e.i. If user selected gaming headphones, the system will later ask if user wants to connect to ps5 or pc or xbox, but if user selected that they need headphones for exercise, the system will instead ask if the headphones should be in-ear headphones or headphones that are using bone concoction to transmit sound.

Another important feature to note is a confirmation of choices. Similarly to Arcteryx for example, Jbhifi is additionally displaying which options users have chosen, below displayed choices. Additionally this list also features the buttons for each of the categories, which allows users to change the answers to given questions. It's less efficient then including buttons in a header like Jones, or on a site like Arcteryx, but it's still a workable solution.



Conclusion

Jbhifis product suggestion tool utilises some useful techniques that I have already mentioned, however due to the vastly different nature of the product that this particular product suggestion tool is meant for, there aren't that many similarities between it and our desired final outcome for Bataleon product suggestion tools.

Limiting matches to top 3: Limiting number of matches to max 3-4 options would reduce a possibility of user anxiety, correlated with an abandonment of choices according to study made by Chernev et al. (2014) Changing previously given answer : Allowing users to change previously needed answers without the need of restarting the whole system, will increase usability, and user satisfaction with the tool.

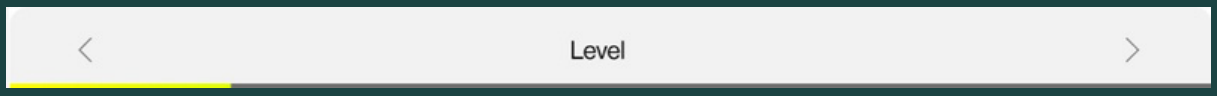
Store/Company	Best Practices	Good Practices	Bad Practices
Behind the pines	Progress bar	Best Match	Lack of translation

	Limiting answers to 3 best		
Blue-tomato	---	Include number of matches	Often lack of matches
Jones	Progressbar	BestMatch	---
	Limitinganswers to3best	Displayingfulfilled requirements	
	Navigation buttons		
Simplybuy	Bestoption withoutmatches	Answer explanation	---
		Question explanation	
		lock filters	
Arcteryx	Percentage match	Best Match	---
	Progress bar	Displaying fulfilled requirements	
	Limiting answers to 3 best		
	Navigation buttons		
Brooks	Progress bar	Question explanation	No option of skipping questions about posture and physical details
		Additional questions about posture and physical details	
JBHIFI	Limiting answers to 3 best	Aswer review	---

Peer review & Benchmark test [10]

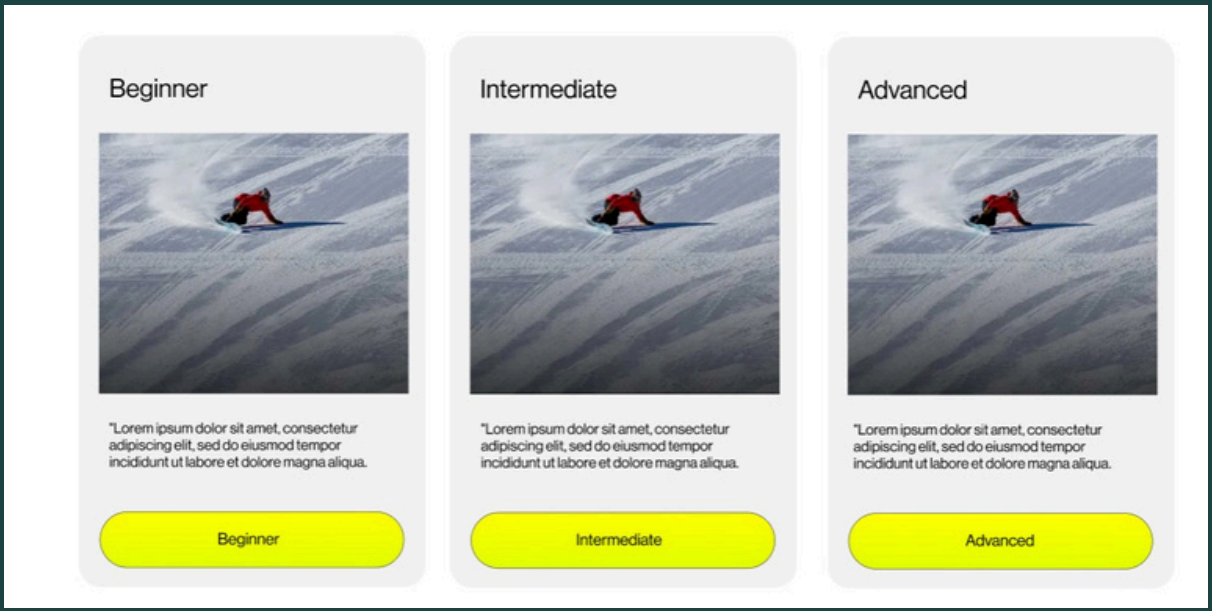
Bataleon Snowboard finder UI Prototype:

Header and system status visibility



Robin has complemented the inclusion of Progress bar. He said that users often want to fill in any given questionnaire as fast as possible, and providing a progress bar allows them to estimate how much longer it's going to take for them to receive an answer. Ronald also liked the progress bar, but also added that including navigation buttons in the header, would be a great improvement. It would improve user control and allow user to quickly change to the desired section, without the need of re-clicking the same button multiple times.

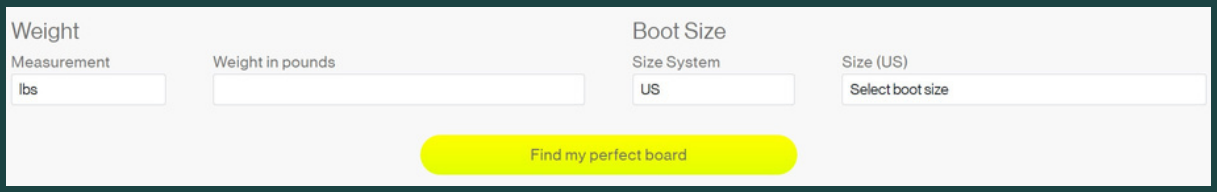
Main page and cards



Robin liked clear visuals of the main page and cards but wasn't a huge fan of positioning of the title of cards. Currently it's located on the top left part of each card, but in his opinion, positioning the title in the middle of each card would be more intuitive. Additionally, pictures and descriptions should be more relevant . He also expressed that descriptions of answers and /or questions should be either located inside buttons themself, or we should include an on hover/click function for each of questions and/or answers, that would display whenever needed. Ronald liked the current solution but said that it would be beneficial to include descriptions of answers either at the bottom of each card-button, or in a form of an additional button within a

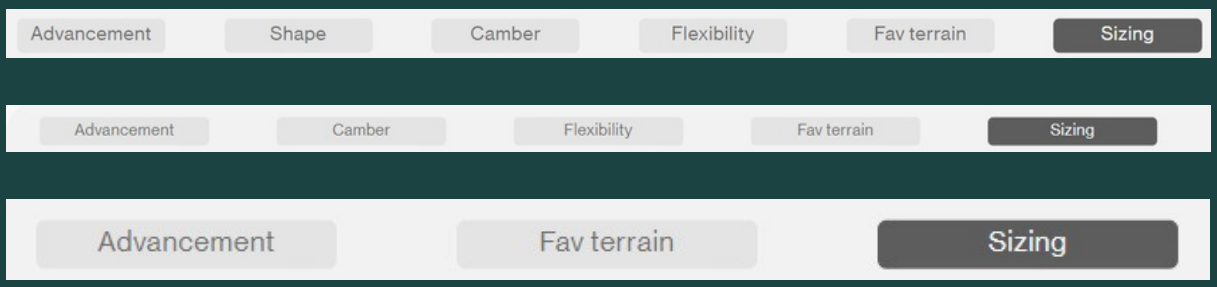
button, with a question mark, which would indicate that under it there is an explanation.

Manual input



Current version requires users to input specific numbers into user input. One of the alternatives is using an approximation instead, but in Robins' opinion we should stick to a specific number as an answer since in his opinion, the approximation method tends to make users uneasy in terms of selected choices. In his opinion, we should also include an appendix that is expressing that given choices are estimated with a 2-5 kg radius, so answers don't need to be exactly precise. Ronald has expressed that it's a good thing to have a question about sizing at the end of the questionnaire, because it's usually the most time consuming and irritating, especially with manual input, instead of approximation, and putting it at the beginning could discourage users from proceeding with snowboard finder further.

Steps



In Robins' opinion it's good that depending on selected option, questions are becoming more and more specific, however in his opinion it might be beneficiary to not call it "user advancement level", and instead call it something along the lines of "advancement of questions", since users' opinion about their own riding advancement level, tends to be very biased, and users' sense of pride or their riding peers might influence their choice. For instance, if a user is riding with very advanced snowboarders, they might think of themselves as beginners even though they're quite advanced, or the other way around. Therefore, calling it "advancement of questions" would be better in terms of allowing users to pick an option that is more relevant to them, even if a beginner user would want to pick something very specific, they should have the option to do so. Similarly, being an advanced user, might not mean that user is looking for something particularly specific, and a simple question

about their terrain and sizing, might be enough to fulfill their needs. Ronald said that It's good that we have manual input at the end of all of the questions and that we should include camber for intermediate and advanced users.

Company style guides

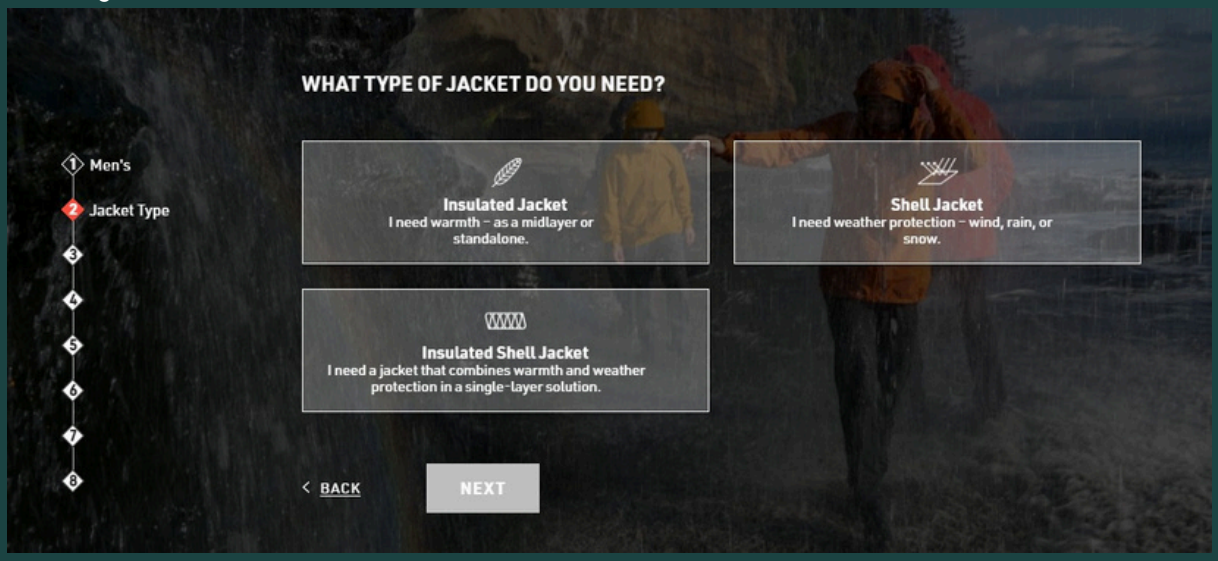
Neither Robin nor Ronald had many comments regarding styling, in their cohesive opinions it looks good, and fulfills its primary function, while filling in with rest of the elements of the website smoothly.

Additional comments

Robin: It might be a good idea to filter matches, while displaying more and more specific options with each answered question. However, for the final match, there should be only 3 best options, since the user needs the best option, and displaying 8 when there was 18 at the beginning, isn't really helpful.

Ronald: Besides buttons for each step, as mentioned before, it would be beneficial to include percentage of match when displaying final outcome.

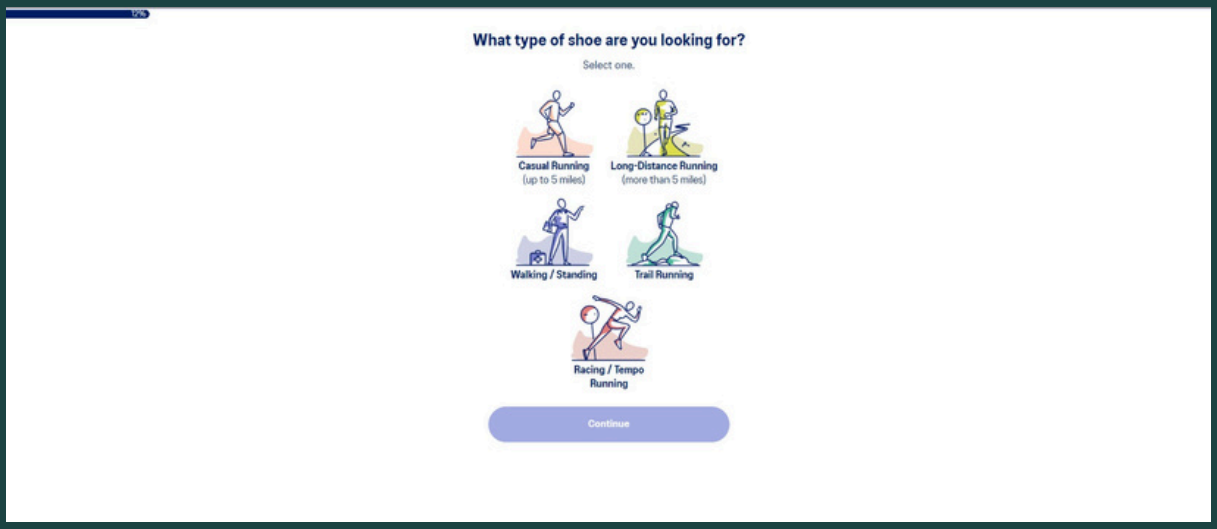
Arcteryx [1]



Both Robin and Ronald liked this solution. Robin has expressed that it might be a good idea to make the suggestions gradually more customized while displaying them

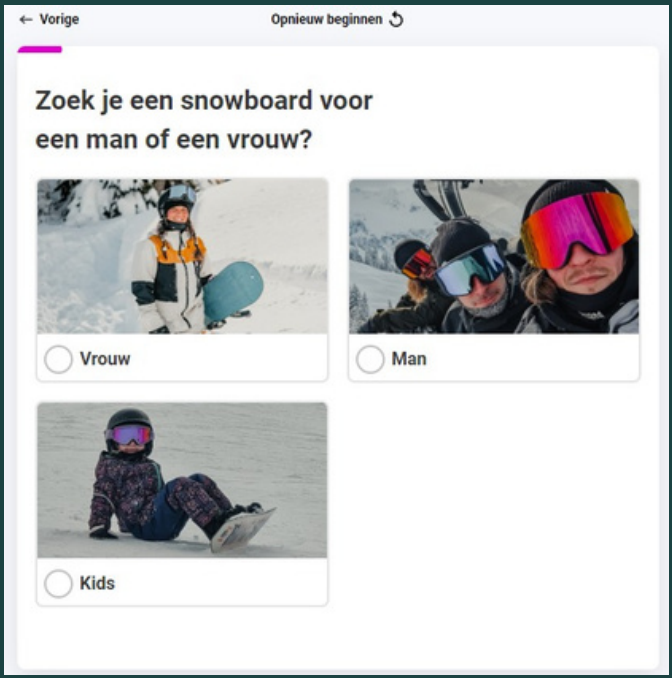
below the product suggestion tool itself. Ronald really liked the feature of displaying percentage of matches.

Asics(US)[2]



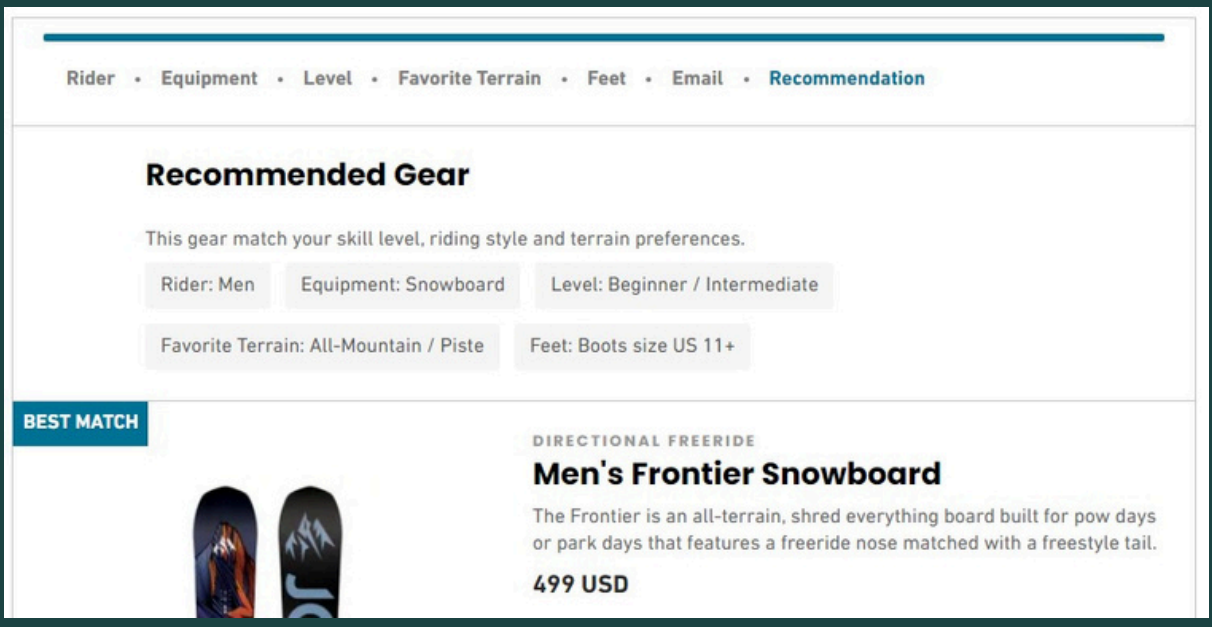
Robin wasn't a huge fan of asking questions about stance type, or other questions regarding user's physiotherapy and has said that the questions that we currently have are perfectly sufficient. They might be relevant, and good questions to ask in case of sophisticated shoes, but in terms of snowboards they will be counterproductive. Ronald has agreed with Robins' opinion, regarding those questions, and suggested that we shouldn't include anything similar into the Bataleon product suggestion tool.

Behind the pines[3]



Robin and Ronald both liked the progress bar and how behind the pines product suggestion tool is presented, and its always visible position on top of the finder. Ronald has complemented its efficiency and the best match solution. They have also acknowledged my concern regarding lack of translation, and we have confirmed that Bataleon product suggestion tool will only use English, since it's the only language available on Bataleon website.

Jones Snowboards[4]



Both Robin and Ronald really liked this solution. The question flow, progress bar, header buttons, and other elements all were to their liking. Ronald said that this

solution is the closest to what they want Bataleon product suggestion tool to work and look like, but it should be more in line with Bataleon style guide. At the same time, he has highlighted that due to the high cost of outsourcing product suggestion tool to such services like ebbot AI that Jones is using, we won't be able to use them to create product suggestion tool for Bataleon. Raw notes from both **usability testing** and benchmark test are available in Appendix C.

Usability testing

[11] Ronald Korbee

First person that has given me the courtesy of being a user in this scenario was Ronald, my company mentor. He is an experienced snowboarder Ronald was a great candidate to verify the system from the perspective of an experienced user.

During the first testing his first choice was to pick an intermediate level of advancement, since that is what he felt he qualified for. This has allowed him to answer the majority of questions. The next question was asking about camber, so he decided to pick a medium option. While he was selecting this option I noticed an error in the UI. The names on card-buttons were correct, however green buttons at the bottom of card-buttons should contain the same information as their counterparts above. Instead they contained options for the shape of the board of "Twin", "directional twin"and "directional", in a place where "low", "medium" and "high" options for camber should be. This error has also occurred in other questions and since been corrected. After selecting the option for middle camber, Ronald has received a question about flexibility of a snowboard. He stated that he likes the soft snowboards, and that was the option that he picked. In the question about favorite terrain, he has picked the "groomed" option. While filling in the details regarding his weight and boot size, he has noticed that a function that is responsible for changing label for "pounds" or "kilograms" doesn't work. We have agreed that it would be better to simply include "weight" in the label, instead of stating which measuring system is currently active. I have also noted that despite picking a measuring system for boots, the available options are still showing all measuring options for boots, instead of showing only the one that was picked by the user. This issue is still required to be fixed. After finalizing his sizing, he has clicked a button that is responsible for performing functions and displaying the results. He didn't receive any direct match, but the system has still delivered an outcome, for which the snowboard that should match his needs best, was Party Wave-164.

In the second round of testing Ronald has picked an "Advanced " option, this way he has answered all questions that are included in the Product suggestion tool. This has led him to question about shape, in which he decided to pick Directional Twin. In a question about camber, similarly as before he has picked a medium option. He also

selected a medium option for flexibility, and a powder option for terrain which ultimately led him to the final question about sizing. He had put an input of 95 kilograms for weight and 10.5 for boot size using an American boot sizing system. He didn't receive any direct match but the system provided him with the best available board which is Bataleon 20Y Board - 156, which is a special board which was released last year to celebrate 20 years of Bataleon as a brand.

In a third round of testing Ronald has picked a Beginner option for Level question, because he didn't fill in the product suggestion tool with this option yet. This time in a terrain option he has picked Groomed, since he felt that this terrain is more appropriate for beginner users. In the sizing options, similarly like before he has given input of 95 in weight using metric system, and 10.5 for Boot sizing using american male boot sizing system. He didn't receive any direct match, but the system has still delivered an outcome, for which the snowboard that should match his needs best, was Party Wave-164.

Agnieszka Wiszniowska

Second person that tested the product suggestion tool for **usability testing** was my mum Agnieszka. She doesn't have experience in snowboarding and was a good candidate to test the "beginner". This test was performed in an online environment, therefore she has filled in her details only once.

At first she chose the beginner option, since she doesn't have any experience in snowboarding. This has led her to receive only questions about terrain and sizing. In the terrain question she has chosen the powder option. During the selection of sizing she has noticed that the label is not changing between kilograms and pounds, and I have explained that this issue is already known and that I'll correct it soon, however I have left it there for now in order to to ensure that all of the testing users are using the same version of program. After filling in the details regarding sizing she has not received any direct match, but the closest available option that the system provided was Party Wave-164.

Mania Szpikowska

Third person that has tested the product suggestion tool was a friend of mine, Mania Szpikowska. She doesn't have any experience in snowboarding, therefore she was a good candidate for testing a "Beginner" option.

Her first choice was to pick a beginner option in the question about "Level". This option provided her with questions about terrain and sizing. In a terrain option she has picked a powder option. When filling out sizing questions she has picked pounds as a preferred unit of measurement, but as a manual input for weight she has written 52, which would sum up to around 25 kg. For boot size she has picked american

units of measurement, and selected 7.5 in male boot size. She has not received any direct match, but the closest available option that the system provided was Party Wave-164.

In the second round of testing she has chosen Advanced for level, which has led her to receive all available questions. In shape option she has picked a directional twin, and for camber, a high option. In the flexibility she has chosen soft, and for terrain she picked a groomed option. This time she has provided a more appropriate input of 52 while selecting kilograms as a unit of measurement for weight. For boot size she has picked 7.5 in american male boot size. No direct results were found, but the closest option that system has found was board finder product 2-156.

In the third round of testing Mania has picked the intermediate option. In the camber option she has picked a low option, and in flexibility a soft option. During this process she has noted that the green buttons at the bottom of the card cards have the wrong labels assigned to them. For the terrain she has picked the Groomed option. In the sizing she has included a kg as a unit of measurements with 52 for its value, and for the boot size she has picked a female american boot sizing system and 7.5 for the size itself. She has not received any direct match, but the closest available option that the system provided was Party Wave-164.

ALEKSANDRA ONIŚKO

Fourth person that has tested the product suggestion tool was a friend of mine, Aleksanda Oniśko. She has over five years of experience in snowboarding, making her a good candidate for testing the 'Advanced' option.

At first she picked “Advanced” for her level of advancement. Then she proceeded with selecting “Directional Twin” for the shape of the board, and “high” for Camber. For the flexibility she has chosen the “Soft” option, and then in terrain, she has chosen “Groomed”. In sizing she has inputted 70 using kilograms, and 42 in european sizing. She has not received any direct match, but the closest available option that the system provided was board finder product 2-156. After the testing she revisited the “Flexibility” question and has noted that one of the options does not have labels attached to them, namely “High” option. This error has since been fixed.

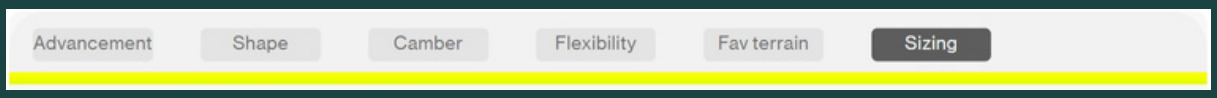
DESIGN DOCUMENT

Question Structure

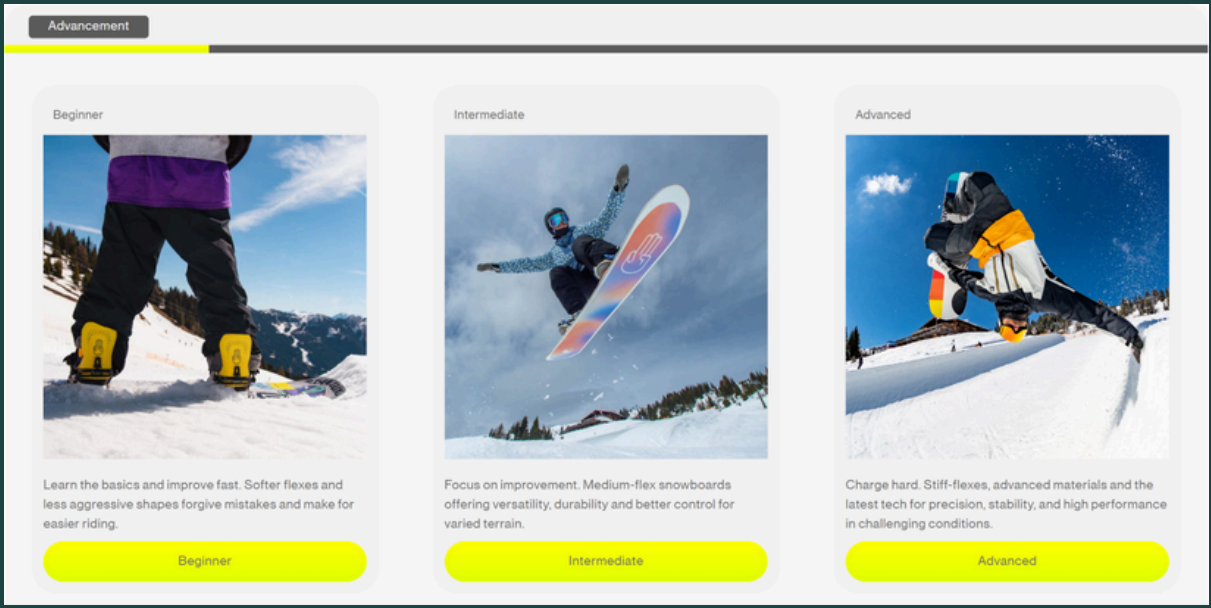
Proposed solution is a question based system which asks users from 3 to 6 questions, depending on how advanced they are. Advantages of this system are described in **Competitive analysis & Best, good and bad practices report**. You

can find a chart with the whole question flow at Appendix E. The reasoning behind it is to provide users with more attention that is more adequate to their needs. Beginner users are going to be asked only about terrain that they intend to ride on, and about their boot size and weight. This information is sufficient enough to find a board that will fulfill users needs, and at the same time is easily understandable by virtually every person that might encounter the Bataleon website. Intermediate and Advanced users are going to be asked more sophisticated questions that will help them to pick a snowboard that will better suit their particular needs. Intermediate users will receive 2 additional questions, one about flexibility, and one about camber. Those 2 parameters hold the most value for more advanced users, since they are primarily responsible for snowboards behavior on snow. Lastly Advanced users are going to be asked all 6 questions, which besides flexibility and camber also includes a question about the shape of the board, since this question is aimed at users who already have 1 or more boards. This solution will allow advanced users to receive a match that will best suit their needs and simultaneously will allow less advanced users to still receive a satisfactory match without being asked questions that wouldn't tell them much anyway.

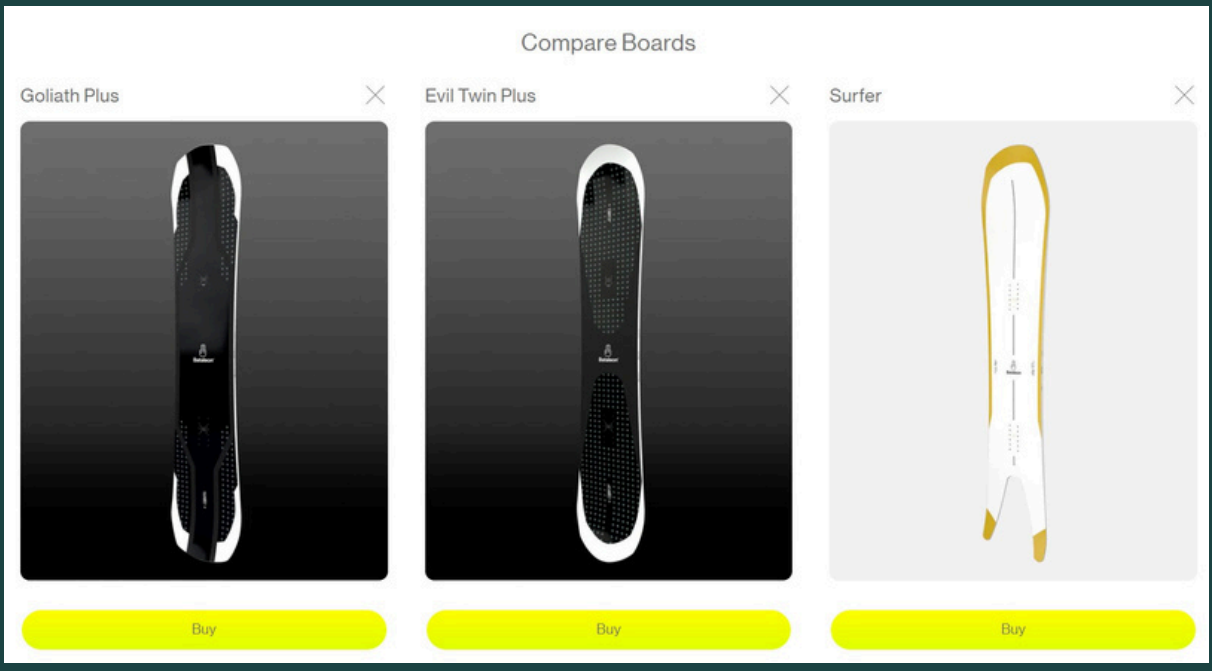
User interface



UI wise, product suggestion tool consist of a few elements. Firstly on top of the product suggestion tool, there is a header. It consists of 2 practical elements, navigational buttons, and progress bar . Progress bars' task is to inform users on how far into the questionnaire they are, and indicate how soon they'll see the results. Navigational buttons task is to allow users to seamlessly change from one question to another, should they want to make change to previously answered questions. Every part of the header from border-radius value and font to background colors and gradient color of progress bar, was styled in accordance with Bataleon style guidance, in order to make sure that product suggestion tool fits bataleon website as well as possible. Unfortunately I'm not allowed to share the style guide itself due to the company policy, but the Bataleon website is a good reference on its own. A link to it you can find here, or at the Appendix F.



Main element of the finder that is responsible for gathering users' answers are card buttons. They consist of the name of the answer at the top left, image relevant to the answer and a description in the middle which is describing what said answer is representing. Additionally at the bottom of each card button, you can see an additional green button. Despite a whole card being a button on its own, I've added the additional green "pill" button in order to highlight that it's clickable, as well as to better fit into the Bataleon website. I wanted to make the buttons and layout to feel more similar to other elements on the website, you can see an example of a "comparison" window on Bataleon website to see what I mean. You can also visit the prototype report to see how the prototype was iterated.



CODE

Codewise this solution consists of several elements in a few different coding languages, which sum up to over 1000 lines of code. The languages used are JavaScript, which is used for overall functionality of a finder, such as switching between questions, displaying appropriate navigational buttons and providing users with a snowboard sufficient for their needs, HTML and CSS which are used for making website itself and styling it, and .liquid which is a coding language used by shopify which is used to calling snowboards from the website. Firstly the visual site is operated on HTML and CSS. Going from the top, navigational buttons are assigned JavaScript functions that are responsible for displaying questions that each of the buttons is representing. At the beginning however, only the first button that is responsible for “Advancement level” is displayed, since it's the first question that is being asked. This practice is in place in order to display only the navigational buttons that are meant for a particular target group, because navigational buttons represent questions that are being asked, and displaying questions that are not asked to the user would be unnecessarily confusing. Additionally the button that is showing the question that is currently displayed is always marked by having a much darker shade of gray added as a background color in order to indicate which question is currently beingasked. Foransweringquestionstheuserneedstoclickoncardbuttons which are responsible for storing answers and changing which question is displayed. The values that correspond to each of the answers are stored in data-value. The first question however has an additional function to it. Because we need to incorporate different questions for different users, an additional value is needed. After Selecting the advancement level, one of 3 functions is activated. Those functions have a “chosen_path” value in them, and depending on the given answer, this value will be either 0 (beginner), 1(intermediate) or 2 (advanced). Based on this value, other functions will change which navigational buttons are displayed. Question about shape is only asked to advanced users, therefore it doesn’t need any if statements and because if it it looks like this

```
function QuestionShape(){
document.getElementById("TemplateLvl").style.display="none";
document.getElementById("TemplateShape").style.display="block";
    document.getElementById("TemplateCamber").style.display="none";
    document.getElementById("TemplateFlex").style.display="none";
document.getElementById("TemplateTerrain").style.display="none";
document.getElementById("TemplateSizing").style.display="none";
console.log("Chosen_path should be at " + Chosen_path);
console.log("QuestionShape");}
```

In comparison, the last 2 questions about terrain and about sizing, are displayed to all users, but beginner or intermediate users shouldn't see the options for shape of the board, therefore it needs to look like that:

```
function QuestionSizing(){
    if(Chosen_path===0){

document.getElementById("RemoveIntermediate4").style.display="none";
document.getElementById("RemoveBeginner3").style.display="none";
document.getElementById("RemoveBeginner4").style.display="none";
document.getElementById("TemplateLvl").style.display="none";
document.getElementById("TemplateShape").style.display="none";
document.getElementById("TemplateCamber").style.display="none";
document.getElementById("TemplateFlex").style.display="none";
document.getElementById("TemplateTerrain").style.display="none";
document.getElementById("TemplateSizing").style.display="block";
console.log("QuestionSizing"); } else if(Chosen_path===1){



document.getElementById("RemoveIntermediate4").style.display="none";

document.getElementById("RemoveBeginner3").style.display="block";

document.getElementById("RemoveBeginner4").style.display="block";
        document.getElementById("TemplateLvl").style.display="none";
        document.getElementById("TemplateShape").style.display="none";
        document.getElementById("TemplateCamber").style.display="none";
        document.getElementById("TemplateFlex").style.display="none";
        document.getElementById("TemplateTerrain").style.display="none";
        document.getElementById("TemplateSizing").style.display="block";
        console.log("QuestionSizing"); }else{


document.getElementById("RemoveIntermediate4").style.display="block";

document.getElementById("RemoveBeginner3").style.display="block";

document.getElementById("RemoveBeginner4").style.display="block";
            document.getElementById("TemplateLvl").style.display="none";
            document.getElementById("TemplateShape").style.display="none";

document.getElementById("TemplateCamber").style.display="none";
```

```
                document.getElementById("TemplateFlex").style.display="none";

            document.getElementById("TemplateTerrain").style.display="none";

            document.getElementById("TemplateSizing").style.display="block";
                console.log("QuestionSizing");}
        }
```

and includes 2 “if” statements, which are there to only display what is needed to be displayed. All of the questions are using the same template, just with different values for the questions, and a template looks like this :

```
<div class="finder-template" id="TemplateTerrain" style="display:none">
                <div class="card-row">
                    <div class="Snowboard-finder-header"> <div class
                    ="header-button" style="width=10%;"
onclick="QuestionLvl();">Advancement </div>
                        <div id="RemoveIntermediate3" class ="header-button remove"
onclick="QuestionShape();">Shape</div>
                        <div id="RemoveBeginner1" class ="header-button remove"
onclick="QuestionCamber();">Camber</div>
                        <div id="RemoveBeginner2" class ="header-button remove"
onclick="QuestionFlex();">Flexibility</div>
                        <div class ="header-button" onclick="QuestionTerrain();"
style="background-color: var(--darkest-grey); color: var(--
lightest-grey);">Fav terrain</div>
                        <div class
="header-button"onclick="QuestionSizing();"style="display:none">Sizing</div>
                    </div>
                </div> <div class="card-row" style="justify-content:start;

background-color: var(--darkest-grey);">
                    <div class="progressbar5" > </div>
                </div> <div class="card-row" style="margin-top:2%;margin-bottom:2%;">

                    <div class ="card-column">
                        <label class="checkbox"><div class="cardButton"
name="style-button" data-name="terrain" data-value ="Park"
style="height:100%"onclick="QuestionSizing();"><input type="checkbox"
name="Terrain" style="opacity:0;" onclick=TerrainPark();>
                            <h4 style="margin-bottom:4%; margin-left:3%">Park</h4>
                            <img class="fluid" width="100%" height="100%"
src=https://cdn.shopify.com/s/files/1/0553/2100/2151/files/product-finder-park .jpg?
v=1716291990/>
```

```
                                <p style="margin-top: 5%;">"Lorem ipsum dolor sit amet,
consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore
magna aliqua. </p>
                                <div class ="card-button-green"><p style="margin-top:
3%;">Park</p></div>
                            </div></label> </div> <div class
                            ="card-column">

                              <label class="checkbox"><div class="cardButton"
name="style-button" data-name="terrain" data-value ="Groomed"
style="height:100%"onclick="QuestionSizing();"><input type="checkbox"
name="Terrain" style="opacity:0;" onclick=TerrainGroomers();>
                                <h4 style="margin-bottom:4%; margin-left:3%">Groomed</h4>
                                   <img class="fluid" width="100%" height="100%"
src=https://cdn.shopify.com/s/files/1/0553/2100/2151/files/product-finder-groo mers.jpg?
v=1716291990/>
                                <p style="margin-top: 5%;">"Lorem ipsum dolor sit amet,
consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore
magna aliqua. </p>
                                <div class ="card-button-green"><p style="margin-top:
3%;">Groomed</p></div>
                            </div></label> </div> <div class
                            ="card-column">

                              <label class="checkbox"><div class="cardButton"
name="style-button" data-name="terrain" data-value ="Powder"
style="height:100%"onclick="QuestionSizing();"><input type="checkbox"
name="Terrain" style="opacity:0;" onclick=TerrainPowder();>
                                <h4 style="margin-bottom:4%; margin-left:3%">Powder</h4>
                                   <img class="fluid" width="100%" height="100%"
src=https://cdn.shopify.com/s/files/1/0553/2100/2151/files/product-finder-pow. jpg?
v=1716291989/>
                                <p style="margin-top: 5%;">"Lorem ipsum dolor sit amet,
consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore
magna aliqua. </p>
                                <div class ="card-button-green"><p style="margin-top:
3%;">Powder</p></div>
                            </div></label>
                            </div>
                        </div>
                    </div>
```

This particular one is from a question about terrain.

How it works

After gathering values from html, the Javascript part of the code does a few things (besides what I have already mentioned). Firstly it calls snowboards from shopify database using liquid language, and makes an array with all the necessary values. Thanks to this solution, product suggestion tool will remain relevant even when the snowboards in stock change.

```
const snowboards = [

        {% paginate collections['all-snowboards'].products by 59 %}
          {% for product in collections['all-snowboards'].products %}
            {% for variant in product.variants %}
                    {
                        name: "{{product.title | append: "-" | append:
variant.option1}}",
                        level: {{product.metafields.global.level}}, shape: "
                        {{product.metafields.global.shape}}", camber: "
                        {{product.metafields.global.camber}}", flexibility:
                        {{product.metafields.global.flex-1}}, ratingPark:
                        {{product.metafields.global.rating-1}}, ratingGroomers:

{{product.metafields.global.rating-5}},
                        ratingPowder:
{{product.metafields.global.rating-4}},
                        bootSizeRange:
[Number({{variant.metafields.global.recommend-boot}})-3,Number({{vari
ant.metafields.global.recommend-boot}})+3],
                        weightRange:
[Number({{variant.metafields.global.recommend-weight}})-3,
Number({{variant.metafields.global.recommend-weight}})+3]
                    },
            {% endfor %}
          {% endfor %}
        {% endpaginate %}
        ];
```

It assigns values using {{product.metafield.global.X}} to corresponding values of the snowboardsarray.LaterfunctionfindProduct()isexecuted,whichisprobablythe most important function in the program.

```
function findProduct() {
```

```
        const form = document.getElementById('product-finder-form');
        const level =
document.querySelector('.cardButton[data-name="level"].selected')?.ge
tAttribute('data-value'); const shape =

document.querySelector('.cardButton[data-name="shape"].selected')?.ge
tAttribute('data-value');
        const camber =
document.querySelector('.cardButton[data-name="camber"].selected')?.g
etAttribute('data-value');
        const flexibility =
document.querySelector('.cardButton[data-name="flexibility"].selected
')?.getAttribute('data-value');
        const terrain =
document.querySelector('.cardButton[data-name="terrain"].selected')?.
getAttribute('data-value');
        const bootSize = document.getElementById('boot-size-value"]'); const
        weight = document.getElementById('weight-value"]');

        const filteredSnowboards = snowboards.filter(board =>
            board.level == level && board.shape == shape &&
            board.camber == camber && board.flexibility ==
            flexibility && board.terrain == terrain && bootSize >=
            board.bootSizeRange[0] && bootSize <=


board.bootSizeRange[1] &&
            weight >= board.weightRange[0] && weight <=
board.weightRange[1]
        ); console.log(terrain + 'is saved terrain now HERE!!!');


        const bestMatches = filteredSnowboards.slice(0, 3);

        const resultList = document.getElementById('result-list');
        resultList.innerHTML = '';

        if (bestMatches.length === 0) {
            // Find the closest match let
            closestMatch = null; let
            highestScore = 0;

            snowboards.forEach(board => {
                let score = 0;
```

```
            if (board.level == level) score++; if (board.shape == shape)
            score++; if (board.camber == camber) score++; if
            (board.flexibility == flexibility) score++; if (board.terrain ==
            terrain) score++; if (bootSize >= board.bootSizeRange[0] &&
            bootSize <=

board.bootSizeRange[1]) score++;
            if (weight >= board.weightRange[0] && weight <=
board.weightRange[1]) score++;

            if (score > highestScore) {
                highestScore = score;
                closestMatch = board;
            } });


        resultList.innerHTML = `<p>No exact matches found. Showing
the closest match:</p>`;

        if (closestMatch) {
            const boardDiv = document.createElement('div');
            boardDiv.classList.add('card'); boardDiv.innerHTML = `

                <h3>${closestMatch.name}</h3> <p id ="target">Level:
                ${closestMatch.level}</p> <p>Shape: ${closestMatch.shape}
                </p> <p>Camber: ${closestMatch.camber}</p> <p>Flexibility:
                ${closestMatch.flexibility}</p> <p>Terrain:
                ${closestMatch.terrain}</p> <p>Boot Size Range:
                ${closestMatch.bootSizeRange[0]} -

${closestMatch.bootSizeRange[1]}</p>
                <p>Weight Range: ${closestMatch.weightRange[0]} -
${closestMatch.weightRange[1]}</p>
            `; resultList.appendChild(boardDiv); console.log('There were no
            direct matches but it should

give match regardless')
        }
    } else {
        bestMatches.forEach(board => {
            const boardDiv = document.createElement('div');
            boardDiv.classList.add('card'); boardDiv.innerHTML = `

                <h3>${board.name}</h3>
```

```
                    <p>Level: ${board.level}</p> <p>Shape: ${board.shape}
                    </p> <p>Camber: ${board.camber}</p> <p>Flexibility:
                    ${board.flexibility}</p> <p>Terrain: ${board.terrain}
                    </p> <p>Boot Size Range: ${board.bootSizeRange[0]}
                    -

${board.bootSizeRange[1]}</p>
                    <p>Weight Range: ${board.weightRange[0]} -
${board.weightRange[1]}</p>
                `; resultList.appendChild(boardDiv); console.log('It
                should be giving matches now')

            });
        }

        //document.getElementById('result').classList.remove('hidden');
    }
```

Firstly it collects data-values from every picked button, and stores them in constant values, which is a great way of collecting user input. Later it compares those values with the values of each of the boards, and limits the number of matches to best 3. Limiting the number of answers is further described in **Competitive Analysis and Best good and bad practices report**. In a nutshell this process is there to ensure the user receives meaningful help, that will allow them to pick a product that best suits their needs. If there were no direct matches it will analyze which values were fulfilled by the available boards, and will give an increased score value for each of the parameters that board is fulfilling. Lastly it will take the boards that were best fitting and create a div for them at the bottom of the page.

DISCUSSION

Competitive Analysis & Best, Good and Bad Practices Report

Analyzing how other brands are making product suggestion tools has led me to the following conclusions. It was observed that the majority of all product suggestion tools are using a question based system, with the only exception being Blue-tomato product suggestion tool, which is a filter based system. That indicates a trend within and outside the industry of using a question based system since 6 out of 7 systems

are using this solution, therefore it seems to be the best way of extracting information. Similar conclusions can be drawn for navigation buttons and progress bars, both of which appear 5 out of 7 times, and navigational buttons possess an additional benefit of being an industry standard. Most websites do have navigational buttons on them, and using them in a similar fashion will improve user experience because users are familiar with this feature, know what it's for and know what it does. Other features such as displaying best match, limiting nr of answers to best 3, percentage of match or displaying fulfilled requirements were also observed on multiple websites, but weren't as popular. In terms of questions that are being asked in appendix B you can find the details on which questions are being asked on which website. The pattern indicates that questions about sizing, user dimensions, gender, level of advancement and terrain are the most common ones. That's why for the beginner options those are the questions that are being asked, with the exception of question about gender, since in Ronald's opinion it's not really relevant in a situation when we already have users' information regarding weight and boot sizing. Despite not being as popular we have decided to also include questions about flexibility and camber to both intermediate and advanced users, and a question about shape to advanced users. The reports from SEO, the details of which are available in appendix A, are showing that new customers tend to leave the site after scrolling down the specifications of the boards, while returning and more experienced users tend to spend significantly more time in this section in order to compare products. This has led us to the conclusion that beginner users should receive a simplified version of a product suggestion tool in comparison to their more advanced counterparts.

In terms of answer to research questions I believe that this report provides sufficient proof that a question based system is sufficient in extracting information from users(research subquestion 4), and is an industry standard in collecting user data for the purpose of similar product suggestion tools. It also describes how other brands within and outside industry are creating similar product suggestion tools for providing their users with the best product available. (research subquestion 1) The KPIs that are most common in most product suggestion tools that are providing users with snowboards are Gender, Sizing of Boots, Weight and terrain, however camber, shape and flexibility was also observed, and deemed necessary by a company stakeholder, therefore we have included them as well, but only for more advanced users (research subquestion 2). Exact statistics are available at Appendix B. The features that were observed to be utilized by multiple competitors, and were confirmed by company stakeholder to be included are Progress bar, Navigational buttons, Limiting nr of answers to best 3, providing users with match even when no direct match were found, and highlighting best match. Other useful features like percentage match or displaying fulfilled requirements were also observed. While valuable, these features are being prioritized for a future phase to ensure a completion of the core functionalities (research subquestion 3).

Element	Why it should be implemented (if possible)	Why it should be avoided
Progress bar	Including a progress bar can motivate users to complete questionnaires and reduce the likelihood of frustration from lengthy questioning.	
Limiting nr of answers to3	Limiting the number of matches to a maximum of 3-4 options can reduce user anxiety and the likelihood of abandoning choices.	
Highlight best match	Providing users with the best match can greatly enhance the usability of the product suggestion tool and help users find the best option from available ones, especially if accompanied by a simple explanation of why it is considered the best match.	
Navigation buttons	Including navigation buttons will help increase user control, and allow users to instantly select which questions they would like to resubmit the answer to.	

Displaying fulfilled requirements	By displaying fulfilled requirements, we ensure that the user is informed about the specifics of the board being shown. This will be particularly beneficial when no perfect board is available based on the user's input.	
Percentage match	Adding a percentage match to the provided answers will help users determine which of the options will suit their needs best.	
Lack of matches		Providing users with no matches when filling in a product suggestion form, might discourage them from using Bataleon website altogether.
Lack of translation		Not providing users with translation of website, and only limiting to Dutch speakers will limit the availability of Bataleon website, therefore should be avoided.

Peer review & Benchmark test Report

Analyzing existing prototype, as well similar product suggestion tools with both Peers has helped us determine some important key points for development of Bataleon product suggestion tool. UI wise it was confirmed by both peers that elements such as navigational buttons, progress bar, color scheme or styling of elements do fit into Bataleon website very well. Furthermore a benefit in using progress bar and navigational buttons is confirmed by industry trends which is highlighted in the **Competitive Analysis & Best, Good and Bad Practices Report**. Explanation of answers is another useful feature that was observed on multiple occasions. Its inclusion should decrease the probability of users not understanding the discussed

feature, which in comparison with more advanced questions being asked exclusively to more advanced users will greatly decrease the probability of user confusion regarding the questions. Some of the showcased product suggestion tools both in this document and in **Competitive Analysis & Best, Good and Bad Practices Report**, such as behind the pines, were using an estimation instead of asking users about exact numbers regarding their weight and boot sizes. Robin has expressed his dislike towards this practice, since in his opinion it might make the users uneasy. While I wasn't able to find any studies regarding this subject, approximation didn't provide any significant benefits, therefore I have decided to include a system that requires a manual input of numbers instead of approximation. Providing users with a percentage match for their snowboard was complemented by both peers, however while I agree that it is beneficial in some cases, I disagree in terms of its inclusion to Bataleon product suggestion tool. My reasoning is that we already provide users with both highlighting of a best match and with top 3 matches, therefore including yet another form of showing the user which option is the best is a bit counterproductive in my opinion.

Apart from analyzing the elements with peers they also had some other suggestions regarding the development of product suggestion tool for Bataleon. In Robins' opinion relocating the title from the left side of the button to the center is more intuitive. While it is true, I have noted that most of the elements present on Bataleon website are starting from the left, therefore to keep the page build as unitary as possible, I'll be keeping them as they are. Both peers have also noted that images and descriptions need to be updated, which I 100 % agree with, and looking back I think that using a prototype with not included images and descriptions was a mistake. Ronald has suggested using a vertical navigation button in the mobile version of the product suggestion tool and stated that it would improve mobile version. In my opinion it would be better to include them at the top like in the

desktop
version, to keep the build unitary. Additionally, the mobile version aims to have the "card" element as a sliding button, so adding vertical navigation buttons to that will make the area too cramped in my opinion. It's a good thing that we include
questions
about sizing at the end, because these types of questions are the least entertaining ones, therefore the user is most likely to skip them. By including them at the end, most users will be prone to fill them in, since they already filled in most of the questionnaire. This thesis is confirmed by a study made by Pritha Bhandari [9](Bhandari, 2023) which states that a questionnaire should start with questions

that
the user is going to be engaged in the most. Robin has stated that in his experience users' opinion about their own riding advancement level, tends to be very biased, and users' sense of pride or their riding peers might influence their choice. While I agree that this phenomenon is true, I disagree with unnecessarily complicating things by renaming question about users' level, with "sophistication of questions", especially that those two things ultimately are summing up to the same outcome, therefore there is little reason for changing it.

This document, along with other relevant materials, offers valuable insights that broadly address the research sub questions 4 and 7. Benchmark testing performed together with peers has partly proved that the current solution of question based system is sufficient in extracting information from users, which is further reconfirmed by **Usability testing**. It has also proved that usability testing, which is available in **Usability testing** report, is necessary in order to ensure good user experience.

Usability testing Report

Thanks to user testing several problems were uncovered. Issue that appears from the moment that a user enters the website is the lack of descriptions. It was noted on several occasions, by nearly all users that have tested the product, and it's an easy problem to fix. Another easily fixable problem that was spotted during the testing was that the green buttons that are located on the bottom of the card-buttons do not have the same labels as the options that they should represent. By looking at recordings, all which you can find at the User Testing Recordings folder, you can easily see that some questions have this problem and some don't. The question about Advancement level, and question about shape have appropriate labels in green buttons, but after that problems begin to appear. In questions about camber and flexibility all of the green buttons have labels that were meant to be included in "shape" question, and instead of displaying "low", "medium", "high" or "soft", "medium", "stiff" they display "Twin", "Directional Twin" and "Directional". This problem has since been solved.

The biggest spotted problem is with the system that is supposed to provide user with matches. During the testing there wasn't a single occurrence when the system has given the user a direct match, every time it has given the user the closest match available. Moreover during both official testing as well as when I have tried testing the product suggestion tool myself, a majority of provided closest matches were the Party Wave - 164. During the official testing this board was provided as a match to the user 5 out of 8 times. A Party Wave-164 board is a board aimed for users within intermediate-advanced range, therefore might not be entirely suitable for a beginner user, yet it was provided to them on 3 separate occasions. This might indicate that the system that distributes points to the boards might need to be altered. Most likely cause for this is located somewhere in a system that is adding scores to the boards based on user input. Currently for each parameter that the board is fulfilling, the score is being increased by 1. However, there are some issues with this solution. Firstly, in the question about terrain, users are being asked to select the terrain that they prefer. This solution would work pretty good if the boards simply had a terrain that they're meant for in a shopify database, however that is not the case. Instead they contain a rating of 0-10 for 5 different terrains. Another element that is supplementing the problem is the sizing. Despite many different approaches and multiple attempts, no matter how I approach the issue, both the Boot Sizing range

and Weight range are not giving me appropriate numbers. Instead they're displaying either "-3 -3" or are displaying appropriate numbers, but are not performing necessary calculations to receive an outcome, instances of both you can find at Appendix D. Possible solution to this issue could be implementation of a system that is selecting boards that have a high rating of the option that is selected by the user, Cleay, one of my company mentors has suggested that rating to be 8 or higher.

In terms of answering a research subquestion nr 7, I believe that this report provides sufficient proof that **usability testing**, performed by multiple potential users of a product is adequate in providing valuable feedback in terms of product suggestion tools' functionality as well as performance of the User interface.

Design Document report

The proposed Bataleon product suggestion tool can greatly increase consumer satisfaction and user experience. It is a question-based approach that is providing a simplified experience for the beginner users and more detailed options for those who are advanced. It can improve the present situation where information about products is primarily aimed at advanced users, who know how each of the board's parameters is altering its performance.

Through personalized interactions, both beginners and experienced users will benefit from this solution because it guarantees understandability and eliminates data overload. The system also assists with accurate matching between snowboard specifications and user demands by making use of the stored Shopify product data. This means that any time the user wants to select a snowboard, they will be satisfied with one that fits their taste as well as riding style based on this database's contents and user input. Lastly, since snowboards can be called from Shopify's database as needed at any moment throughout this exercise even when stock numbers fluctuate; it remains up-to-date with inventory movement.

A few things need improvement though. Mobile version does not exist yet for now but is to be implemented soon so that one can access everything through their mobile devices.

In terms of answering research questions, I believe that this document sufficiently describes how user information is extracted by using data-value features in HTML language(research subquestion 5), and describes how stock is called by .liquid code from the shopify database (research subquestion 6) using "{{product.metafields.global}}" methods.

Research Report

The research performed during the development of the product suggestion tool for Bataleon sufficiently answers all of the research questions. For a systematic

breakdown, the key insights from the sub-questions will be presented first, followed by their connection to the main research question.

Most other brands within and outside the industry are using a question based system which is asking user questions regarding their needs and preferences, in order to receive user input. A number of them include desirable features like progress bar, navigational buttons or providing users closest available matches, but also some of them had their own issues like lack of english translation or not providing users with matches and not suggestion other products.

According to research the KPIs on which users are making their decision include Gender, Sizing of Boots, Weight and terrain, however shape, camber and flexibility are also important parameters that are crucial in decision making of more advanced users.

The UI elements that are the most important to be featured in product suggestion tool include a progress bar, navigational buttons, 3 best matches and non direct match. Product suggestion tool could also benefit from inclusion of features like percentage match or fulfilled requirements, but their inclusion is not as crucial as the first 4.

Research suggests that the most efficient way of collecting information from users is a question-based system that is asking users each question one by one and utilizes a knowledge-driven approach, adjusting the question sequence and complexity based on the user's declared understanding of the topic.

Research of the product suggestion tool and its development has suggested that the most efficient method of finding appropriate products in product suggestion tool would be some kind of scoring system that is assigned to each of the snowboards based on user input. Then the 3 boards that have received the highest score would be displayed in a results section. This system is implemented in a product suggestion tool, but requires further improvement due to occurring errors.

Development of the product suggestion tool has proved that the only reliable way of implementing available stock to the product suggestion tool is usage of “{{product.metafields.global}}” methods in liquid language. This solution ensures that snowboards come from Bataleon database of “all-snowboards”, which contains all snowboards available at the moment.

Research has suggested that usability testing with target users is the most reliable method of user testing available. Its crucial findings have confirmed this thesis. Additionally I have also implemented benchmark testing before the user testing itself in order to ensure the usability of the prototype.

Overall research suggests question-based systems are standard for user input in various industries, with features like progress bars, navigational buttons and closest matches being valuable additions. Core user decision factors include size, weight, and terrain, while advanced users consider shape, camber, and flexibility. A knowledge-driven, question-by-question approach is most efficient for data collection. For product selection, a scoring system based on user input displaying the top 3 results seems most effective. Usability testing with target users proved most reliable, confirming its effectiveness in identifying issues.

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APPENDIXES

Appendix A

Ronald Input

Upon reviewing the SEO reports, we observed that new customers tended to leave the site after scrolling down to the specifications section of the boards. New customers may find the technical details overwhelming, while returning customers, (especially older age customers), spend more time comparing specs before making a purchase decision. To address this, it is important to ensure that new or beginner customers are not deterred by an excess of technical information. At the same time, we should continue to provide detailed specifications for our returning customers who are seeking new boards.

Appendix B

The table below shows which question was observed on each of the product suggestion tools.

Snowboard Store	Behind the pines	Blue-tomato	Jones - Stakeholders favorite	Simply-buy
Weight	✓	✓		✓
Height	✓	✓		✓
Gender	✓	✓	✓	✓
Boot size	✓	kind of	kind of	✓
Lvl of advancement	✓	✓	✓	✓
terrain	✓	✓	✓	✓
style	✓			
flexibility			✓ only for advanced	✓

camber	✓only for advanced	✓
shape	✓only for advanced	✓

APPENDIX C

Elements of the finder

- Headerandsystemstatusvisibility

Robin: nice to have a progress bar, how far in a questionnaire you are. Good to have a clear end in sight. You know how far you are.

Ronald: Maybe include all of the steps in the header but display them like jonnes

- Mainpageandcards

Robin: Clear visual. Not sure about the title being on the left. More accurate pictures and descriptions.

Ronald: Let's stay as it is. Good to have a description of a question.(like jonnes)

- Positioning

Robin: Yeah, seems good.

Ronald: Good. But include the step buttons. Maybe made them slidebal on mobile kind of like jones but actually clickable.

- Manualinput

Robin: The customer might not like the approximation. make it as specific as possible.

Ronald: it's good to have it at the end (its the most boring one, it might be discouraging to include all of the input at the beginning.)

- Steps

Robin:
It's good that it becomes more and more specific. Advanced users might be more incentivised to answer more specific questions. Good that we make questions more specific.

Ronald: Good to have input at the end, Include camber for above beginner.

- Companystyleguides

Robin: Consistent font, colors are the same, i think it would fit.

Ronald: Looks good.

- Additionalcomments

Robin: It might be a good idea to filter matches, while displaying more and more specific options with each answered question. However, for the final match, there should be only 3 best options, since the user needs the best option, and displaying 8 when there was 18 at the beginning, isn't really helpful.

Ronald: Besides buttons for each step, as mentioned before, it would be beneficial to include percentage of match when displaying final

Compare with some of the competitors:

Make beginner, intermediate, advanced recommendations, instead of asking users what their level is. indicate more specific questions instead of telling how "advanced user is".

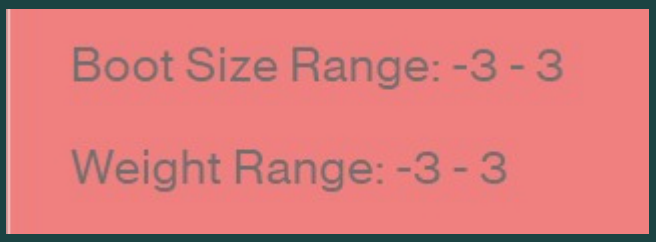
Arcteryx Robin: Make suggestions more and more customized while displaying them below the PST. Ronald: It would be cool to have a percentage of matches.

Asics Robin: Advanced questions like stance type aren't very relevant for snowboards. Add binding suggestions to search results. Ronald: I agree with Robin

Behind the pines Robin: Maybe include which elements
Ronald: could bo more then only dutch, but best match feature is cool

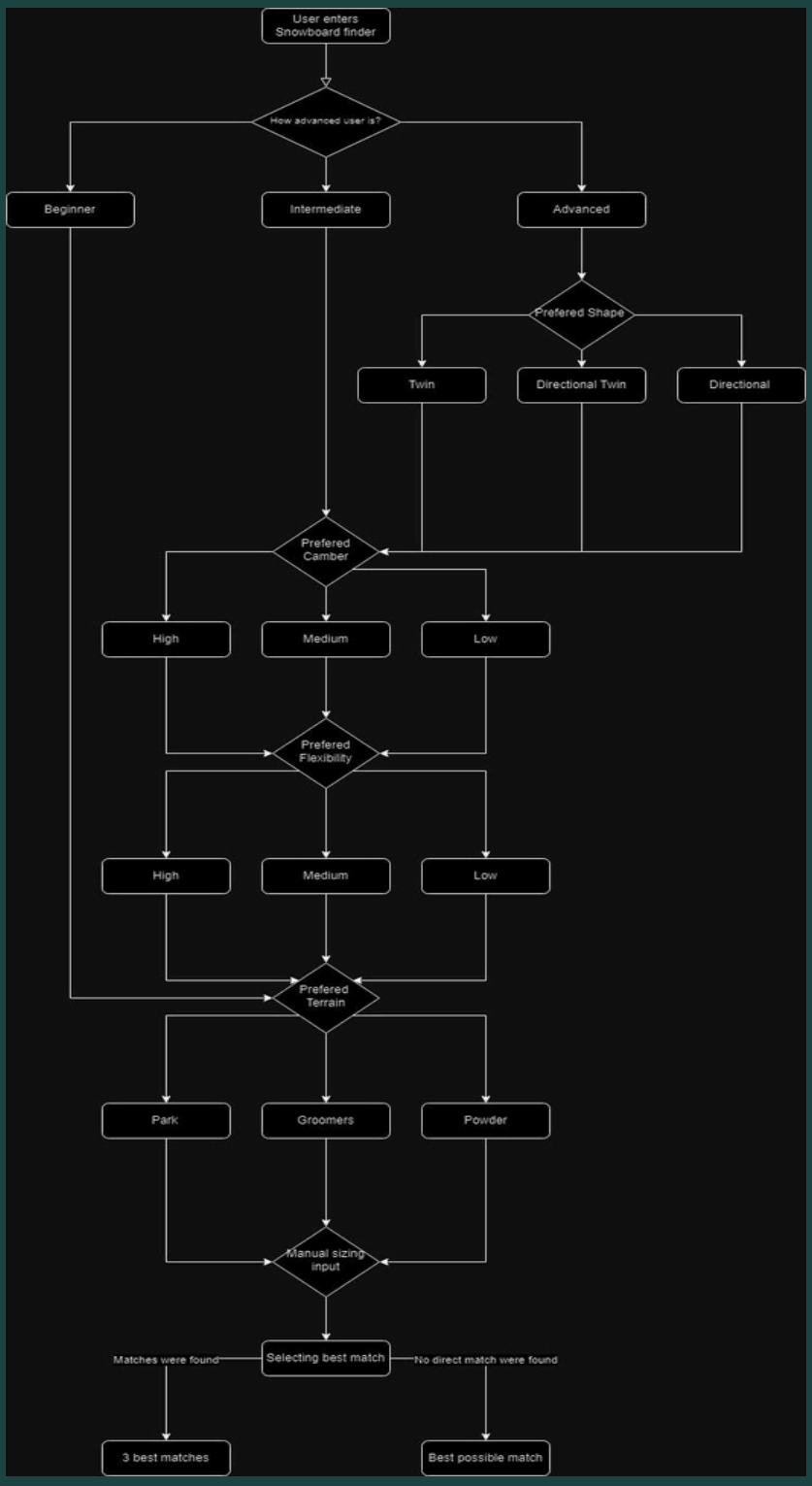
Jones Robin:Incorporate filter of snowboards into product suggestion tool (? might be hard to implement tho) Ronald: Best display 3-4 best selling options

Appendix D




```
  bootSizeRange: [Number(23.0)-3,Number(23.0)+3],
  weightRange: [Number(51.0)-3, Number(51.0)+3]
```

Appendix E



Appendix F

https://eu.bataleon.com/