

Piano Picker

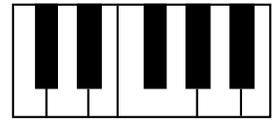


Table of Contents

System Scope and Goals	3
Users of the System.....	3
Scope/Definition of the Target Audience.....	3
Physical Characteristics.....	4
Knowledge and experience.....	4
Computer/IT experience or knowledge.....	5
Level of Experience with the Task.....	5
Psychological Characteristics	5
Personas.....	6
The Established Pianist Persona: William.....	6
II. The Parent Persona: Jenny	7
The Hobbyist Persona: Marshall.....	8
Task Analysis of the Piano Picker.....	10
Hierarchical Description	10
Essential Use Cases	10
Scenarios of Use.....	11
Search for Piano—William.....	11
Search for Piano—Jenny	11
Search for Piano—Marshall.....	11
General Description of Task Characteristics	12
Design Decisions.....	13
System Map	15
System Prototypes	16
Home Page:	16
Advanced Search Page:	17
Piano Picker: Successful Search Page	18
Piano Picker: Search Failure.....	19
References:.....	20

System Scope and Goals

Pianos are tricky instruments. Frequently, they are simply too large or expensive for many people who would enjoy learning to play them; they are at times driven away from picking up the instrument because of the cost to maintain it and move it. There are alternatives out there, such as more-portable piano keyboards, but the variety of models and their availabilities can vary widely. The Piano Picker is intended to act as a first step for those searching for a piano or keyboard and aims to offer the opportunity to cull some of the overwhelming amount of information one gets when simply Googling “piano keyboard.”

The Piano Picker is a web-based interface designed to allow its users to locate their ideal piano (or keyboard) based upon a variety of factors. Its primary users come from a range of backgrounds and locations across the United States. Piano Picker offers the chance for its users to select different features they want to see in their ideal instrument as well as input other data, such as textual information about what they envision it being called (such as a model number or kind of piano) as well as limiting search by geographical distances within the United States.

Users of the System

Scope/Definition of the Target Audience

Piano Picker’s users will be comprised of people across the United States who are also across a wide spectrum of familiarity with the piano. Some may be seasoned concert pianists; others will be parents of children who are just learning the very basics. They may or may not be familiar with computers beyond basic use of the Internet.

There will be three hypothetical subgroups of users:

1) The established pianist

This is the user who will have a generally good idea of what they are looking for. They have been playing for a number of years and are shopping for an upgrade or a

replacement for their current piano. They are likely to know what they want feature-wise and which brands they prefer. It is likely that a piano is an investment they are accustomed to dedicating a significant amount of their finances to.

2) The parent

This user is a parent of a child who is just now taking lessons. They may not have the space for a piano in their household and may not have the budget for a full-fledged baby grand or upright. They are not sure exactly what they need and are not sure if they can convince their child that the piano will be good for them in the long run, so they are not certain how much they want to commit financially.

3) The hobbyist

This user may or may not be familiar with the piano, but has likely had exposure to music in general. They are seeking a piano or a keyboard, yet they aren't so sure they have the budget or the space for one. They may be interested in furthering their current technique or beginning from scratch.

Summary data on characteristics of the target audience:

Physical Characteristics

Age: Anywhere from 15 to 70 or so years of age

Sex: male and female

Perceptual abilities: able to understand and use a form on a webpage

Motor skills and physical disabilities: ability to use a computer keyboard and mouse

Knowledge and experience

Level of education: Likely at least a high school graduate

Reading level: At least through 8th grade

Native language: English.

Knowledge of particular (domain-specific) terminology: ideally basic knowledge of the piano keyboard—aware of how many keys they are seeking and what music they are expecting to play and possibly grow into down the road

Computer/IT experience or knowledge

Computer literacy: novice; Level of experience with similar systems: familiarity with the use of webpage forms;

Level of experience with other systems: novice; only expected to be able to turn on computer and locate the page using a web browser (either via Favorites/Bookmarks or Google).

Level of Experience with the Task

Experience level for potential users can be as little as none. Some other sort of searching for a piano may have been done before using this interface.

Psychological Characteristics

Attitudes: Ideally optimistic, possibly concerned about financial implications or the difficulty of transporting an instrument. However, they should be eager to learn from the system and use it to their advantage.



Personas

The Established Pianist Persona: William

Age: 43

Personal:

William has played piano since he was 10 years old, and now, at the age of 43, still considers it very important. He still plays as often as his job (as a project manager) and family permit, typically laying hands on once or twice a week. His current piano still sounds good, but it is an upright he has had for numerous years, and he is interested in seeing if he can purchase a baby grand piano.

Work Environment:

William will be searching for a new piano and weighing his options from the course of several days to several months. He knows he does not want to make any financial decisions too quickly, although he does have resources.

Technical proficiency:

William regularly uses the computer and the Internet at his job; he is extremely proficient at using technology and comfortable with the web.

Pet peeves and technical frustrations:

William doesn't enjoy waiting for information to reach him. He prefers that it come quickly and he is unlikely to spend much time perusing and filling out a long form.

Attitudes:

William, although impatient, has come to realize how useful he finds the web in general. He therefore expects his search results to be fruitful and beneficial.

Motivation for using the system:

William is searching for a baby grand piano that fulfills his requirements. Given their size, it is unlikely he will want his search to be extremely far from his house.

Personal goals:

William wants a piano that he can treasure and play on regularly. The sound of it is very important to him. He finds the regal appeal of grand pianos to be his ideal, but knows for space reasons he will likely have to settle for a baby grand.

Quote:

“It’s time for me to upgrade, but I want to do it wisely.”

**II. The Parent Persona: Jenny**

Age: 35

Personal:

Jenny has two kids, Sam and Laura, ages 4 and 8 respectively. She is kept busy with taking care of them and the house that she and her husband have recently moved into. She has heard several of her friends discussing how their children learning the basics of piano and thinks it would be a good option for her children as well. She has mentioned it to Laura and she is very excited for it. She has just started discussing this with a piano instructor but is worried that they do not have a piano in their home.

Work Environment:

Jenny does not always have the time to sit and peruse many search results. She also knows she has a limited amount of time during which to commit to the new piano instructor as she has a waitlist.

Technical proficiency:

Jenny is comfortable enough with the Internet to perform simple Google searches.

Pet peeves and technical frustrations:

Since she is always trying to keep an eye on their four-year-old and continue to unpack the boxes in their new house, Jenny cannot always dedicate a solid block of time to using Piano Picker. She is also not entirely familiar with piano terminology.

Attitudes:

Jenny is hopeful that she will be able to find a good keyboard for her children but also nervous about the search process as she does not want to put down too much money for something her kids may not enjoy. She is also a little uneasy about the fact that she doesn't know what certain words used in piano terminology mean.

Motivation for using the system:

Jenny wants to find a piano keyboard for her children.

Personal goals:

Jenny wants to find an affordable, not-too-large piano keyboard of some sort for her children to learn music on; she does not want them to grow out of it too quickly.

Quote:

“How can I find something that's affordable, space-efficient and ideal for my children?”



The Hobbyist Persona: Marshall

Age: 20

Personal:

Marshall graduated from high school several years ago and works full-time. He took piano lessons growing up for a time and is fond of it, but has had a bit of a falling out with the instrument since he moved out of his parents' house.

Work Environment:

Marshall pays for monthly Internet access in his apartment. Although it isn't the best in terms of speed, he relies on it regularly in order to pay his bills and tackle other day-to-day tasks, often using it for entertainment as well.

Technical proficiency:

Marshall is fairly familiar with the Internet and learned the basics of search and computers in several of his high school courses.

Pet peeves and technical frustrations:

Marshall has a slower Internet connection and hates having to wait ages for pages to load.

Attitudes:

Marshall enjoys learning and finds that the Internet is typically very useful for him.

Motivation for using the system:

Marshall would like to find a good piano keyboard that he can use to get back into playing with.

Personal:

Marshall wants to find an affordable, small piano with features that will satisfy his inner neglected pianist.

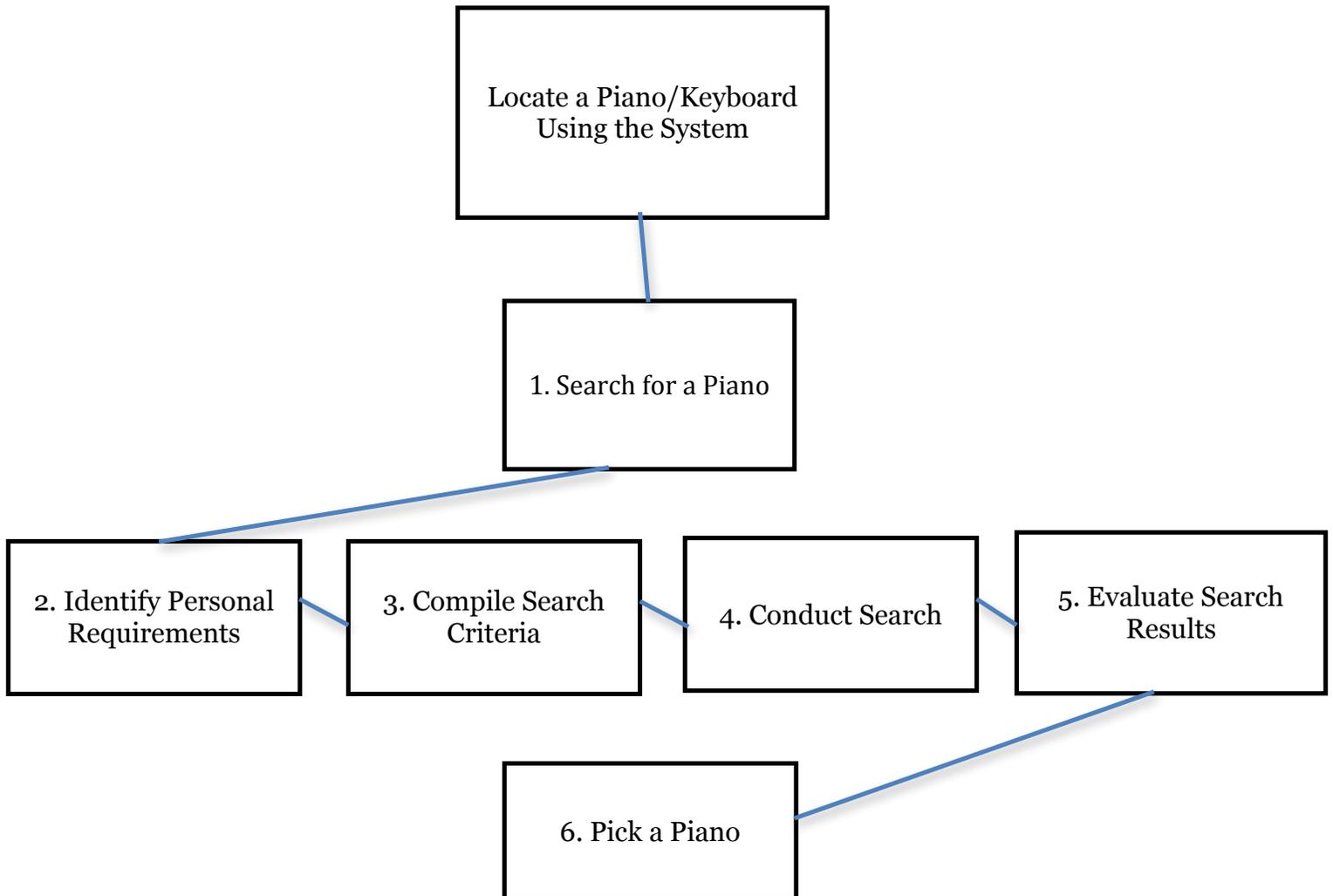
Quote:

“I miss it, but I’m not sure I can afford it again, or have room for it.”

Task Analysis of the Piano Picker

Tasks to Be Performed

Hierarchical Description



Essential Use Cases

Search for Piano

User Intention

System Responsibility

Locate a piano

Identify personal requirements

Compile Search Criteria

Aid in understanding features, offer suggestions

Aid in understanding features

Conduct search
Evaluate search results
results
Pick a piano

Provide results
Allow for refinement, re-running criteria, saving
Offer details on model

Scenarios of Use

Search for Piano—William

William has taken a look at his old piano and decided he wants to upgrade. He navigates to Piano Picker one night and inputs the specifications of “baby grand piano” in the top search box, selects “Steinway,” as a brand name and limits his search to within 50 miles away. Piano Picker returns about five options to him. He is able to select and peruse the details of several promising ones and decides to go in person to take a look at them the next day.

Search for Piano—Jenny

Jenny manages to find time to sit down at the family computer to look up a piano for her kids. She navigates to the Piano Picker and puts in a few rough guesses about what she’s looking for. She types “keyboard” into the main search box and struggles a little with the features as she does not recognize them. The system is able to help her out with its tooltips feature. The first time she runs the search, she finds that she has been to limiting with her distance of “< 5 miles”. She readjusts this to “< 20 miles” and manages to get a few pages of results. Just as she reaches this page however, the phone begins ringing. Not wanting to lose her search, she is able to save the search by clicking the “Save Search” button on the search page.

Search for Piano—Marshall

Marshall feels as though he has finally saved up a decent amount of money in order to buy a piano. He finds the Piano Picker website one night and decides to try it out.

He gives it some thought and identifies his personal requirements as wanting a keyboard that is space-efficient, has headphone capabilities and is within his price range—roughly \$300 - \$500. He knows he doesn’t want a regular upright piano, so he types “piano keyboard” into the top search bar and fills in his other criteria. He hits submit.

Piano Picker returns twenty results to him. Realizing that about half are over 100 miles away, Marshall invokes the option to limit his search to pianos less than 50 miles away from his zip code. He has now whittled his options down to 10 and can select specific instruments to view their details.

General Description of Task Characteristics

Users will probably only perform this task at a specific point or time period in their lives—when they are shopping for a musical instrument. However, the task may be performed a number of times during that specific time period as searches are refined and reiterated. Some users may have time constraints and others may just casually be looking.

The task is not extremely complex at its most basic level—one could simply type the word “piano” into the top search box and be able to get results—but some of the phrases used in the interface are more familiar for those more comfortable with the instrument. The task of searching can also be done by compiling a multitude of searches from other places. In fact, it could serve as a starting point rather than a means to an end. Users may find outside sources, such as friends who play piano or piano instructors, as more valuable than using Piano Picker.

The task will generally be performed from a user’s home—via a desktop or a laptop computer, ideally.

No formal training is offered from Piano Picker, but the interface is intended to be friendly and to offer suggestions and information to assist users through the use of tool tips and informal phrasing.

Design Decisions

Homepage Search:

Although I originally wanted the complex now-advanced search option to be the homepage, I eventually opted to use a simple, basic front page with a singular search box. Nielsen notes in his article titled “Search, Visible and Simple,” that “Most users cannot use advanced search or Boolean query syntax.” At the same time, I do not want to overwhelm those who may be feeling uneasy with their first interaction with the interface.

Placement of Advanced Search Boxes:

I decided to place the advanced search box for the Piano Picker at the top of the page, just below the main logo.. I had originally planned to have it off to the left. I had initially opted for the left-hand side primarily because of two reasons: My website will primarily be for users in the western world. The second reason I had is that these users are largely accustomed to reading the left-hand side of the page first, as evidenced by Nielsen's research (*F-Shaped Pattern For Reading Web Content*). However, I realized that, as the searching component is at the core of the interface, users needed to be able to quickly gauge what sort of search criteria they wanted to select and use. I felt as though a long sidebar would prevent them from doing this more than a wider search display at the top would.

Logo Placement and Advanced Search Alignment:

The logo is something I wanted to be obvious, yet not obnoxious. Users have to have some clue of what the interface they're using is called and what it is for. I chose to place the logo in the upper-left-hand corner of the interface because most of my anticipated users are from the western world; again, referencing Nielsen's research (*F-Shaped Pattern For Reading Web Content*), they are likely to view the upper-left hand side as their first point of focus when viewing pages. The alignment of the advanced search page also incorporates this choice.

Tooltips (in the Features section):

Tooltips are used in the design to provide more information to the user about various piano features. Users who have not researched pianos before this or are new to the instrument itself may not know what concepts such as a “sostenuto pedal” and “weighted keys” refer to. Tooltips give them the chance to inform themselves without leaving the page. Since tooltips on-hover can be distracting, there is an option to turn them on in the upper right corner. Grayling points out that help, (and subsequently

tooltips) should be “context-specific [. . .], useful, [. . .] obvious to invoke, [and] non-intrusive (Grayling 196).

Text Boxes (within brand and feature specifications):

I did not want to overwhelm the user by offering too many decisions or options. Those unfamiliar with pianos could very quickly feel information overload. I also knew that a huge volume of options would not necessarily work stylistically. I knew I wanted to give users the chance to provide input, and therefore included the text boxes for brands and other features not listed.

Price Range Options:

“I don’t have one,” is intended for users with greater financial resources. They do not have to worry about how much they will have to spend. “Give me a free piano” is offered because very frequently on Craigslist pianos are offered for free but those who want to have them must transport them and/or refurbish them.

Summary View of Search Results:

As noted by Nielsen, “measured usability [is] dramatically higher for the concise version [. . .] and for the scannable version (*How Users Read on the Web*).” By offering up a concise view of each instrument, the users can understand the search results better.

Save This Search Option:

This option is for users who want to keep a record of searches that they have performed beforehand. This is useful when one does not have a whole lot of time to peruse options but think that their search was valuable and wish to return to it later.

Reiterating Query on Search Results Page

By showing the user what they searched for, the system can ease the burden for the user of remembering what they were looking for. This also supplies a “sense of familiarity (Kalbach).”

Offering Search Modification Options on the Search Results Page

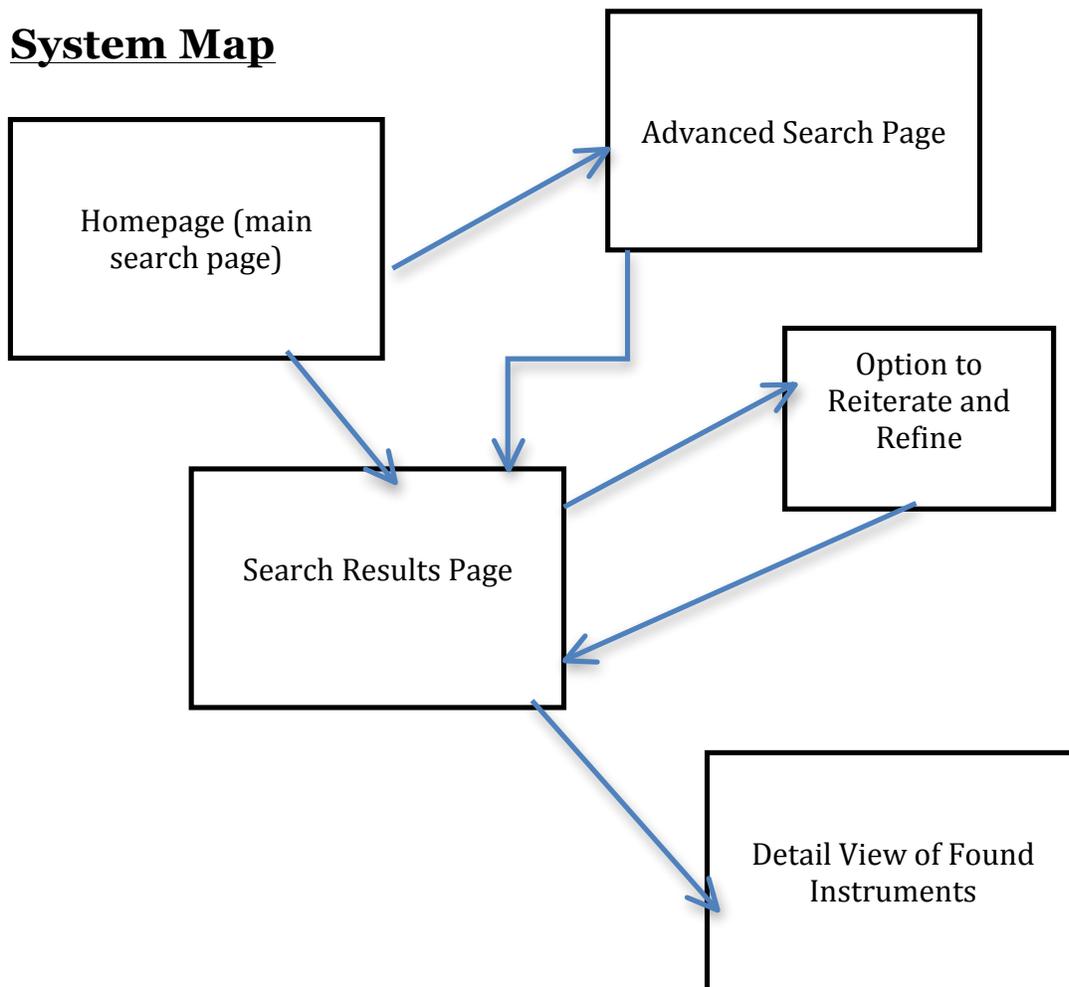
A sidebar offers users the chance to modify their search and prevents them from having to click the “back” button on their browser in order to make modifications or refine it. This is inspired by the idea that, “Rather than forcing a user to keep trying searches until

they get the right kind of result, offering a means to refine results intelligently can be a huge usability improvement (Leggett).” There are many different varieties of pianos, and a wider search might be overwhelming to try to go through without any sort of refinement options.

Offering the Opportunity to Change the Number of Search Page Results

This option will allow users to get a feel for whether or not, on a whole, the search results Piano Picker offers are relevant. If they wish to display all results, they may do so.

System Map



System Prototypes

Home Page:

Piano Picker

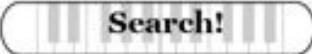


Are you looking for a piano or a keyboard? We'll help you track down a model that suits your needs! Just type in your search below, and/or use more criteria to zero in on your perfect piano!

Search!

Want more options? Use the [Advanced Search!](#)

Advanced Search Page:

<h1>Piano Picker</h1> 
<p>Are you looking for a piano or a keyboard? We'll help you track down a model that suits your needs! Just type in your search below, and/or use more criteria to zero in on your perfect piano!</p>
<input type="text" value="I'm looking for a (piano, digital keyboard, grand piano, etc.)..."/>
<p>Any particular kind of brand? You can always select more than one!</p> <p><input type="checkbox"/> Steinway <input type="checkbox"/> Casio <input type="checkbox"/> Yamaha <input type="checkbox"/> Wurlitzer <input type="checkbox"/> Any brand is fine</p> <p><input type="checkbox"/> I'm looking for this brand not listed here: <input type="text" value="(piano brand name)"/></p>
<p>What sort of features do you have to have? MIDI Definition Need help? Turn on helpful tooltips here: <input type="checkbox"/></p> <p><input type="checkbox"/> Weighted Keys <input type="checkbox"/> Damper/Sustain <input type="checkbox"/> MIDI <input type="checkbox"/> Teaching/Instructional Capabilities</p> <p><input type="checkbox"/> Headphone Output <input type="checkbox"/> Sostenato (middle) pedal <input type="checkbox"/> Una Corda Pedal</p> <p><input type="checkbox"/> I'm looking for this(these) feature(s) not listed here: <input type="text" value="(feature name 1, feature name 2, etc.)"/></p>
<p>How far away can it be?</p> <p>Within <input 5="" miles"="" type="text" value("<=""/> of <input type="text" value="zip code"/></p>
<p>What's your price range?</p> <p><input type="checkbox"/> I don't have one <input type="checkbox"/> Give me a free piano! <input type="checkbox"/> My range is from: <input type="text" value="\$0"/> to <input type="text" value="\$1,000,000"/></p> <p style="text-align: center;"> Search!</p>

Piano Picker: Successful Search Page

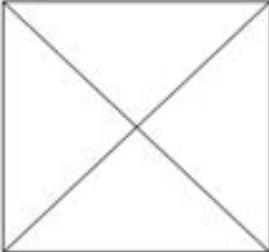
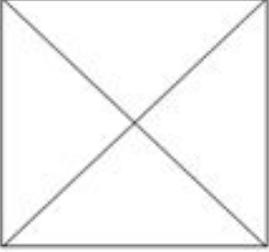
Piano Picker



We found some! A total of 40 in your range!
Here are your search results:

You are on Page 1 of 4
1 2 3 4
 Results Per Page 20

Your search included the following: You're looking for a: piano keyboard
 You wanted features including: weighted keys and 128 key polyphony
 You were looking for Yamaha models
 You wanted it to be within 20 miles of your zipcode

<p>Modify Your Search Below:</p> <p>By Price:</p> <p><input type="checkbox"/> < \$100 (1)</p> <p><input type="checkbox"/> < \$300 (5)</p> <p><input type="checkbox"/> < \$500 (7)</p> <p><input type="checkbox"/> < \$800 (8)</p> <p><input type="checkbox"/> < \$1000 (16)</p> <p><input type="checkbox"/> < \$1400 (40)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Model Number: YDP-142R</td></tr> <tr><td>Piano type: Upright Digital Piano</td></tr> <tr><td>Manufacturer: Yamaha</td></tr> <tr><td>Year: 2013</td></tr> <tr><td>Distance/Location: 5 miles</td></tr> <tr><td>Price: \$800</td></tr> <tr><td>Features: Weighted keys, MIDI, headphones, 128 key polyphony</td></tr> </table>	Model Number: YDP-142R	Piano type: Upright Digital Piano	Manufacturer: Yamaha	Year: 2013	Distance/Location: 5 miles	Price: \$800	Features: Weighted keys, MIDI, headphones, 128 key polyphony	
Model Number: YDP-142R									
Piano type: Upright Digital Piano									
Manufacturer: Yamaha									
Year: 2013									
Distance/Location: 5 miles									
Price: \$800									
Features: Weighted keys, MIDI, headphones, 128 key polyphony									
<p>By Brand:</p> <p><input type="checkbox"/> Yamaha (12)</p> <p><input type="checkbox"/> Wurlitzer (3)</p> <p><input type="checkbox"/> Casio (14)</p> <p><input type="checkbox"/> Steinway (2)</p> <p><input type="checkbox"/> Baldwin (3)</p> <p><input type="checkbox"/> Kawai (6)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Model Number: YDP-142R</td></tr> <tr><td>Piano type: Portable keyboard</td></tr> <tr><td>Manufacturer: Yamaha</td></tr> <tr><td>Year: 2011</td></tr> <tr><td>Distance/Location: 7.5 miles</td></tr> <tr><td>Price: \$650</td></tr> <tr><td>Features: Weighted keys, MIDI, headphones, 128 key polyphony</td></tr> </table>	Model Number: YDP-142R	Piano type: Portable keyboard	Manufacturer: Yamaha	Year: 2011	Distance/Location: 7.5 miles	Price: \$650	Features: Weighted keys, MIDI, headphones, 128 key polyphony	
Model Number: YDP-142R									
Piano type: Portable keyboard									
Manufacturer: Yamaha									
Year: 2011									
Distance/Location: 7.5 miles									
Price: \$650									
Features: Weighted keys, MIDI, headphones, 128 key polyphony									
<p>By Distance:</p> <p><input type="checkbox"/> <5 Miles (3)</p> <p><input type="checkbox"/> < 10 Miles (6)</p> <p><input type="checkbox"/> < 15 Miles (12)</p> <p><input type="checkbox"/> < 20 Miles (15)</p> <p><input type="checkbox"/> < 25 Miles (20)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Model Number: YDP-142R</td></tr> <tr><td>Piano type: Portable keyboard</td></tr> <tr><td>Manufacturer: Yamaha</td></tr> <tr><td>Year: 2008</td></tr> <tr><td>Distance/Location: 7.5 miles</td></tr> </table>	Model Number: YDP-142R	Piano type: Portable keyboard	Manufacturer: Yamaha	Year: 2008	Distance/Location: 7.5 miles			
Model Number: YDP-142R									
Piano type: Portable keyboard									
Manufacturer: Yamaha									
Year: 2008									
Distance/Location: 7.5 miles									

Piano Picker: Search Failure

<h1>Piano Picker</h1>		
<p>Oops! We weren't able to find any pianos with your specifications. Could you modify your search criteria below, please?</p>		
<input type="text" value="baby grand piano"/>		
<p>Any particular kind of brand? You can always select more than one!</p> <p><input checked="" type="checkbox"/> Steinway <input type="checkbox"/> Casio <input type="checkbox"/> Yamaha <input type="checkbox"/> Wurlitzer <input type="checkbox"/> Any brand is fine</p> <p><input type="checkbox"/> I'm looking for this brand not listed here: <input type="text" value="(piano brand name)"/></p>		
<p>What sort of features do you have to have?</p> <p><input type="checkbox"/> Weighted Keys <input type="checkbox"/> Damper/Sustain <input type="checkbox"/> MIDI Teaching/Instructional Capabilities</p> <p><input type="checkbox"/> Headphone Output <input type="checkbox"/> Sustainato (middle) pedal <input type="checkbox"/> Una Corda Pedal</p> <p><input type="checkbox"/> I'm looking for this(these) feature(s) not listed here: <input type="text" value="gold plated hammers"/></p>		<p>Need help? Turn on helpful tooltips here: <input type="checkbox"/></p>
<p>Within <input type="text" value="< 5 Miles"/> <input type="text" value="28539"/></p>	<p>Any particular year or range?</p> <p>Between <input type="text" value="1903"/> to <input type="text" value="1914"/> Or <input type="text" value="specific year"/></p>	
<p>What's your price range?</p> <p><input type="checkbox"/> I don't have one <input type="checkbox"/> Give me a free piano! My range is from: <input type="text" value="\$0"/> to <input type="text" value="\$1,000,000"/></p>		
<p><input type="button" value="Search!"/></p>		

References:

- Grayling, T. (2002.) If We Build It, Will They Come? A Usability Test of Two Browser-based Embedded Help Systems. Retrieved from http://www.techwriters.com/images/student_upload/e_user_guide2_906.pdf
- James, Kalbach. (September 01, 2004). Feeling lucky?: emotions and information seeking interactions, 11, 5, 66-68
- Leggett, D. (March 24, 2009.). Create Effective Search Result Pages | UX Booth. *UX Booth: User Experience & Usability Blog*. Retrieved May 2, 2013, from <http://www.uxbooth.com/articles/create-effective-search-result-pages/>
- Nielsen. (April 17, 2006). F-Shaped Pattern For Reading Web Content. In Nielsen Norman Group. Retrieved April 10, 2013, from <http://www.nngroup.com/articles/f-shaped-pattern-reading-web-content/>.
- Nielsen. (October 1, 1997). How Users Read on the Web. In Nielsen Norman Group. Retrieved April 10, 2013, from <http://www.nngroup.com/articles/how-users-read-on-the-web/>.
- Nielsen. (May 13, 2001). Search: Visible and Simple. Retrieved April 20, 2013 from <http://www.nngroup.com/articles/search-visible-and-simple/>.