

Ebay Product Search

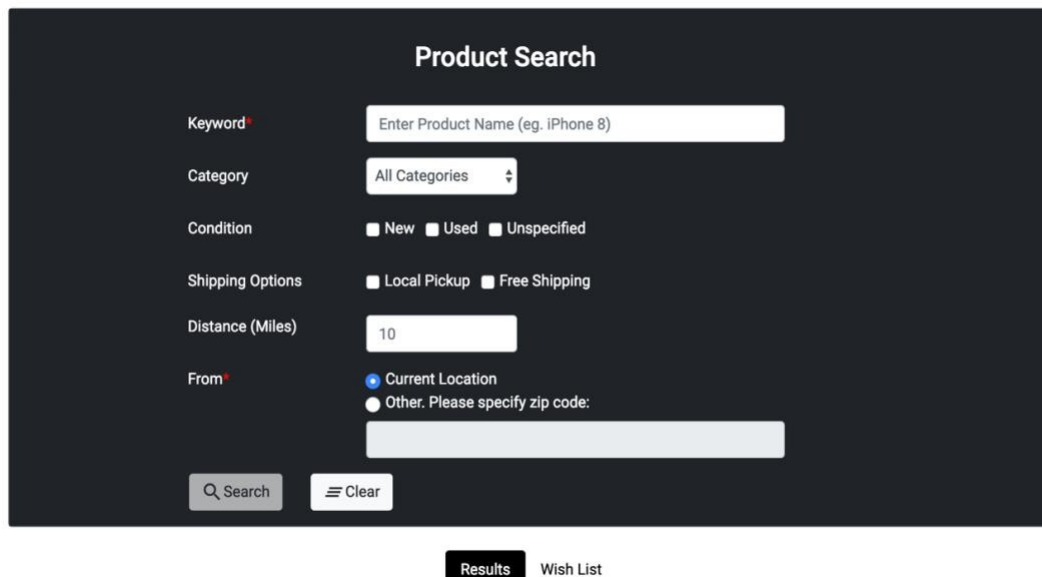
1. Objectives

- Get familiar with the AJAX and JSON technologies.
- Use a combination of HTML5, Bootstrap, Angular and jQuery on client side.
- Use Node.js on server side.
- Get familiar with Bootstrap to enhance the user experience using responsive design.
- Get hands-on experience of Amazon Web Services/Google Cloud Platform App Engine/Microsoft Azure.
- Learn to use popular APIs such as eBay API, Google Customized Search API and Facebook API.

2. Description

Go to the link <http://webdev-env.yy6wtizp3e.us-east-2.elasticbeanstalk.com/homework8>. It opens a webpage that allows users to search for products using the eBay API and display the results on the same page below the form. Once the user clicks on a product name to search for product details, your webpage should display 5 tabs which contain a Product info tab, Product photos tab, Shipping info tab, Seller info tab and a Similar products tab related to the product, respectively. Your webpage should also support adding products to and removing products from the wish list and sharing products info to Facebook. All the implementation details and requirements will be explained in the following sections.

When a user initially opens your webpage, your page should look like in Figure 1.



The image shows a web form titled "Product Search" on a dark background. The form includes several input fields and checkboxes. On the left, labels for "Keyword", "Category", "Condition", "Shipping Options", "Distance (Miles)", and "From" are listed. The "Keyword" field is a text input with placeholder text "Enter Product Name (eg. iPhone 8)". The "Category" field is a dropdown menu showing "All Categories". The "Condition" field has three checkboxes: "New", "Used", and "Unspecified". The "Shipping Options" field has two checkboxes: "Local Pickup" and "Free Shipping". The "Distance (Miles)" field is a text input with the value "10". The "From" field has two radio buttons: "Current Location" (selected) and "Other. Please specify zip code:". Below the "From" field is a text input for the zip code. At the bottom left of the form are two buttons: "Search" with a magnifying glass icon and "Clear" with a reset icon. Below the form, there are two buttons: "Results" and "Wish List".

Figure 1 Initial Search Form

3.1 Search Form

3.1.1 Design

There are six input fields in the search form:

1. **Keyword:** This field is required. Validation is performed on this field. Please refer to section 3.1.3 for details of validation.
2. **Category:** The default value of “Category” is “All Categories”, which covers most of the “types” provided by the *eBay API*. The other options are shown in Figure 2.
3. **Condition:** There are 3 options for the user to select from: New, Used and Unspecified. Multiple options could be selected to get results for all of them.
4. **Shipping Options:** There are 2 options provided: Local Pickup and Free Shipping. The user again has the option to select 1 or both of them.
5. **Distance (Miles):** This is the radius of the area within which the search is performed. The center of the area is specified in the “Current Location” field. The default value is 10 miles.
6. **From:** The center of the area within which the search is performed. The user can choose between their current location or other location based on the zip code. This field is required (the user must either choose the first radio button or choose the second one and provide a location) and must be validated. Please refer to section 3.1.3 for details of validation. The input box below the second radio button is disabled by default. If the user chooses to provide a different location, this input field should be enabled.

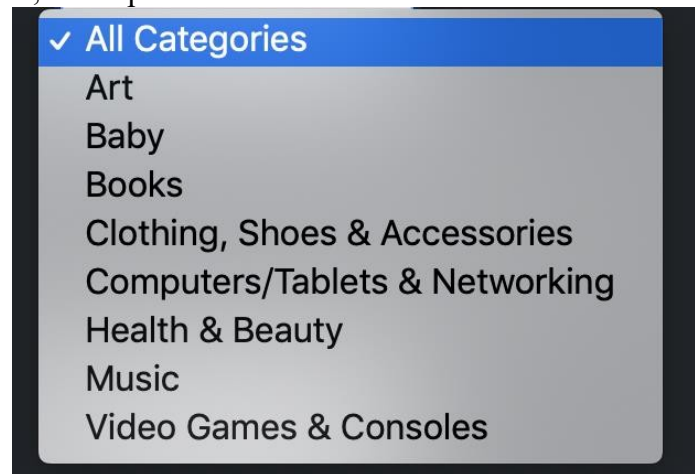


Figure 2 Category Options

The search form has two buttons:

1. **Search:** The “Search” button should be disabled whenever either of the required fields is empty or validation fails, or the user location is not obtained yet. Please refer to section 3.1.3 for details of validation.
2. **Clear:** This button must reset the form fields, clear all validation errors if present, switch the view to the results tab and clear the results area.

3.1.2 AutoComplete

Autocomplete for zip code is implemented by using the suggestion service provided by *Geonames*. Please go to this page to learn more about this service:

<https://www.geonames.org/export/web-services.html>

900

- 90002
- 90003
- 90004
- 90006
- 90012

Figure 4 Autocomplete example

3.1.3 Validation

Your application should check if the “Keyword” contains something other than spaces. If not, then it’s invalid and an error message should be shown, and the border of the input field should turn red as in Figure 5.

If the second radio button of “From” field is chosen, the same validation should be performed for the input field below the second radio button.

The zip code is restricted to only 5 digits. The search button should be disabled until and unless a 5-digit zip code is provided. If any other characters are included, the search button should not be enabled.

Figure 5 An Invalid Form

Product Search

Keyword* Please enter a keyword.

Category

Condition ☐ New ☐ Used ☐ Unspecified

Shipping Options ☐ Local Pickup ☐ Free Shipping

Distance (Miles)

From* ☐ Current Location ☒ Other. Please specify zip code: Please enter a zip code.

- Search Execution

Once the validation is successful and the user clicks on the “Search” button, your application should make an AJAX call to the Node.js script hosted on AWS. The Node.js script on AWS will then make a request to eBay API to get the product’s information. This will be explained in the next section.













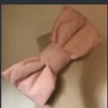







3.2 Results Tab

3.2.1 Results Table

The Node.js script should pass the JSON object returned by the *Product Search* to the client side or parse the returned JSON and extract useful fields and pass these fields to the client side in **JSON format**. You should use JavaScript to parse the JSON object and display the results in a tabular format. A sample output is shown in Figure 6. The displayed table includes eight columns: # (Index number), Image, Title, Price, Shipping, Zip, Seller and Wish list.

Below the table there is a pagination feature which is used to navigate to the next set of products. There is a maximum of 10 products on a page. The user can navigate to a different page directly by clicking on the page number, or by using previous and next buttons.

Detail >

#	Image	Title	Price	Shipping	Zip	Seller	Wish List
1		Puma Premium Scuderia Ferrari Team ...	\$26.55	Free Shipping	90021	VKAPPAREL	
2		Puma Fenty bag	\$25.00	\$7.85	90007	MICPIT_74	
3		PUMA TEAMSPORT FORMATION BACKPACK ...	\$29.99	Free Shipping	90058	APPARELZ00	
4		Unisex Puma Ferrari Shoulder Bag, ...	\$29.99	Free Shipping	90003	FRIENDFOREVERGUITAR	
5		NEW NWT PUMA PREMIUM SCUDERIA ...	\$26.55	Free Shipping	90021	VKAPPAREL	
6		Puma Men's Scuderia Ferrari F1 Racer...	\$29.99	Free Shipping	90019	KRASSDEALS	
7		Puma Fenty by Rihanna Bow CrossPack ...	\$129.99	\$9.99	90023	MASSI747	
8		NEW PUMA SCUDERIA FERRARI F1 ...	\$47.45	Free Shipping	90021	VKAPPAREL	
9		Unisex Puma Ferrari Fanwear Portable...	\$29.99	Free Shipping	90003	FRIENDFOREVERGUITAR	
10		NEW PUMA Equation 21" Duffel Bag ...	\$49.99	Free Shipping	91205	SEIZETHEDEALS	

« Previous 1 2 3 4 5 Next »

Figure 6 An Example of a Valid Search result

The “Title” column might not be long enough to show the entire name of the product and should show “...” to avoid starting a new row. The “Title” column is clickable to trigger the detail search for the corresponding product. If a product is on the Wish List, the cart icon is full (Figure 7 item 1). Otherwise, the cart icon is empty (Figure 7, item 2).

Detail >





#	Image	Title	Price	Shipping	Zip	Seller	Wish List
1		Puma Premium Scuderia Ferrari Team ... <div style="background-color: #333; color: white; padding: 2px; font-size: 0.8em;"> Puma Premium Scuderia Ferrari Team Lifestyle Fanny Waist Bag Black PMMO1007 </div>	\$26.55	Free Shipping	90021	VKAPPAREL	
2		Puma Fenty bag	\$25.00	\$7.85	90007	MICPIT_74	

Figure 7 An Example of the tooltip for product name

3.2.2 Details Button and Highlighting

The “Details >” button, right above the results table, is initially disabled. It will be enabled once a product details search is triggered. If this button is enabled and clicked, the page will be taken to the Product detail tabs. After a product details search is performed, the corresponding product row in the results table should be highlighted to indicate the product whose details are displayed in the Details tabs (Figure 8).

Detail >





#	Image	Title	Price	Shipping	Zip	Seller	Wish List
1		Puma Premium Scuderia Ferrari Team ...	\$26.55	Free Shipping	90021	VKAPPAREL	
2		Puma Fenty bag	\$25.00	\$7.85	90007	MICPIT_74	

Figure 8 Highlight Selected Product

3.3 Details

Once a product name in the “Title” column is clicked, your webpage should search for the details of that product. Above the tabs in the details view, you should display the whole name of the Product, a button that allows you to go back to the previous list, a Facebook button and a Wish List button.

3.3.1 Info Tab

A table containing the detailed info of the product is displayed in this tab.

When clicked on “Product Images”, a modal should be popped up with all product images. If a particular image in the modal is clicked it should open in a new tab. See video for reference.

	Product Photos Shipping Seller Similar Products
Product Images	View Product Images Here
Subtitle	✦1-YR WARRANTY ✓ 3-5 DAY SHIP ✓ A/B/C Grade ✓ Charger✦
Price	\$479.00
Location	Alhambra, California
Return Policy	Returns Accepted Within 30 Days
Camera Resolution	12.0MP
Model	iPhone 8 Plus
Operating System	iOS
Contract	Without Contract
Style	Smartphone
Cellular Band	LTE
Network Technology	GSM
Features	3G Data Capable,4G Data Capable,Accelerometer,Bluetooth Enabled,Fingerprint Sensor,Global Ready
Model Number	A1897 (GSM)
Lock Status	Factory Unlocked
MPN	Does Not Apply
Network	Factory Unlocked
Brand	Apple
Screen Size	5.5"

Figure 10 An Example of Product Detail Tab

3.3.2 Photos Tab

A table containing the images related to the product is displayed in this tab.

When a photo is clicked, a new tab is opened to display that photo in its original size.



Figure 12 Multiple Photos Tab

3.3.3 Shipping Tab

To get the Shipping info, with the help of first API call you get the shipping information for each product.

iPhone 8 Plus ♦64/256GB♦ GRAY SILVER GOLD AT&T T-Mobile Sprint Verizon Unlocked

< List f

Product Photos **Shipping** Seller Similar Products

Shipping Cost	Free Shipping
Shipping Locations	Worldwide
Handling Time	1 Day
Expedited Shipping	✓
One Day Shipping	✓
Return Accepted	✓

Figure 13 Shipping Tab

3.3.4 Seller Tab

To get the Seller info, the eBay Shopping API will give you the details for the seller and the store.

Apple iPhone 8 Plus 64GB | 256GB (UNLOCKED) VERIZON Gray | Silver | RED ♦OTHER♦

< List f

Product Photos Shipping **Seller** Similar Products

SANTAMONICAWIRELESS	
Feedback Score	16601
Popularity	99.6
Feedback Rating Star	★
Top Rated	✓
Store Name	Santa Monica Wireless
Buy Product At	Store

Figure 14 Seller Tab

3.3.5 Similar Products Tab

This tab displays the similar products of the product clicked from the first table.

By default, Similar Products are displayed in the default order (the order in which the items are returned by the API). There are two dropdowns in this tab. The first one allows the user to sort the products in several different categories: Default, Product Name, Days Left, Price, and Shipping Cost. The second one allows the user to sort in ascending or descending order. When the sort category is “Default”, the sort order dropdown should be disabled (either Ascending or Descending).



Figure 16: Dropdown to Sort the Products.

By default, only 5 similar products are displayed, like shown in Figure 17(a). After clicking the “Show More” button, all upcoming products in the returned JSON should be displayed, and the button changes to “Show Less”, like in Figure 17(b). After clicking “Show Less” only the top 5 similar products in given sorting order should remain. If the number of products is less than 5, then don’t display “Show More” and “Shore Less” button.

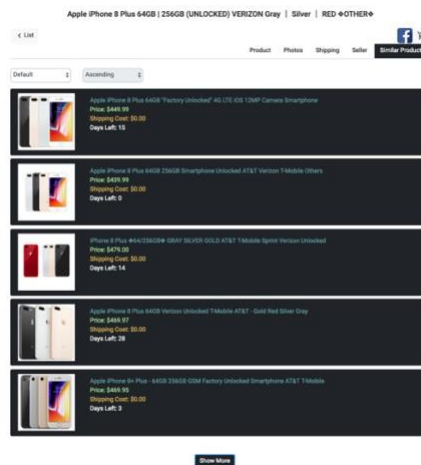














Figure 17(a): Show more button with 5 Products.

	<p>Apple iPhone 8 64GB Verizon Unlocked Smartphone - Gold Red Silver Space Gray</p> <p>Price: \$359.97</p> <p>Shipping Cost: \$0.00</p> <p>Days Left: 28</p>
	<p>Apple iPhone 8 64GB 256GB GSM CDMA AT&T T-Mobile Sprint Verizon Unlocked</p> <p>Price: \$399.00</p> <p>Shipping Cost: \$0.00</p> <p>Days Left: 14</p>
	<p>Apple iPhone 8 Plus 64GB 256GB Factory GSM Unlocked (AT&T T-Mobile) AT&T Locked</p> <p>Price: \$429.99</p> <p>Shipping Cost: \$0.00</p> <p>Days Left: 2</p>
	<p>Apple iPhone 8 Plus 64GB 256GB Verizon Unlocked</p> <p>Price: \$478.99</p> <p>Shipping Cost: \$0.00</p> <p>Days Left: 11</p>
	<p>Apple iPhone 8 Plus 256GB Verizon Unlocked T-Mobile AT&T - Gold Red Silver Gray</p> <p>Price: \$494.97</p> <p>Shipping Cost: \$0.00</p> <p>Days Left: 28</p>
	<p>Apple iPhone 8 Plus 256GB Verizon Unlocked T-Mobile AT&T - Gold Red Silver Gray</p> <p>Price: \$494.97</p> <p>Shipping Cost: \$0.00</p> <p>Days Left: 28</p>
	<p>Apple iPhone 8 Plus 64GB GSM Unlocked Smartphone</p> <p>Price: \$489.99</p> <p>Shipping Cost: \$0.00</p> <p>Days Left: 14</p>
	<p>Apple iPhone 8 Plus GSM Unlocked 64/256GB Verizon AT&T T-Mobile LTE Smartphone</p> <p>Price: \$479.97</p> <p>Shipping Cost: \$0.00</p> <p>Days Left: 7</p>
	<p>NEW Apple iPhone 8 Plus (PRODUCT)RED - 64GB-(Verizon) FACTORY UNLOCKED!</p> <p>Price: \$569.99</p> <p>Shipping Cost: \$0.00</p> <p>Days Left: 7</p>
	<p>NEW OTHER UNLOCKED Apple iPhone 8 64GB 256GB (UNLOCKED) (A1863) VERIZON SILVER GOLD RED *N/O*</p> <p>Price: \$444.95</p> <p>Shipping Cost: \$0.00</p> <p>Days Left: 8</p>
	<p>Apple iPhone 8 Plus - 256GB - Space Gray (Factory GSM Unlocked; AT&T / T-Mobile)</p> <p>Price: \$514.99</p> <p>Shipping Cost: \$0.00</p> <p>Days Left: 13</p>
	<p>NEW OTHER UNLOCKED Apple iPhone 8 64GB 256GB (UNLOCKED) (A1863) VERIZON SILVER GOLD RED *N/O*</p> <p>Price: \$529.95</p> <p>Shipping Cost: \$0.00</p> <p>Days Left: 8</p>

Show Less

Figure 17(b): Show Less button with multiple Products.

If the API service returns an empty result set, the page should display “No Records Found”.

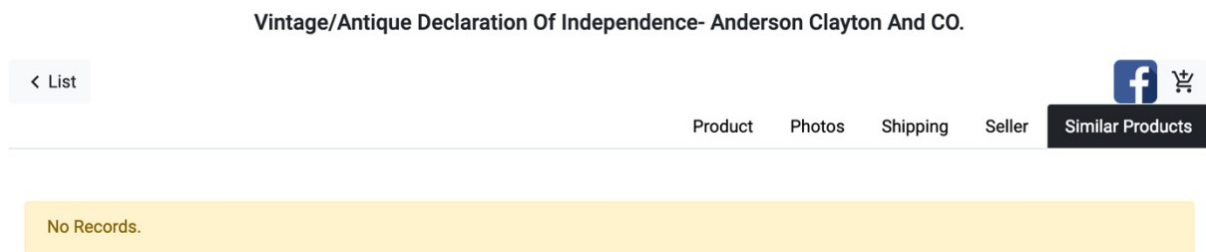


Figure 18: When no Similar Items are found.

3.3.6 List Button, Wish List Button and Facebook Button

Once the **List** button is clicked, your webpage should go back to the previous list view, whether it's the result list or the Wish List.



Figure 19 List Button

The **Wish List** button works the same way as the ones in the result list. The **Facebook** button allows the user to share product link and post it to Facebook.

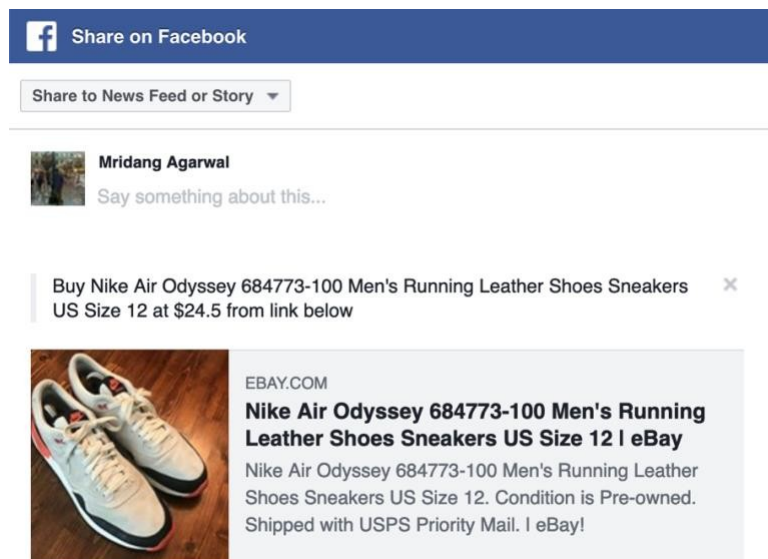


Figure 20 Facebook Share

The Wish List button should maintain the consistency if that product was already added in the Wish List previously or it should not be added.

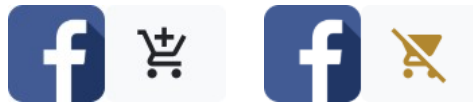


Figure 21 Wish List and Facebook Buttons

3.4 Wish List Tab

The Wish List tab is very similar to the Results tab: the products on the list are displayed in a table; there is a button that allows the user to go to the details view and is disabled initially; the user can search for product details by clicking on the “product” column.

There is a **Total Shopping** which stores the total **Price** which is the sum of all products in Wish List.







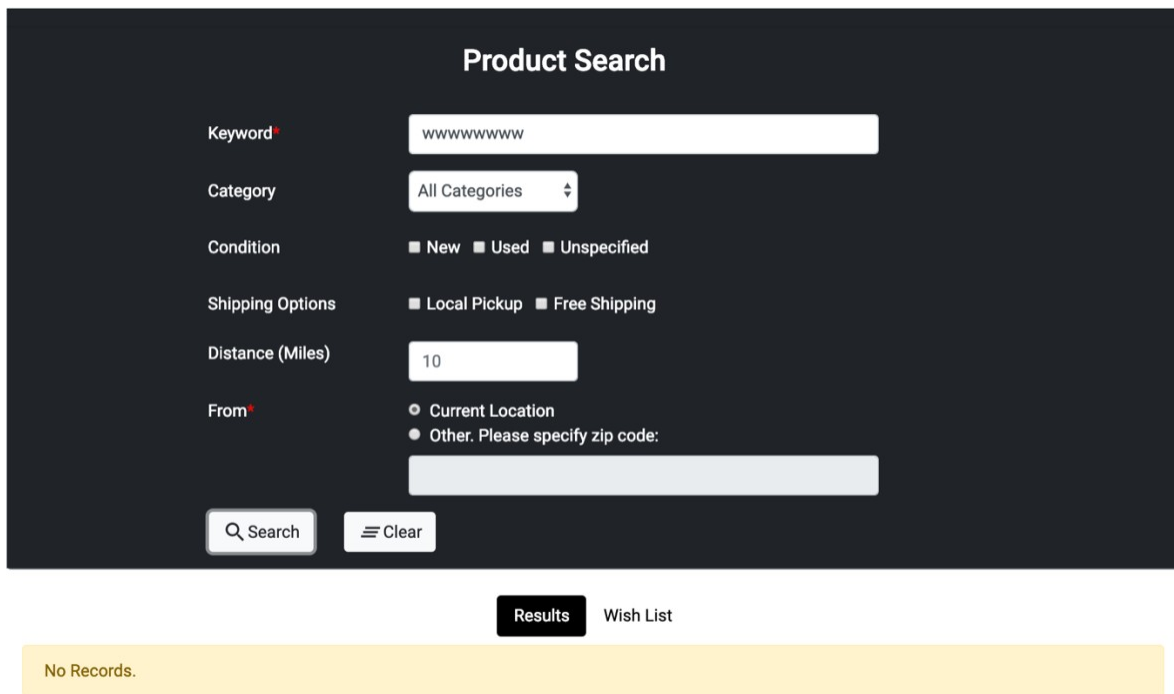
Results		Wish List					Detail >	
#	Image	Title	Price	Shipping	Seller	Wish List		
1		Google Pixel XL 32GB Very Silver ...	\$129.99	Free Shipping	LUXURYBLACK			
2		Nike Air Versatile Basketball Shoes ...	\$47.50	Free Shipping	MOISE_CRU			
3		NIKE Reax 8 TR Mesh Men's Running ...	\$59.99	\$7.85	REACH4THESTYLE			
Total Shopping						\$237.48		

Figure 22 Wish List

3.5 Error Messages

If for any reason an error occurs whether its products search or details search, an appropriate error message should be displayed.

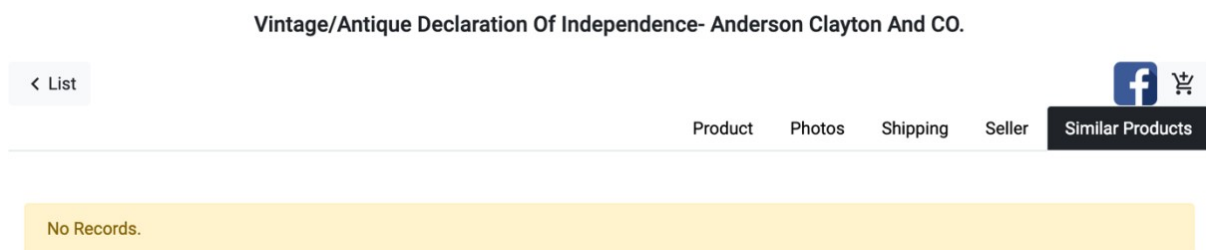


The image shows a 'Product Search' form on a dark background. The form includes fields for 'Keyword' (containing 'wwwwwwww'), 'Category' (a dropdown menu set to 'All Categories'), 'Condition' (checkboxes for 'New', 'Used', and 'Unspecified'), 'Shipping Options' (checkboxes for 'Local Pickup' and 'Free Shipping'), 'Distance (Miles)' (a text input with '10'), and 'From' (radio buttons for 'Current Location' and 'Other. Please specify zip code:'). Below these fields are 'Search' and 'Clear' buttons. At the bottom of the form, there are 'Results' and 'Wish List' buttons. A yellow banner at the bottom of the form area displays the message 'No Records.'

Figure 23 Error Message

3.6 No Records

Whenever the search receives no records, an appropriate message should be displayed.



The image shows a product details page for 'Vintage/Antique Declaration Of Independence- Anderson Clayton And CO.'. The page has a navigation bar with a '< List' button, a Facebook icon, a shopping cart icon, and tabs for 'Product', 'Photos', 'Shipping', 'Seller', and 'Similar Products'. The 'Similar Products' tab is active. A yellow banner at the bottom of the page displays the message 'No Records.'

Figure 24 No Records on Similar Products

Product Search

Keyword*

Category

Condition ☐ New ☐ Used ☐ Unspecified

Shipping Options ☐ Local Pickup ☐ Free Shipping

Distance (Miles)

From* ☒ Current Location ☐ Other. Please specify zip code:

Results **Wish List**

[Detail >](#)

No Records.

Figure 25 No Records on Wish List

3.7 Progress Bars

Whenever data is being fetched, a dynamic progress bar must be displayed as shown in Figure 26.

Product Search

Keyword*

Category

Condition ☒ New ☒ Used ☐ Unspecified

Shipping Options ☐ Local Pickup ☐ Free Shipping

Distance (Miles)

From* ☐ Current Location ☒ Other. Please specify zip code:

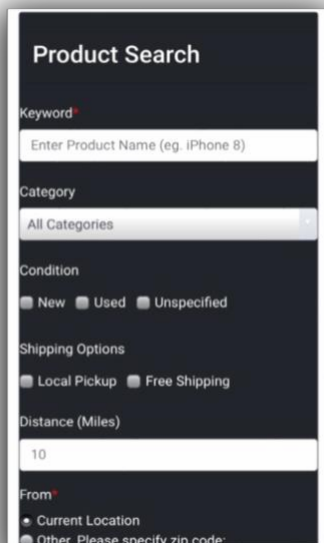
Results Wish List

Progress Bar: A blue bar with a diagonal pattern, indicating data is being fetched.

Figure 26 Progress Bar

3.8 Responsive Design

The following are snapshots of the webpage opened with Safari on iPhone 7 Plus. for more



Product Search

Keyword*

Enter Product Name (eg. iPhone 8)

Category

All Categories

Condition

☐ New ☐ Used ☐ Unspecified

Shipping Options

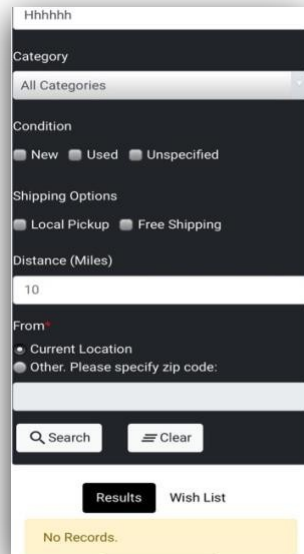
☐ Local Pickup ☐ Free Shipping

Distance (Miles)

10

From*

☐ Current Location
☐ Other. Please specify zip code:



Hhhhhh

Category

All Categories

Condition

☐ New ☐ Used ☐ Unspecified

Shipping Options

☐ Local Pickup ☐ Free Shipping

Distance (Miles)

10

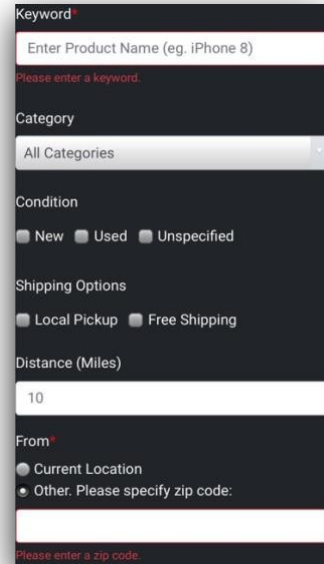
From*

☐ Current Location
☐ Other. Please specify zip code:

Search Clear

Results Wish List

No Records.



Keyword*

Enter Product Name (eg. iPhone 8)

Please enter a keyword.

Category

All Categories

Condition

☐ New ☐ Used ☐ Unspecified

Shipping Options

☐ Local Pickup ☐ Free Shipping

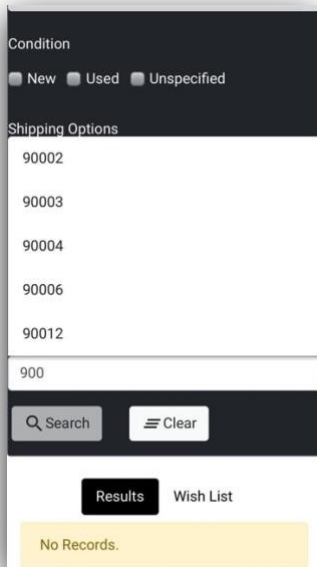
Distance (Miles)

10

From*

☐ Current Location
☐ Other. Please specify zip code:

Please enter a zip code.



Condition

☐ New ☐ Used ☐ Unspecified

Shipping Options

90002

90003

90004

90006

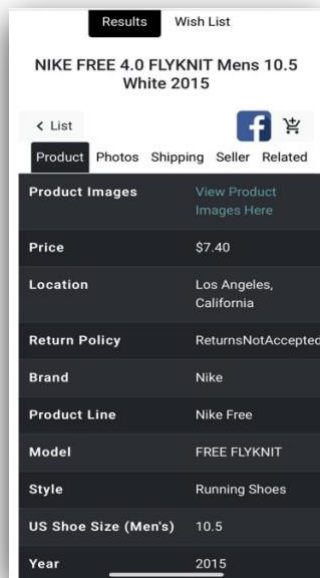
90012

900

Search Clear

Results Wish List

No Records.



Results Wish List

NIKE FREE 4.0 FLYKNIT Mens 10.5 White 2015

< List

Product Photos Shipping Seller Related

Product Images View Product Images Here

Price \$7.40

Location Los Angeles, California

Return Policy ReturnsNotAccepted

Brand Nike

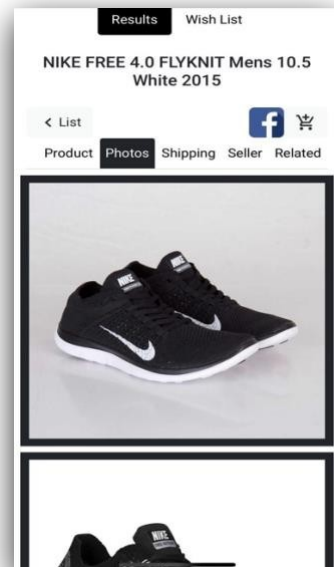
Product Line Nike Free

Model FREE FLYKNIT

Style Running Shoes

US Shoe Size (Men's) 10.5

Year 2015



Results Wish List

NIKE FREE 4.0 FLYKNIT Mens 10.5 White 2015

< List

Product Photos Shipping Seller Related

Product Images View Product Images Here

Price \$7.40

Location Los Angeles, California

Return Policy ReturnsNotAccepted

Brand Nike

Product Line Nike Free

Model FREE FLYKNIT

Style Running Shoes

US Shoe Size (Men's) 10.5

Year 2015

20005

Q Search Clear

Results Wish List

Men's Nike Free 4.0 Flyknit

< List

Product Photos Shipping Seller Related

Shipping Cost

\$12.99

Shipping Lcoations

Worldwide

Handling Time

3 Days

Expedited Shipping

✓

One Day Shipping

✗

Return Accepted

✗

Other. Please specify zip code:

Q Search Clear

Results Wish List

NIKE FREE 4.0 FLYKNIT Mens 10.5 White 2015

< List

Product Photos Shipping Seller Related

EBTURIZMO

Feedback Score

628

Popularity

100


Feedback Rating Star

☆


Product Photos Shipping Seller Related


Default

Ascending




VANS GUM AUTHENTIC Mens 10 used worn Gray grey
Price: \$0.00
Shipping Cost: \$0.00
Days Left: 0





Men's Nike Free 4.0 Flyknit running shoes sneakers size 10.5
Price: \$28.79
Shipping Cost: \$8.00
Days Left: 24





Men's Nike Free 4.0 Flyknit size 10.5
Price: \$89.99
Shipping Cost: \$0.00
Days Left: 19

Show More

Q Search Clear

Results Wish List



Detail >

#	Image	Title
1		Men's Nike Free 4.0 Fly
2		Puma Echo Backpack

Q Search Clear

Results Wish List

Detail >

Price	Shipping	Seller	Wish List
\$5.00	\$12.99	DC-RPEF	
\$7.00	\$5.00	ALAN1BOROCK	
Total Shopping			\$72.00

