

# Custom Code

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We wrote several hundred lines of javascript code for this project. We copied Arman's "Conversation" project and edited the **app.js** file to handle conversation responses and make API calls to our Retrieve & Rank service. To make our code easier to review, we've provided this listing of just the code that we wrote ourselves.

## 1 Main Function

This function is called before the Conversation service displays a response to the user. If appropriate, it extracts the intents (symptoms), makes a call to Retrieve & Rank, and updates the response to include the list of relevant diseases.

```
1 /**
2  * Updates the response text using the intent confidence
3  * @param {Object} input The request to the Conversation service
4  * @param {Object} response The response from the Conversation service
5  * @return {Object} The response with the updated message
6  */
7 function updateMessage(res, input, data) {
8
9     // extract symptoms
10     var newSymptoms = extractSymptomList(data);
11     permanentSymptomList = permanentSymptomList.concat(newSymptoms);
12     console.log("Current symptoms list: " + permanentSymptomList);
13
14     /** use one of these two lines depending on which way
15     of keeping track of symptoms we're using**/
16     var symptomList = permanentSymptomList;
17     //var symptomList = data.context.symptoms;
18
19     // if there's a "no [more symptoms]" intent, then gather up the symptoms
20     // and make a call to the Retrieve and Rank API
21     if (hasIntent(data, "no")){
22         symptomList = removeDuplicates(symptomList);
23
24         // generate a retrieve & rank query by combining all the symptoms:
25         //var collectionName = "Neurological";
```

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26 //var collectionName = "example_collection";
27 var collectionName = "neuro_collection";
28 var rankerID = "54922ax21-rank-20";
29 var query = "";
30 for (var i = 0; i < symptomList.length; i++){
31     query += symptomList[i];
32     if (i < symptomList.length - 1)
33         query += " ";
34 }
35 console.log("retrieve & rank query: '" + query + "'", collection: " + collectionName);
36 if (symptomList.length < 1)
37     console.log("Warning: request to Retrieve & Rank made with 0 symptoms!");
38
39 var fullString = 'https://091d880c-9617-490f-a859-87a7c7b1b8ad:lhxEV2KTiY1B@'
40     + 'gateway.watsonplatform.net/retrieve-and-rank/api/v1/solr_clusters/scc'
41     + 'aa3604c-1f02-4567-8162-c15dfe749fdf/solr/' + collectionName + '/fcse1'
42     + 'ect?ranker_id=' + rankerID + '&q=' + query + '?&wt=json&fl=id,title';
43
44 // perform the Retrieve & Rank API call:
45 var https = require('https');
46 https.get(fullString, function(resp){
47     var chunkText = '';
48     resp.on('data', function(chunk){
49         chunkText+=chunk.toString('utf8');
50     });
51     resp.on('end', function(){
52         var parseSuccess = Boolean(true);
53         var mJSON;
54         try {
55             mJSON = JSON.parse(chunkText);
56         } catch (err){
57             parseSuccess = Boolean(false);
58             console.log("Error parsing JSON response from Retrieve & Rank");
59             console.log(err.message);
60             console.log("Here is the R&R response that caused the problem:");
61             console.log(chunkText);
62         }
63         if (parseSuccess){
64             if (!mJSON.response)
65                 console.log("Error: the Retrieve & Rank HTTP request "
66                     + "did not produce a valid JSON");
67             else {
68                 if (mJSON.response.numFound == 0){
69                     console.log("Warning: the Retrieve & Rank request "
70                         + "returned 0 documents for the query");
71                     data.output.text = "We did not find any diseases "
72                         + "that were mentioned in conjunction with those symptoms.";
73                     return res.json(data);
74                 }
75                 else {
76                     var disorders = processJSON(mJSON);
77                     var insertionMarker = "<insert parsed JSON response here>";

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78         var currResponse = data.output.text;
79         var newResponse = currResponse.join('')
80             .replace(insertionMarker, disorders);
81         // make sure the substitution was made
82         if (currResponse === newResponse){
83             console.log("error - was unable to find marker '"
84                 + insertionMarker + "' in the response");
85         }
86         else {
87             console.log("added the symptom list to the conversation "
88                 + "response successfully");
89         }
90         // update the conversation response
91         data.output.text = newResponse;
92         return res.json(data);
93     }
94 }
95 }
96 });
97 });
98 }
99 // if there's no "no [more symptoms]" intent:
100 else {
101
102     // amusing responses to curse words:
103     var text = "" + input.input.text;
104     if (text.includes("Fuck") || text.includes("fuck") || text.includes("shit")){
105         console.log("looks like the user just cursed");
106         data.output.text = "It's going to be fine. Sooner or later, we all die :)";
107     }
108     else if (text.includes("ass")){
109         data.output.text = "You and your physician may also want "
110             + "to look into: Anger Management Disorders";
111     }
112     return res.json(data);
113 }
114 }

```

## 2 Helper Functions

```

1 /** [EH] Gets a list of all the symptoms from the data object
2  *   (returns an empty list if there aren't any)
3  */
4 function extractSymptomList(data){
5     var symptoms = new Array();
6     for (var i = 0; i < data.entities.length; i++) {
7         symptoms.push(data.entities[i].value);
8     }
9     return symptoms;

```

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10 }
11
12 /** [EH] Helper method for removing duplicates from a list
13 */
14 function removeDuplicates(list){
15     var listNoDuplicates = new Array();
16     for (var i = 0; i < list.length; i++){
17         var inListAlready = Boolean(false);
18         for (var j = 0; j < listNoDuplicates.length; j++){
19             if (list[i] === listNoDuplicates[j]){
20                 inListAlready = Boolean(true);
21             }
22         }
23         if (!inListAlready){
24             listNoDuplicates.push(list[i]);
25         }
26     }
27     return listNoDuplicates;
28 }
29
30 /** [EH] Given a "data" JSON object, checks whether its intent list
31 *     contains an intent of the given name
32 */
33 function hasIntent(data, intentString){
34     if (data.intents){
35         for (var i = 0; i < data.intents.length; i++){
36             if (data.intents[i].intent === intentString){
37                 return true;
38             }
39         }
40         return false;
41     }
42     else {
43         console.log("hasIntent error - data object has no intent field");
44     }
45 }
46
47 /** [EH] Given a valid JSON response from Retrieve & Rank, extract
48 *     the important information.
49 */
50 function processJSON(json){
51     console.log("—processing json response: "
52         + json.response.numFound + " documents returned");
53     var titleList = new Array();
54     for (var i = 0; i < json.response.docs.length; i++){
55         titleList.push("" + json.response.docs[i].title);
56     }
57     var disorderList = removeDuplicates(titleList);
58     var listString = "";
59     for (var i = 0; i < disorderList.length; i++){
60         listString += " " + disorderList[i];
61         if (i < disorderList.length - 2)

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62         listString += ",";
63     else if (i == disorderList.length - 2){ // after second-to-last item
64         if (i == 0){ // two-item list
65             listString += " and";
66         }
67         else if (i > 0){
68             listString += ", and";
69         }
70     }
71 }
72 return listString;
73 }

```