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Deliverable 2

Query Language Description:

- Queries are prompted with “?: “
- “Help” outputs a list of commands
- Command arguments are specified in curly braces “{}”
- “Asc”:
 - Optional sort command, specified to pick in ascending order, bottom up
 - Ex: “?: rank>{15}, asc” returns songs 40 to 36
 - Default search is descending, top down
- “Is” keyword used to search for equality
 - Ex: “?: artist is {Kanye}” returns a list of Kanye songs
- “>” and “<” used to check if a field is above or below a certain value
 - Ex: “?: rank < {6}” returns the first five songs
 - “?: rank <{20}, rank >{5}” returns songs 19 through 5
 - Is this inclusive? Consider for writing functions

- “,” used as a delimiter in queries and for concatenation
 - Ex: “?: artist is {Taylor Swift}, rank > {10}” returns all Taylor Swift songs above rank 10
- “Of {}” keyword used to get the field of a value
 - Ex “?: rank of {Good Morning}” returns the rank of the song with the title “Good Morning”
 - Ex: “?: feature of {Bad Romance}” should return “No feature”, as the song has no feature field
 - Ex: “?: feature of {California Gurls}” should return “Features: Snoop Dogg” since the song has this in the feature field
 - Ex: “?: feature of {rank < {6}}” should return all the songs in ranks 1-5 that have featured artists
 - Ex: “?: feature of {rank < 11, artist is {Lady Gaga}}” should return songs that have a featured artist that have ranks between 1 and 10 and have Lady Gaga as the artist

For fields, we have:

- Rank
- Artist
- Title
- Features (optional)

The functional interface will accept an object generated by the query parser containing the information on which fields have been given values. Internally, bindings to calls to the Firestore query API will be called to actually query the data, and the object returned from the parser will have its various permutations mapped to the functions as needed. This middleware will allow the language used in the query parsing and the bindings querying the Firestore DB to be changed as needed so long as the object passed between them maintains a consistent format.