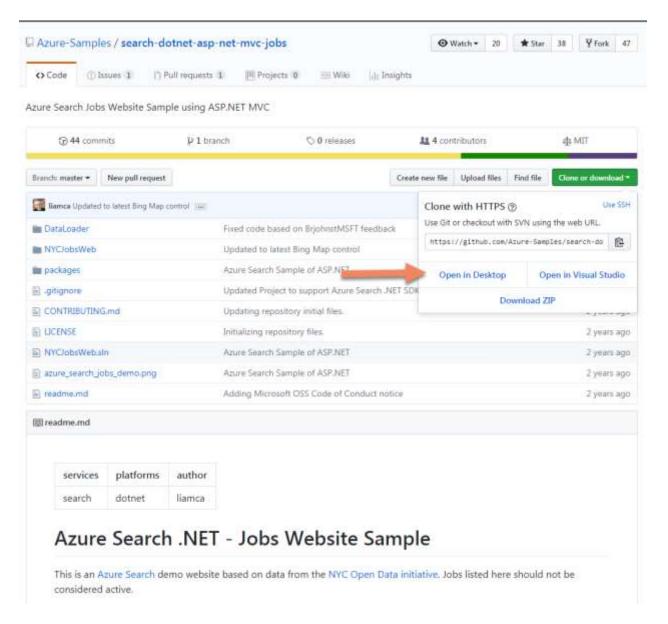
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Dataset & GitHub

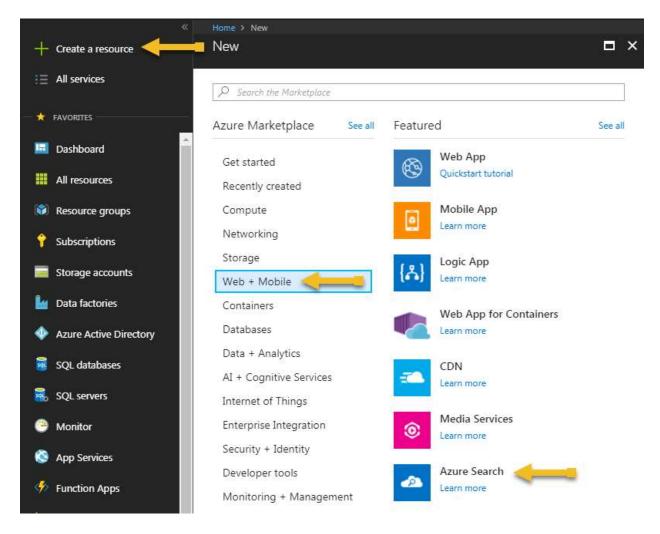
Research your topic (Azure Search) then look for a dataset. The dataset used was found through GitHub https://github.com/Azure-Samples/search-dotnet-asp-net-mvc-jobs as a sample document with files. Select to clone or download files by the following options (Desktop, Visual Studio, or ZIP). For me I selected desktop saving files to a local drive.



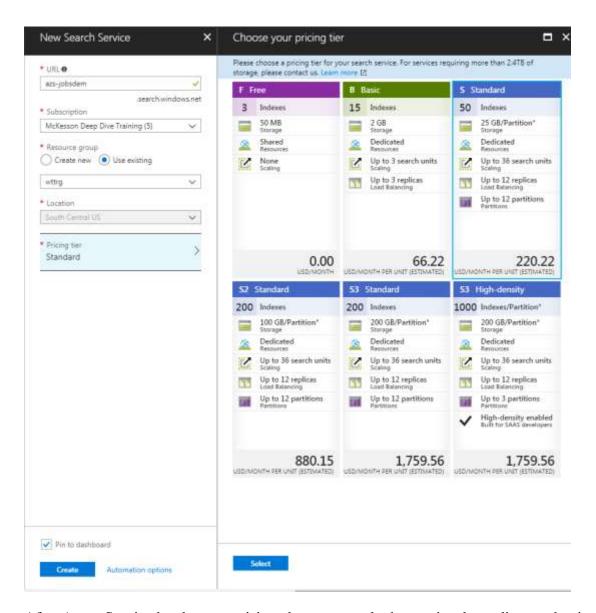
Make sure to review through the documentation and files for later usage.

Creating Azure Search Service

Open Azure portal to create an Azure Search service. To create an Azure Search select create a resource → Web + Mobile → Azure Search.



Next create a URL service name, subscription, either create or use existing resource group, location, and price tier. The price tier can range based on your needs. I did a standard tier. Once done pine to dashboard and select create.



After Azure Service has been provisioned you can scale the service depending on the tier chosen. You can scale your service in two dimensions: replicas and partitions. Had you chosen the Basic tier, you can only add replicas. If you provisioned the free service, scale is not available.

Partitions allow your service to store and search through more documents.

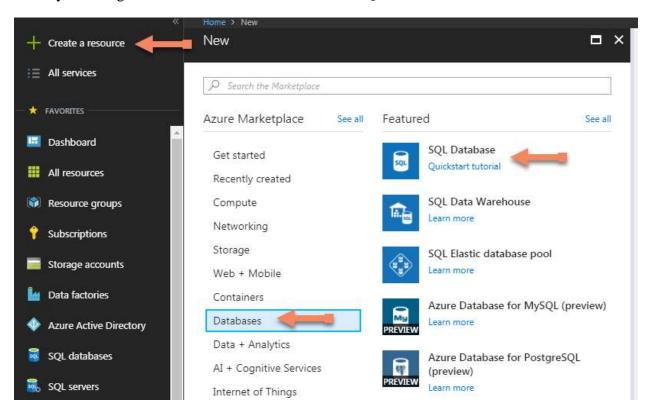
Replicas allow your service to handle a higher load of search queries.



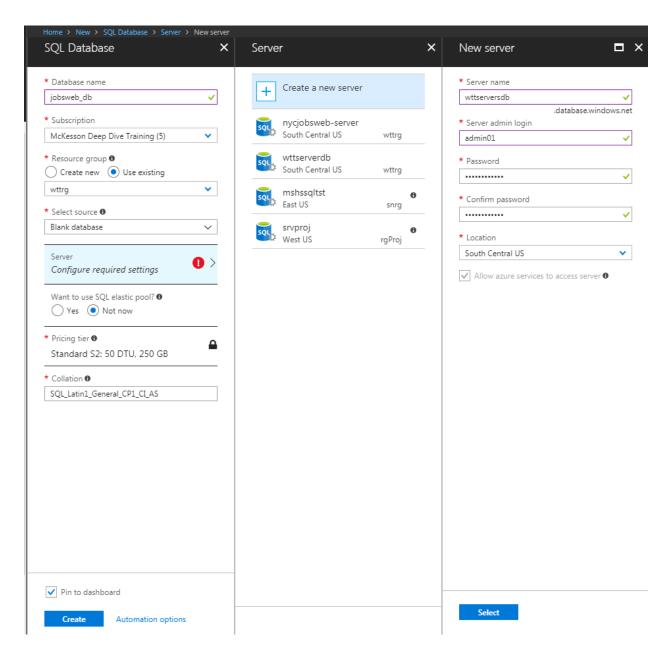
At this time, we will not be creating an indexer. This will happen later once we create the other applications.

Creating SQL Database & Server

Start by selecting Create a resource → Databases → SQL Database.



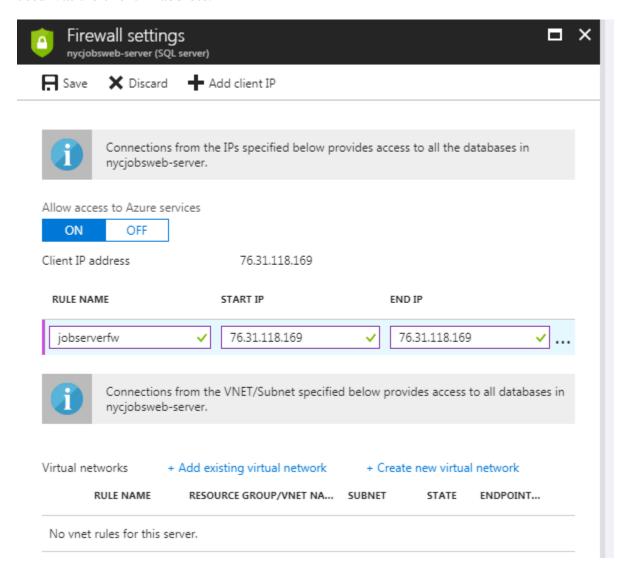
Next create a Database name, subscription, use existing resource group, select source, create a server, price tier, and collation. We will create a new server providing a server name, admin login and password and location followed by clicking the select button. Once done check the pin to dashboard followed by selecting the create button.



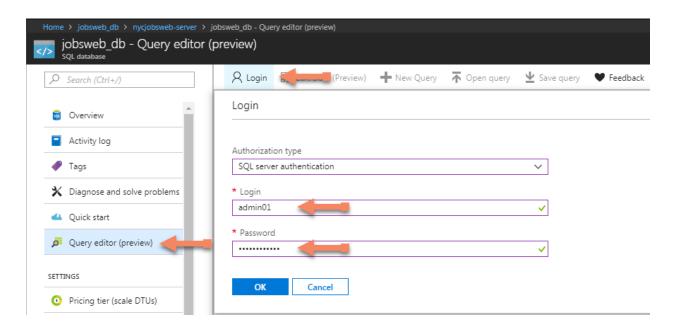
After SQL Database has been provisioned let's set the server firewall. At the top click Set server firewall.



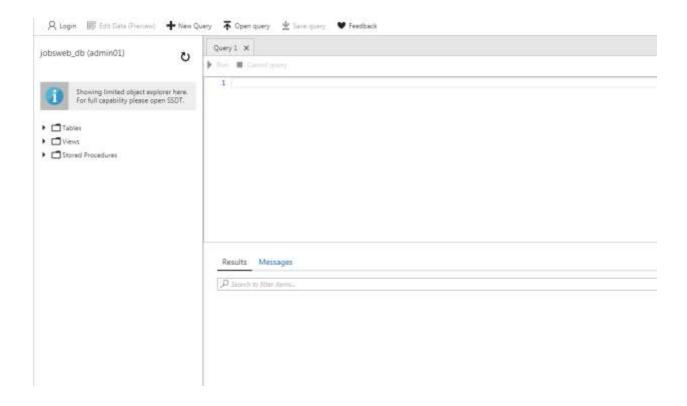
Create a rule name, start IP and End IP followed by clicking the Save button. The IP address used was the client IP address.



Also want to make sure you can access the SQL server. To test this, select Query editor (preview) → Login. Enter user name and password followed by selecting OK.

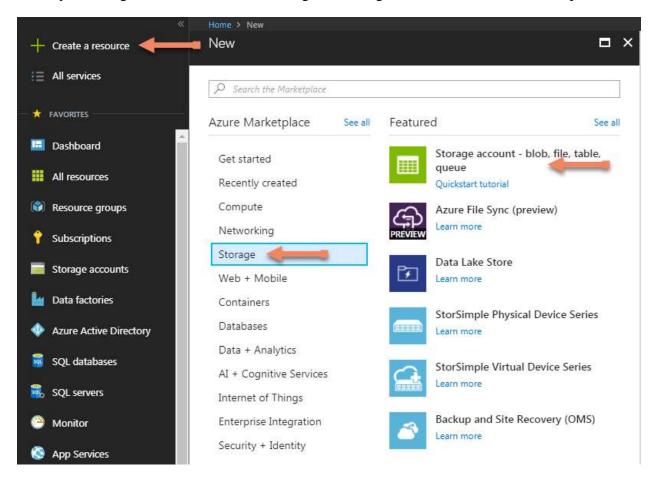


You should receive the following screen if your able to access the server.

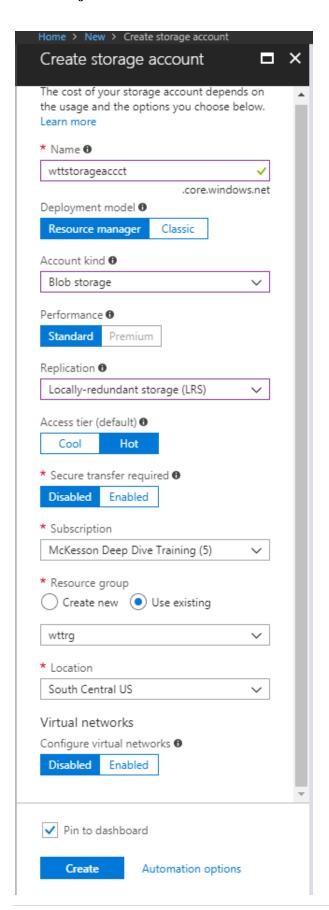


Creating Storage Account and Container

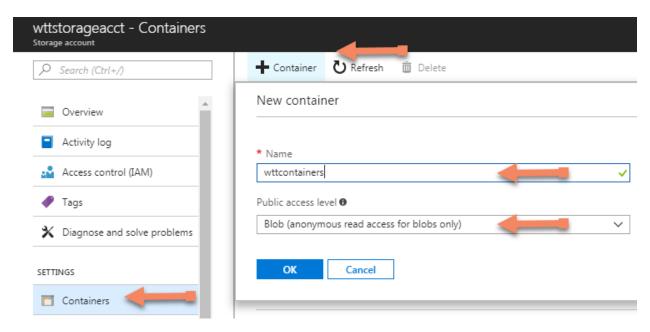
Start by selecting Create a resource → Storage → Storage account – blob, file, table, queue.



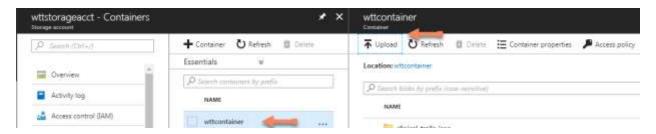
Create a Name, deployment model, account kind (blob storage), performance, replication (Locally-redundant storage), access tier, Secure transfer required, subscription, resource group, location, virtual networks then check the Pin to dashboard before selecting Create.

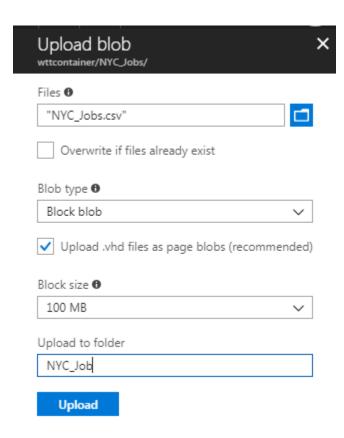


After the storage account provisions under settings select containers. Select +Container to create a container name and public access level. For the level I chose Blob (anonymous read access for blobs only). Next select OK.



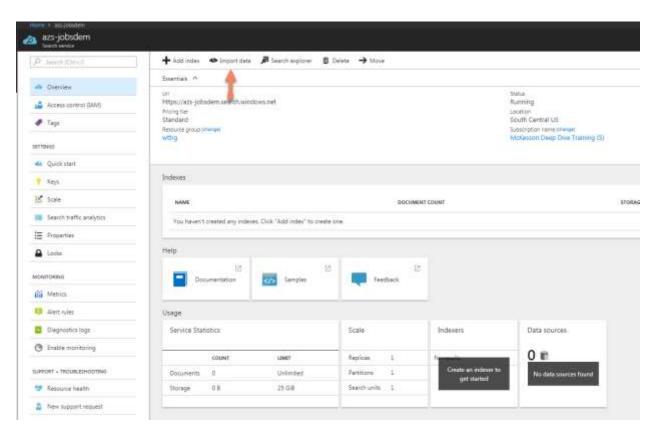
Next, we want to upload a blob file called NYC_Jobs.csv. To do this select the container wttcontainer pupload then select the folder icon to map to the file on local computer. After selecting your file, select a blob type, size, and folder name followed by Upload.



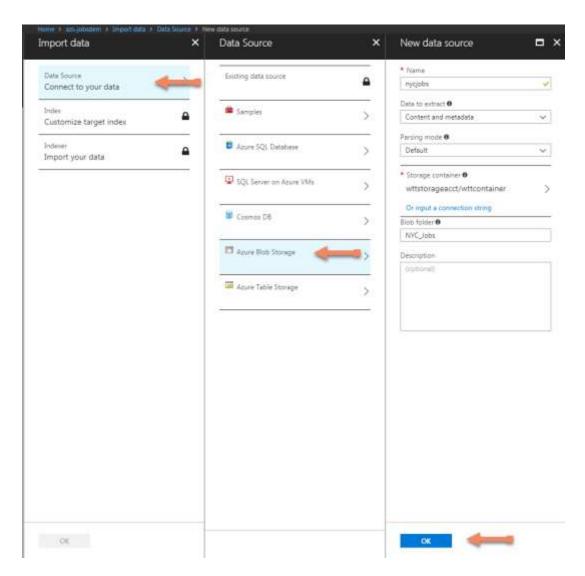




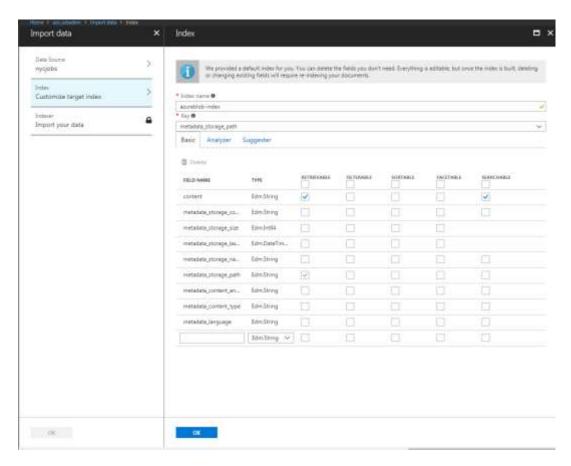
Now the file is uploaded in the container we need to go back into Azure Search to import the data creating an indexer. Open azs-jobsdemo → Import data to create a data source, Index, and Indexer. Note to know the storage account name, container name, and name of blob.



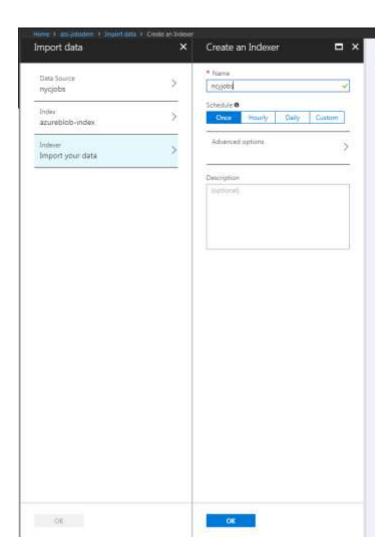
Under Data Source choose Azure Blob Storage → creating a name, data to extract, parsing mode, storage container, and blob folder followed by OK.



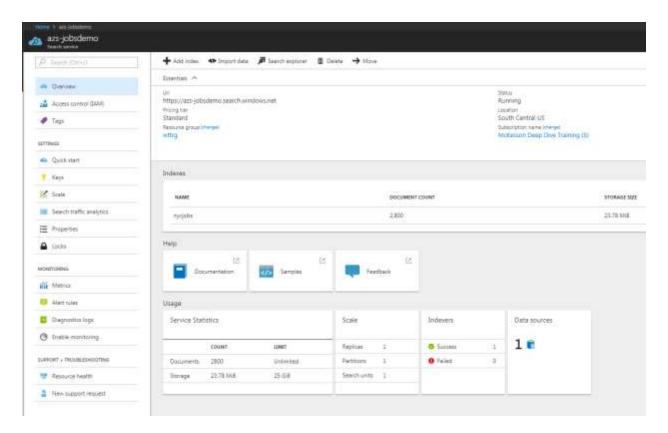
Next customize target index by creating index name and creating each field name along with checking whether or not fields are retrievable, filterable, sortable, facetable, searchable. Then select OK.



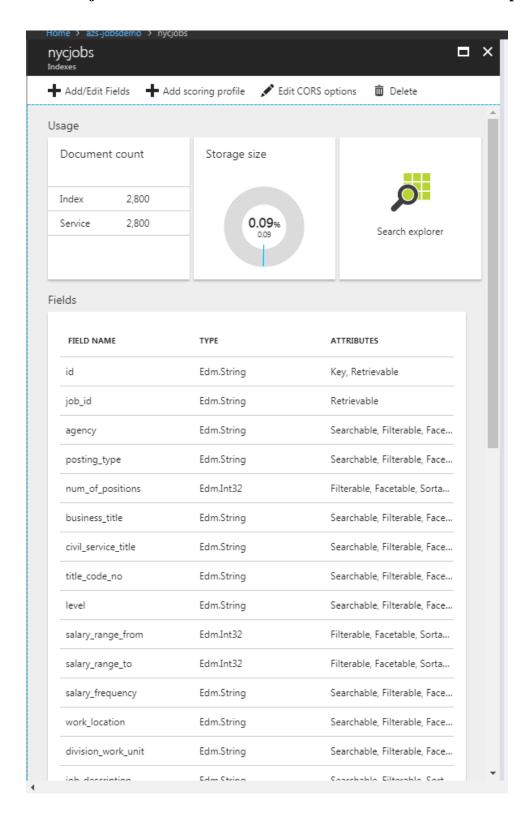
Last import your data by creating an indexer name and schedule followed by Ok.



Now with the nycjobs index created the data will load showing a single data source and whether or not the indexer successfully loaded.

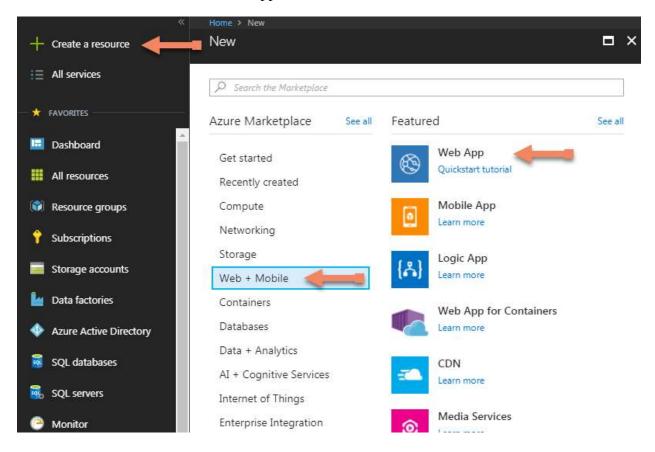


Now, we can click on the indexer nycjobs to view the document counts, storage size, and fields. From here we can add/edit fields, add scoring profile, edit CORS options, Delete the indexer and even use the search explorer.

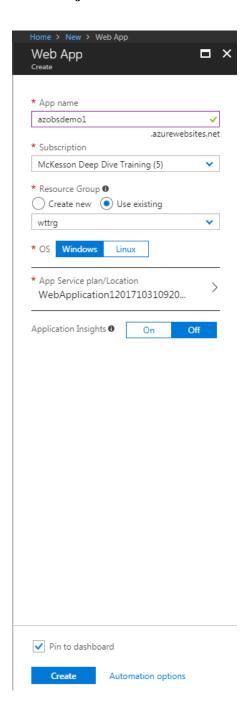


Creating a Web Application

Knowing I will be utilizing a web page we need to create a Web App service. Select Create a resource → Web + Mobile → Web App.



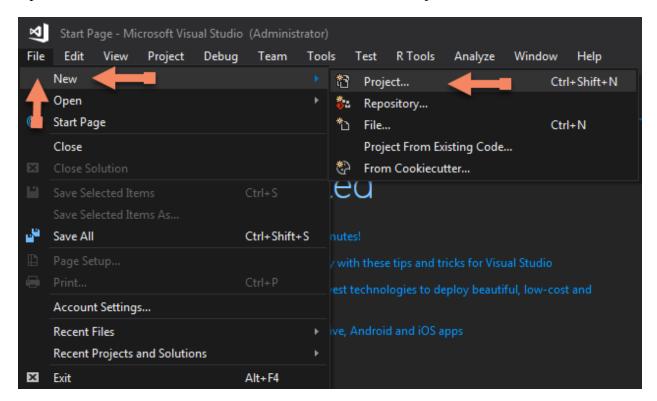
Create an App name, subscription, resource group, OS type, App Service plan followed by checking Pin to dashboard and selecting Create.



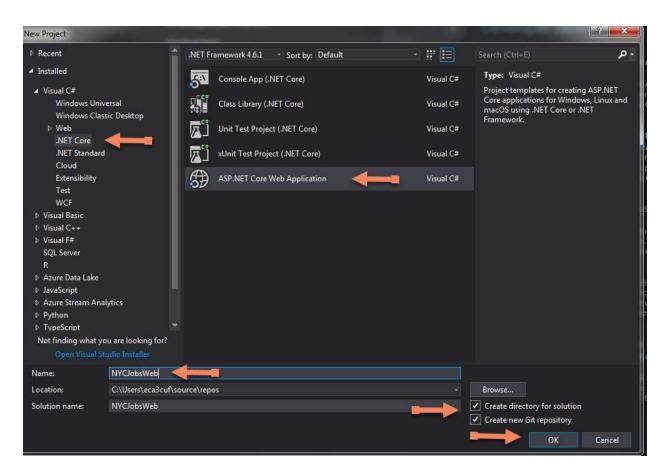
This will be utilized when we get ready to publish our dataset using Visual Studio 2017 later in this exercise.

Loading Dataset using .NET Core in Visual Studio 2017

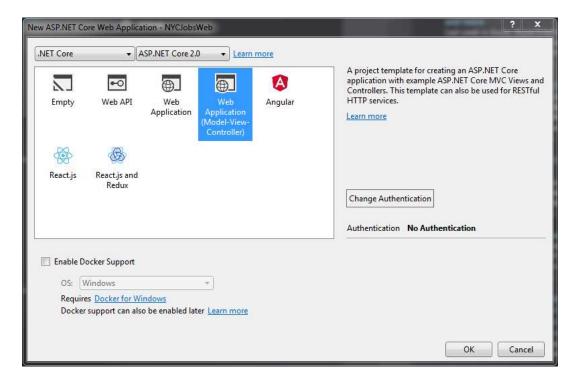
Open Microsoft Visual Studio 2017. Select File → New → Project.



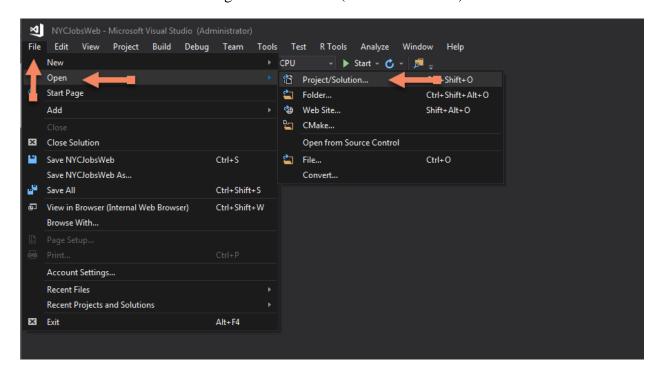
Under Visual C#, select .NET Core → ASP.NET Core Web Application. Create a name, checking both Create directory for solution and Create new Git repository followed by OK.

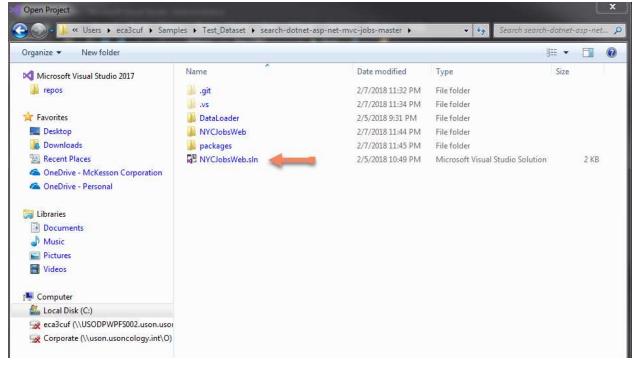


Choose the Web Application (Model-View-Controller). Leave the authentication as No Authentication. Click OK.



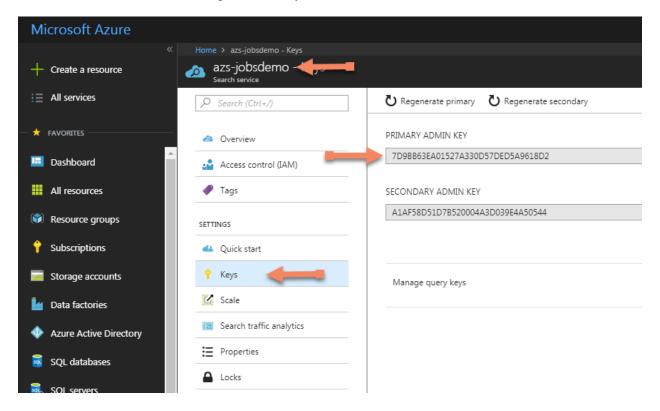
Once created go to File → Open → Project/Solution. From here navigate to your local folder where the dataset exists selecting the VS solution (NTCJobsWeb.sln).





This will then load the dataset to VS and code needed to create a search website. Because this code is prebuilt the only place needing to be modified is under App.config. Here we need the

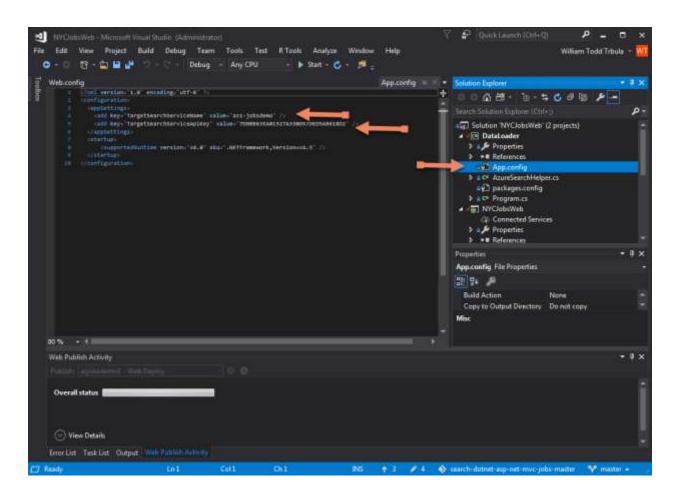
target search service name and APIkey. To get this information go to Azure portal → Azure Search services → under settings select Keys.



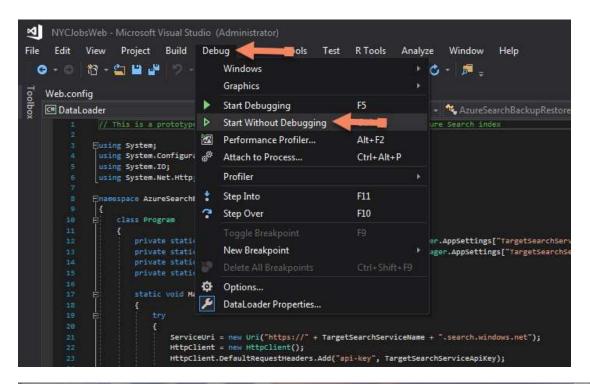
Copy to notepad the name of the Search service (azs-jobsdemo) and primary admin key.



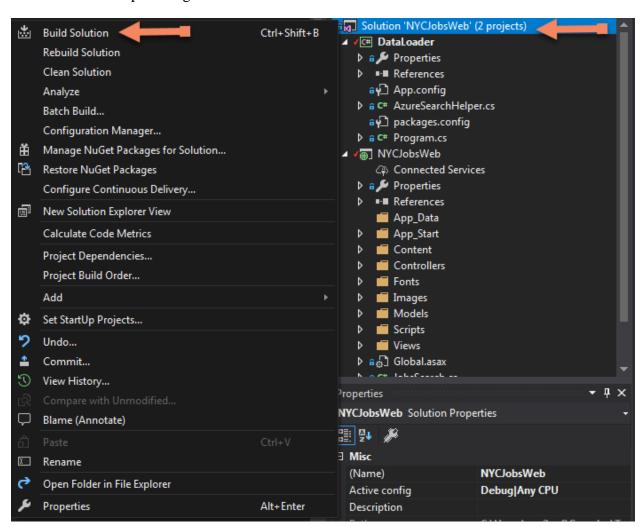
Go back to VS app.config entering the info followed by saving the change.



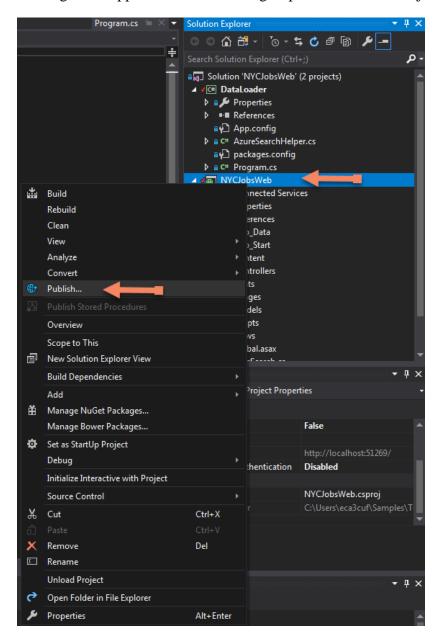
Now at the top of VS select Debug → Start without Debugging to test the solution. As it runs through uploading documents we will get a press any key to continue once completed.

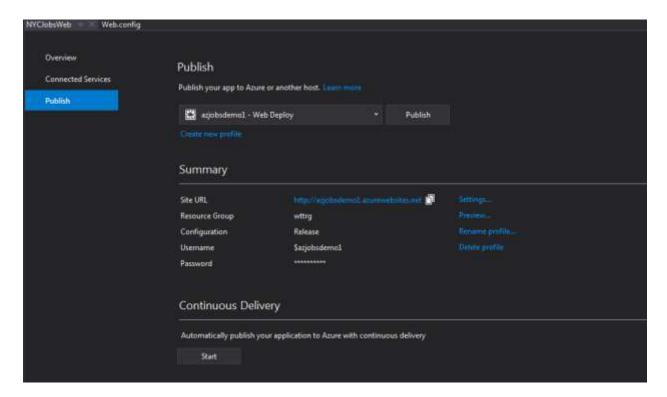


Under Solution Explorer right-click on Solution NYCJobsWeb and select Build Solution.

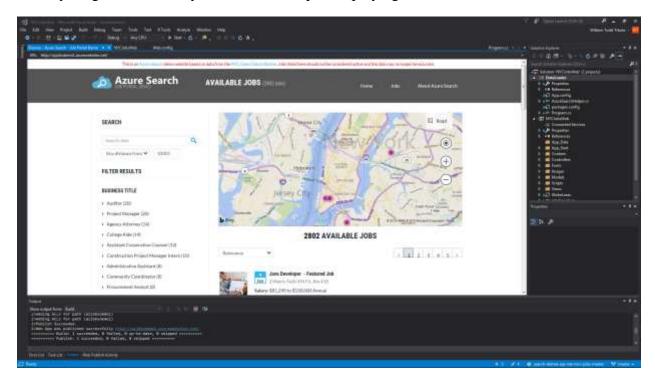


Now we want to right click on NYCJobsWeb selecting Publish. From here we will select existing Web App under the resource group select the name azjobsdemo1. The click Publish.





If everything loads correctly a browser will open displaying our Azure Search demo.

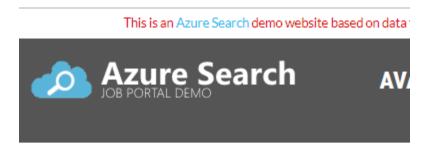


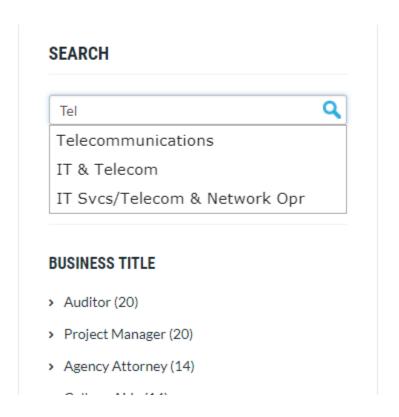
From here we can type in the search column, use the Any distance from dropdown, enter a zip code, select a business title, and so on like you would on a regular website. It will even provide results as you type in the search column and Bing map will narrow down to the jobs within an area.

Visual Summary of Azure Search Webpage

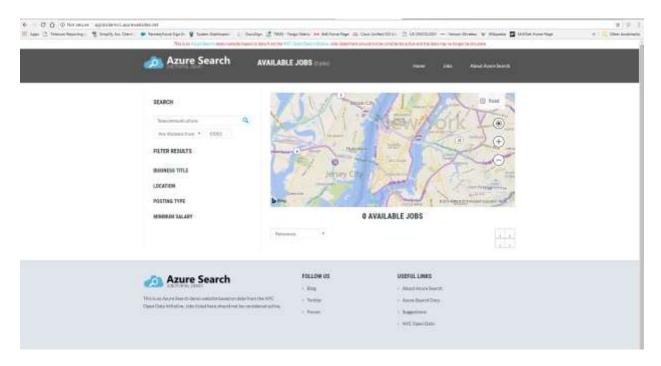
I will show the reporting features and provide reports base on searches. Below are a few screenshots of the Azure Search web page showing the different search methods by coping and pasting URL http://azjobsdemol.azurewebsites.net/ into a Chrome browser.

By trying to type the word Telecom in the search bar you will see it provides the user with suggestions.

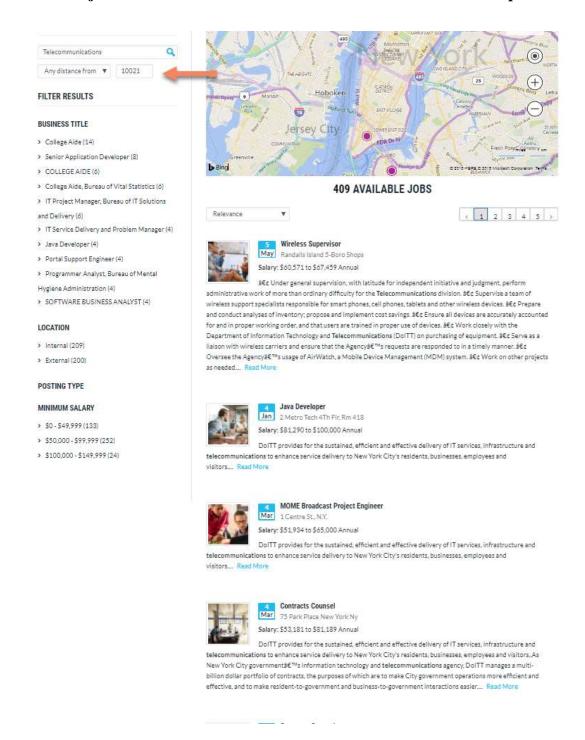




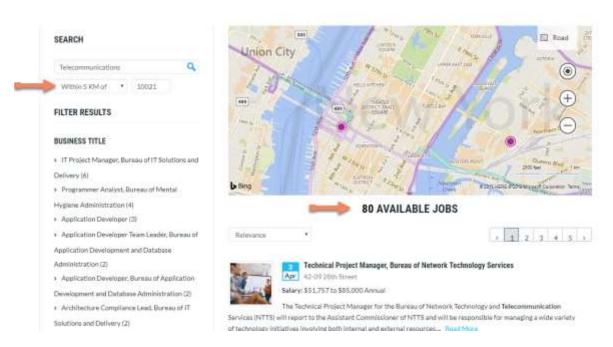
From here I will select Telecommunications. The output shows 0 available jobs.



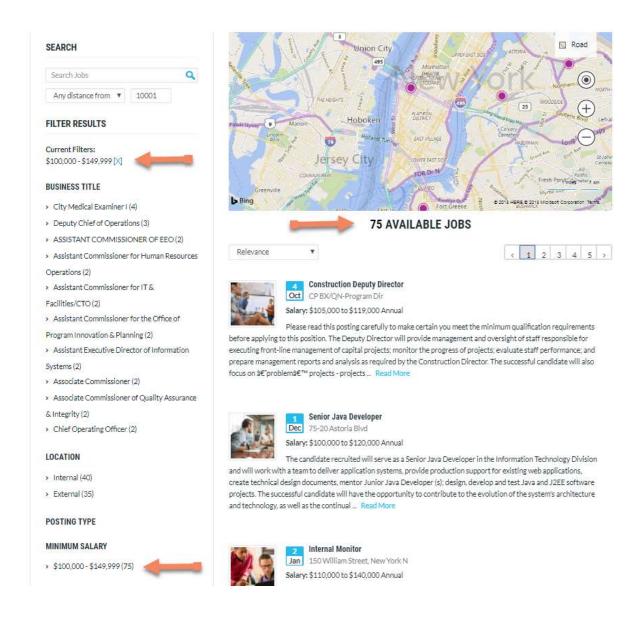
If I change the zip code from 10001 to 10021the output changes to 409 available jobs providing me a list showing job title, company, salary, and description.



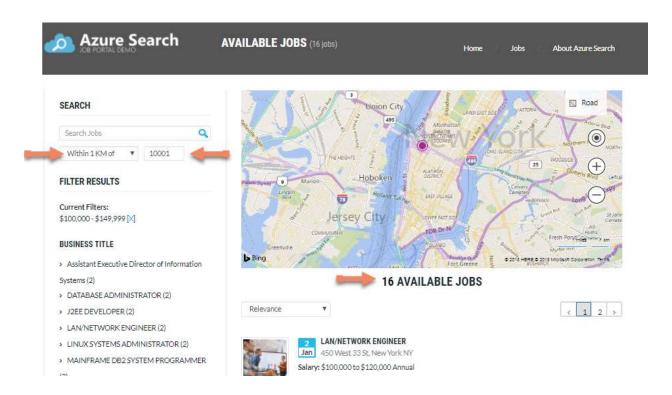
I can take it a step further by changing the distance within to 5KM of 10021. This will reduce the number of available jobs from 409 to 80 jobs.



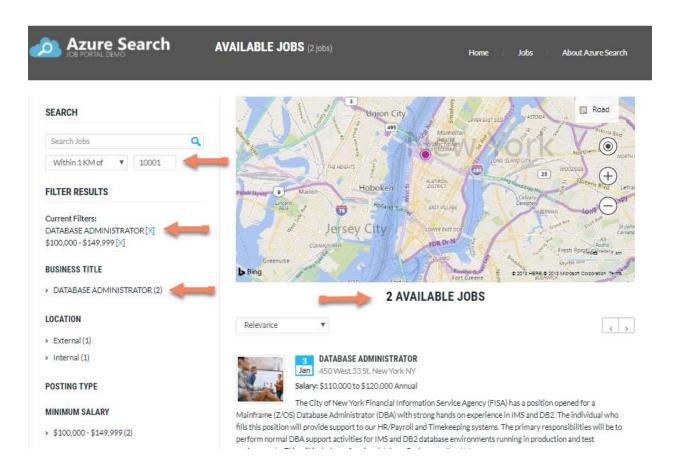
Using the filter results you can filter by business title, location, posting type, and minimum salary. For example, I will filter by minimum salary for \$100K to \$149,999. The results show 75 available jobs.



We can then take it a step further by nearing the distance down by 1KM and zip code of 10001. The results changed from 75 available jobs to 26 available jobs.



Going one more step further under business title select Database Administrator filtering down to only 2 available jobs within 1KM distance of zip code 10001.

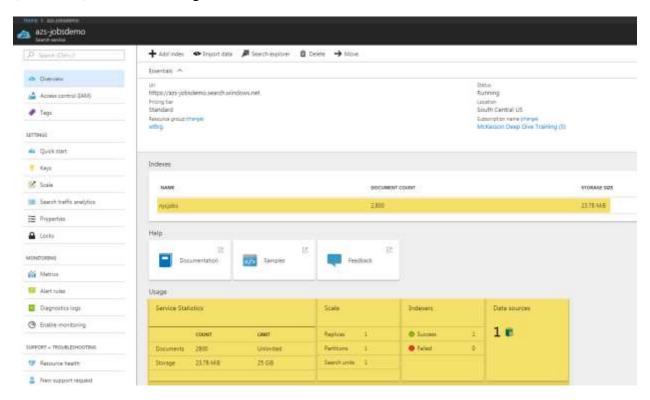


These examples provide a real-life webpage search experience. From here I will take this demo and show how this data is collect in a separate document called reports.

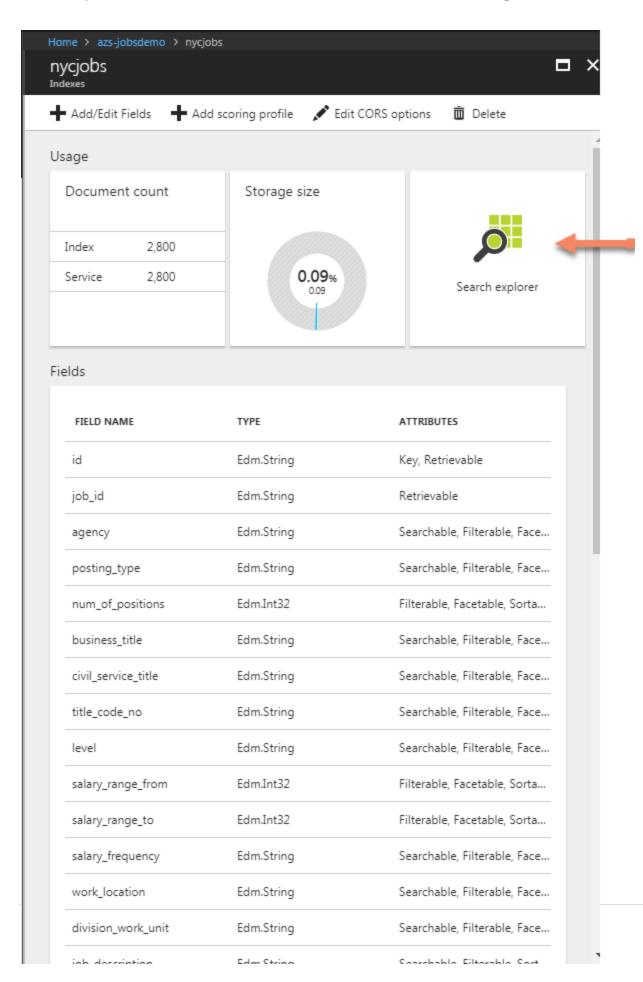
Azure Search Explorer

The above example provides an end-user experience using a webpage search for jobs available in New York City. The next exercise will be to examine that data from Azure Search services within the Azure portal and use other tools such as Postman to test HTTP client and generate HTML reports.

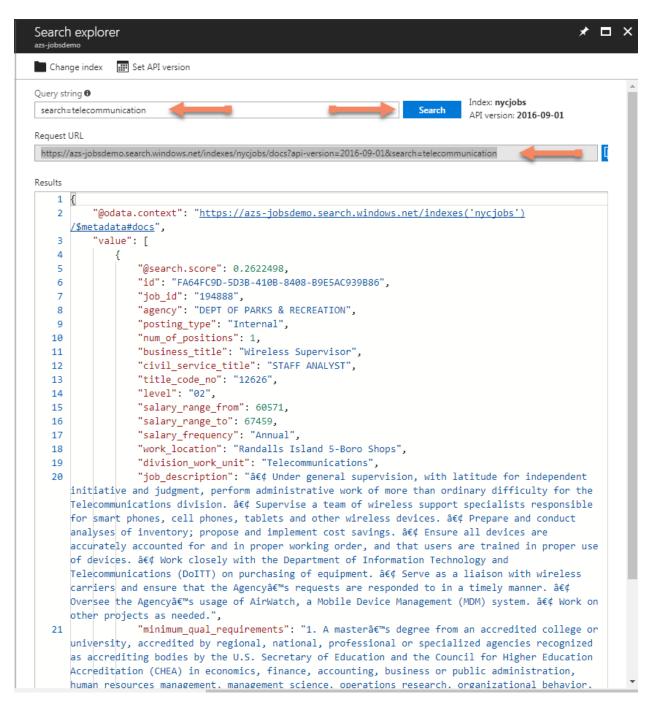
Let's start by going into Azure portal selecting the Azure Search service created early above. From here we can see our indexer (nycjobs), document count (2,800) and storage size (23.78MiB). Also in the usage area see the service statistics, scale, indexers, and data sources.



Select the index name (nycjobs). From here we see the data within such as usage, fields, scoring profiles, and CORS option. From here select Search explorer.



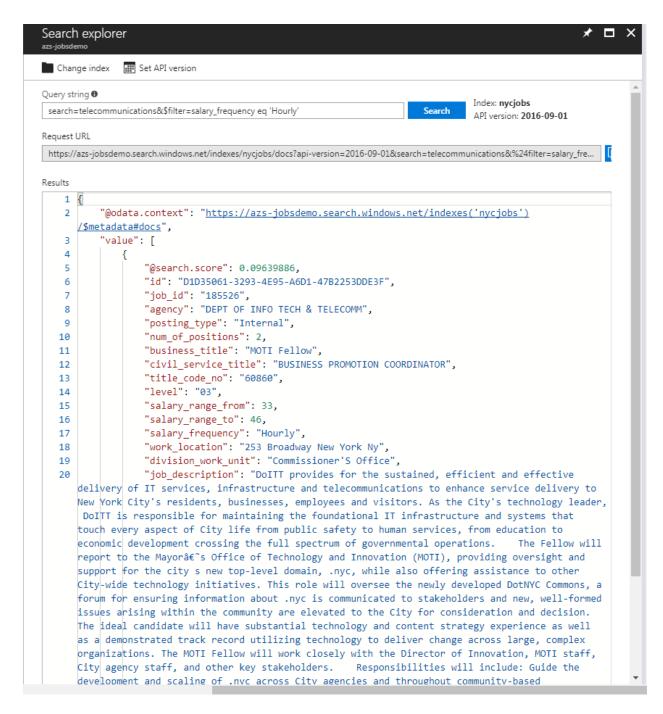
With the Search explorer open we can do a search query by typing search=telecommunication then selecting the search button. What this will do type in the full URL https://azs-jobsdemo.search.windows.net/indexes/nycjobs/docs?api-version=2016-09-01&search=telecommunication that by REST API will call to get the results. The result will return in a JSON format.



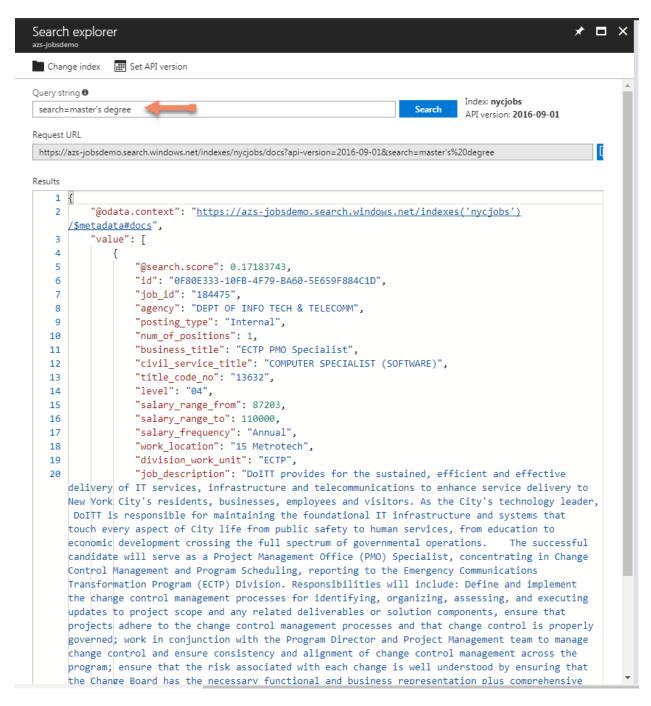
We can add categorization to the search by typing search=telecommunications&facet=salary_frequency returning a result of 342 annual and 67 hourly jobs.

```
Search explorer
                                                                                                              Change index
               .... Set API version
Query string 0
                                                                                     Index: nvciobs
search=telecommunications&facet=salary_frequency
                                                                                     API version: 2016-09-01
https://azs-jobsdemo.search.windows.net/indexes/nycjobs/docs?api-version=2016-09-01\\\&search=telecommunications\&facet=salary\_freque...
Results
    1 {
           "@odata.context": "https://azs-jobsdemo.search.windows.net/indexes('nycjobs')
       /$metadata#docs",
    3
           "@search.facets": {
               "salary_frequency@odata.type": "#Collection
    4
       (Microsoft.Azure.Search.V2016_09_01.QueryResultFacet)",
    5
                "salary_frequency": [
    6
                        "count": 342,
    7
                        "value": "Annual"
    8
    9
                    },
   10
                    {
                        "count": 67,
   11
                        "value": "Hourly"
   12
   13
   14
                ]
   15
           },
           "value": [
   16
   17
                    "@search.score": 1.5568212,
   18
                   "id": "FA64FC9D-5D3B-410B-8408-B9E5AC939B86",
   19
   20
                   "job id": "194888",
                   "agency": "DEPT OF PARKS & RECREATION",
   21
   22
                   "posting_type": "Internal",
                   "num_of_positions": 1,
   23
                   "business_title": "Wireless Supervisor",
   24
   25
                    "civil_service_title": "STAFF ANALYST",
                   "title code no": "12626",
   26
```

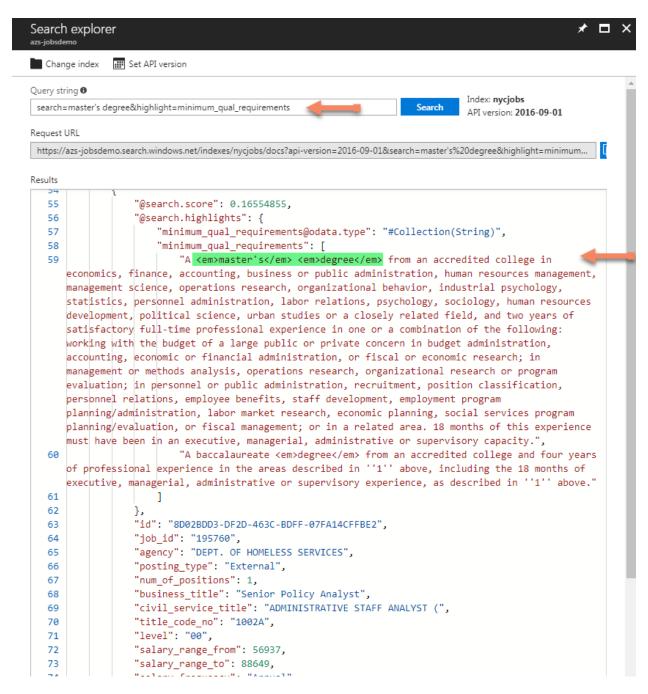
You can filter the results further by typing search=telecommunications&\$filter=salary_frequency eq 'Hourly' producing only those hourly postings narrowing down the search.



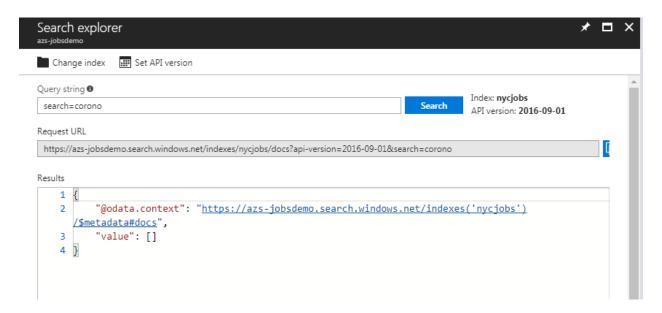
You can search based on jobs needing master's degrees. Type search=master's degree results show all jobs with master's degrees.



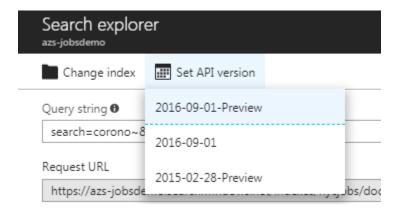
It may be hard to see or find in the result where it's found. So, we can add highlighting to the search to help show. Type search=master's degree&highlight=minimum_qual_requirements which will send back a snippet of text from the minimum_qual_requirements section.

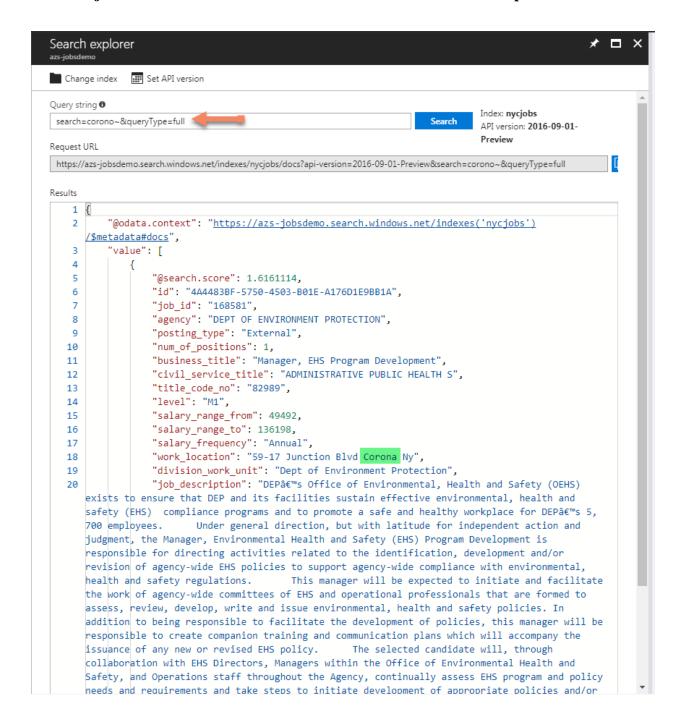


Let's look at spelling mistake. We can type search=corono (city name misspelled) providing a no value search result.



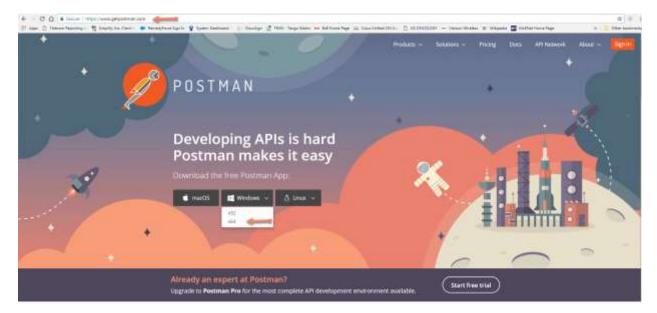
Using the Set API version, I can change from 2016-09-01 to our 2016-09-01 Preview API then going back to my search=corono adding a ~&queryType=full telling the search engine to do a more advanced query handling very simple spelling mistakes.



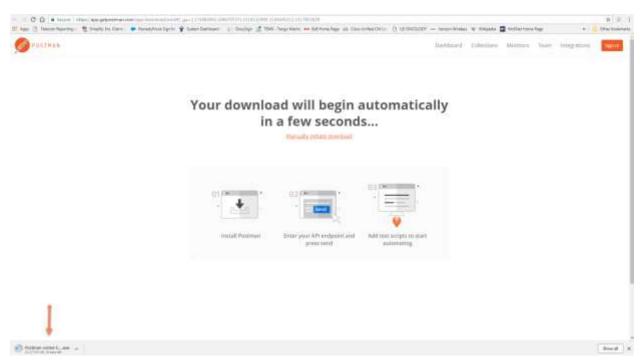


Postman

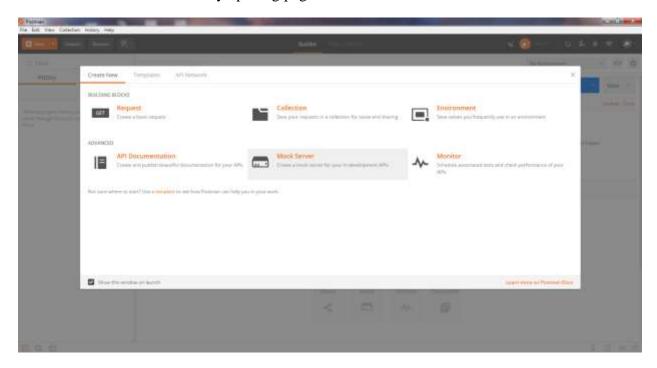
Download Postman to your desktop. Open a browser, type https://www.getpostman.com. Select the OS your using for me it's Windows x64.



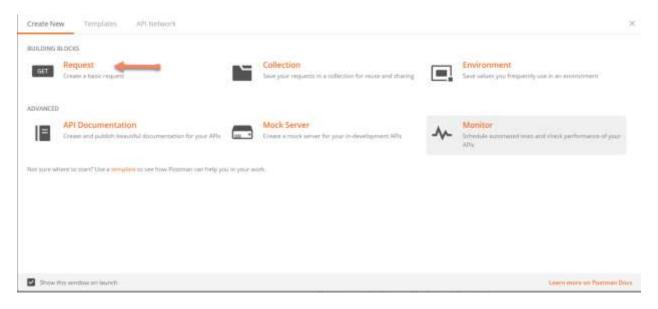
The download will automatically begin.



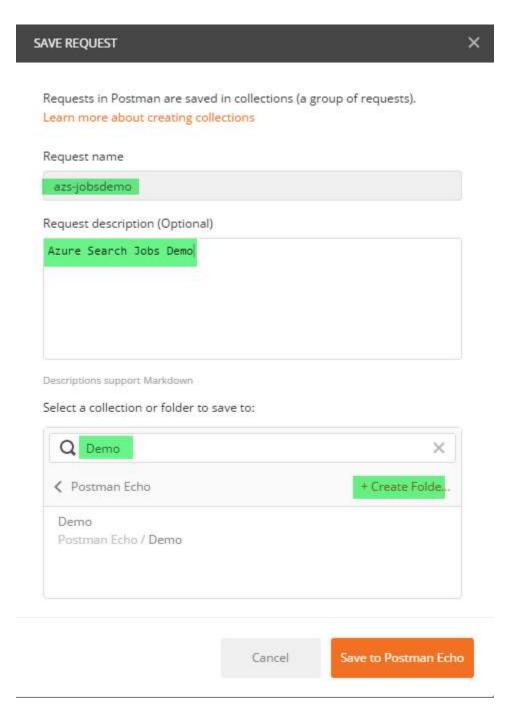
After download completes, select the download icon to install Postman to your PC. From here Postman will load automatically opening page.



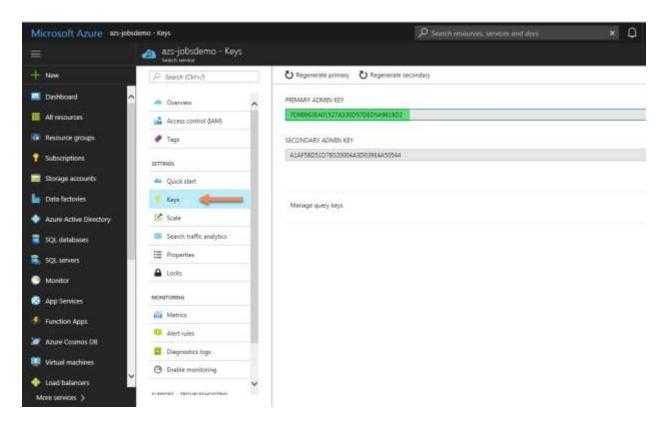
We will select a Request (create a basic request).



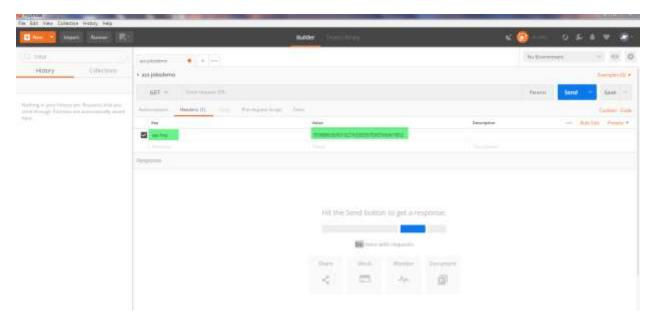
Next will type a request name, description, and folder to save to followed by Save to Postman Echo button.



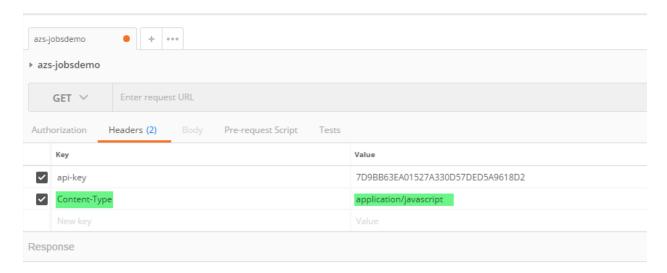
From here we can see our request name. We will be working between Postman and Azure Search explorer using GET. Before starting under the headers tab need to API Key found in the Azure Search service \rightarrow Keys \rightarrow copy the primary admin key.



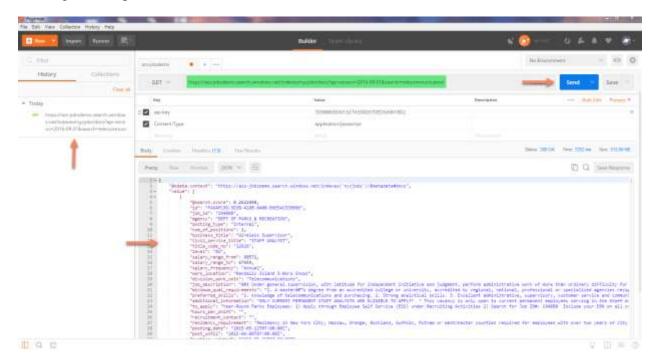
Paste the key within Postman under the Header tab in the Value section. In the Key section provide a name calling it API-key.



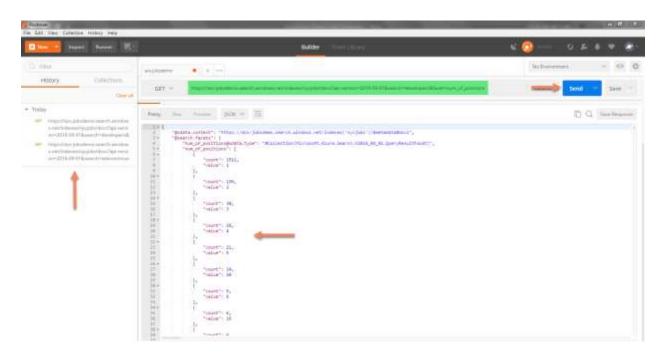
Next we need to add under key "content-Type with a value "application/json" giving us 2 headers.



Using GET we will test the data similar to Azure Search service within the indexer section like what was done with search explorer. Example in Search explorer we did a query search by typing search=telecommunications providing a result. This included a URL https://azs-jobsdemo.search.windows.net/indexes/nycjobs/docs?api-version=2016-09-01&search=telecommunication providing the URL of the search service/index name/ API version/ then what we are searching for. This would be copied into the GET section followed by clicking send to provide a result.



Results are displayed in JSON format same as search explorer just in a clear format. Also to the left side a history of what was send is captured. To show another example of GET we will do a search on developers with a facet equal to number of position.



The results show below with the counts and values. Also to the left the history is posted. Using Postman GET is the same as search explorer just a different tool getting the same data pull.

YouTube Links:

2 Min: https://youtu.be/pvXeqt8IIEk

15 Min: https://youtu.be/_sM-TUtTXIM

GitHub Repository:

https://github.com/wtrbula/Final-Project