Workforce Data Initiative
#DataAtWork – EndPoints

        The Application Program Interface (API) for #DataAtWork uses a number of endpoints focusing on normalizing information that a user enters and finding associated jobs and skills for the information entered.

How the API Works

<To be filled in once API is built>

How/ to Use the API

<To be filled in once API is built>

#DataAtWork EndPoints

The current endpoints for the #DataAtWork API are below. They focus on understanding the data in the #DataAtWork database and linking data points to one another to form relationships.

1. Job Title Autocomplete   **(/jobs/autocomplete?[contains|begins-with|ends-with])**
- *Purpose: Allows autocompletion of a job title as a user is typing.*
- *Input: Job title fragment (string)*
- *Output: Full (array) of canonical jobs containing the given fragment including titles (strings) and job uuids (hash)*
- *Note: This helps ensure consistency in job titles that are entered to help with getting associated skills and jobs for a particular job that is entered.*

2. Normalize Job Title
- *Purpose: To find the canonical job title (like "Baker") for an entered synonymous job title (like "Cupcake ninja")*
- *Input: Arbitrary synonymous job title (string)*
- *Output: Canonical job title (string) and uuid (hash)*

3. Get Job Titles from O*NET Code   **(/jobs/<onet_soc_code>) [IMPLEMENTED]**
- *Purpose: Use the O*NET skills code to obtain the job title.*
- *Input: O*NET job code*
- *Output: Full (array) of canonical jobs that map to the given O*NET SOC code including titles (strings) and job uuids (hash)*
- *Note: This is used predominantly by developers who know O*NET*

4. Skill Name Autocomplete   **(/skills/autocomplete?[contains|begins-with|ends-with])**
- *Purpose: Allows dynamic autocompletion of a skill string as a user is typing.*
- *Input: (string) Partial (3 characters+) or complete skill name*
- *Output: Full (array) of canonical skills that contain the given fragment including names (strings) and skill uuids (hash)*

- *Note: This helps ensure consistency in skills that are entered to help with getting associated skills and jobs for a particular skill that is entered.*
- *Method: GET*
- *Table: SKILLS_MASTER*

5. Normalize Skill Name
"Checks against the canonical list, returns the most canonical name"

- *Purpose: To find the canonical skill name (like "Ruby programming") for an entered synonymous skill name (like "Coding in Ruby")*
- *Input: (string) Arbitrary synonymous skill name*
- *Params: (number) skill_uuid*
- *Output: Canonical skill name (string) and uuid (int?)*
- *Development Note: The goal is to store what people put in, so the development team can better normalize in the future.*
- *Method: POST*
- *Table: SKILLS_MASTER*

6. Get Normalized Skill uuid from Skill_ONET ID (/skills/<onet_element_id?>) [IMPLEMENTED]

- *Purpose: Get the associated normalized canonical skill for an O*NET skill code.*
- *Input: O*NET skill code*
- *Output: Full (array) of canonical skills that map to the given O*NET skill code including names (strings) and skill uuids (hash)*
- *Note: This is used predominantly by developers who know O*NET*
- *Method: GET*
- *Table: SKILLS_MASTER*

7. Get Associated Skills for a Job   (/skills/<skill_uuid>)

- *Purpose: Get skills that are associated with a particular job.*
- *Input: uuid (int) of canonical job*
- *Output: Full (array) of canonical skills related to the given job including names (strings) and skill uuids (hash)*

8. Get Associated Jobs for a Job   (/jobs/<job_uuid>)

- *Purpose: Get other jobs that are closely associated with a particular job.*
- *Input: uuid (int) of canonical job*
- *Output: Full (array) of canonical jobs related to the given job including titles (strings) and job uuids (hash)*

9. Get Associated Jobs for a Skill   (/jobs/<job_uuid>)

- *Purpose: Given a skills, what jobs ask for that skills*
- *Input: uuid (int) of canonical skill*
- *Output: Full (array) of canonical jobs related to the given skill including title (strings) and job uuids (hash)*

10. Get Associated Skills for a Skill   (/skills/<skill_uuid>)

- *Purpose: skills for a skill. Given a skill, what other skills are relevant / in the same context*
- *Input: uuid (int) of canonical skill*
- *Params: (int) number*
- *Output: Full (array) of canonical skills related to the given skill including names (strings) and skill uuids (hash)*
- *Developer note:*
- *Table: SKILLS_RELATED*

11. Get Skills Name and frequency for a Skill UUID (/skills/<skills_uuid>) [IMPLEMENTED]

- *Purpose: Given a skill uuid, what is the name of that associated skill*
- *Input: (int) skill_uuid*
- *Params: (int) number*
- *Output: Returns a skill string with the name of a skill*
- *Developer note:*
- *Table: SKILLS_MASTER*

12. Get Job Name for a Job UUID (/jobs/<jobs_uuid>)

Table Definitions

SKILLS_MASTER
      skill_uuid [int]
      onet_element_id [string]
      skill_name [string]
      count [int]

RELATED_SKILLS
      Skill_uuid [int]
      Related skills [jsonb]
            Key: skill_uuid
            Value: cosign_distance

DevOps for API
- **PostgreSQL database on RDS**
- **Lambda Tasks for each endpoint**

API Spec
https://swaggerhub.com/api/matthewgee/openskills/0.0.2

Temp API endpoint (broken link)

https://m7mi1hs5n0.execute-api.us-east-1.amazonaws.com/dev

Current Endpoints

Endpoint	GET	POST	PUT	DELETE
/jobs	Returns all O*NET jobs. See Example 1.			
/jobs/<onet_soc_code>	Returns a job and its related job titles by it's O*NET SOC code. Implements #3. See Example 2.			
/jobs/<uuid>	Returns a job and its related job titles by its UUID. Alternate implementation of #3. See Example 3.			
/skills	Returns all skills and counts. See Example 4.			
/skills/<uuid>	Returns the name and count of a given skill. Implements #11. See Example 5.			
/skills/<onet_soc_code>/uuids	Returns all UUIDs associated with a skill (by O*NET SOC code). Implements #6. See Example 6.			
/skills/autocomplete?begins_with=	Returns a collection of skills that begins with a specified text			

	string. Implements #4. See Example 7.			
/skills/autocomplete?ends_with=	Returns a collection of skills that ends with a specified text string. Implements #4. See Example 8.			
/skills/autocomplete?contains=	Returns a collection of skills that contains a specified text string. Implements #4. See Example 9.			
/jobs/autocomplete?begins_with=	Returns a collection of skills that begins with a specified text string. Implements #1. See Example 10.			
/jobs/autocomplete?ends_with=	Returns a collection of skills that ends with a specified text string. Implements #1. See Example 11.			
/jobs/autocomplete?contains=	Returns a collection of skills that contains a specified text string. Implements #1. See Example 12.			

Example 1: /jobs

[{"uuid": "e4063de16cae5cf29207ca572e3a891d", "onet_soc_code": "11-1011.00", "title": "Chief Executives", "description": "Determine and formulate policies and provide overall direction of companies or private and public sector organizations within guidelines set up by a board of directors or similar governing body. Plan, direct, or coordinate operational activities at the highest level of management with the help of subordinate executives and staff managers."}]

Example 2: /jobs/<onet_soc_code>

[{"uuid": "e4063de16cae5cf29207ca572e3a891d", "onet_soc_code": "11-1011.00", "title": "Chief Executives", "description": "Determine and formulate policies and provide overall direction of companies or private and public sector organizations within guidelines set up by a board of directors or similar governing body. Plan, direct, or coordinate operational activities at the highest level of management with the help of subordinate executives and staff managers.", "related_job_titles": [{"uuid": "be71b896a917ad1d1744ab68916ace05", "title": "Aeronautics Commission Director"}, {"uuid": "70d140cc7f3c54c43cb0e480656de3ad", "title": "Agricultural Services Director"}]
Satisfies Endpoint 3

Example 3: /jobs/<uuid>

{"uuid": "e4063de16cae5cf29207ca572e3a891d", "onet_soc_code": "11-1011.00", "title": "Chief Executives", "description": "Determine and formulate policies and provide overall direction of companies or private and public sector organizations within guidelines set up by a board of directors or similar governing body. Plan, direct, or coordinate operational activities at the highest level of management with the help of subordinate executives and staff managers.", "related_job_titles": [{"uuid": "be71b896a917ad1d1744ab68916ace05", "title": "Aeronautics Commission Director"}, {"uuid": "70d140cc7f3c54c43cb0e480656de3ad", "title": "Agricultural Services Director"}, {"uuid": "4e8ca0b7ed7a96e791b5a67982593b0d", "title": "Alcohol and Drug Abuse Assistance Program Administrator"}, {"uuid": "1062b7a1fd2a8626dc3f8f41ce497931", "title": "Arts and Humanities Council Director"}, {"uuid": "c9e5d94f0460d1decc2110253dc70fd1", "title": "Bakery Manager"}, {"uuid": "a444edc2d8d5302b82b866c69e831bdb", "title": "Bank President"}, {"uuid": "b736723213832c5873ee194277425b94", "title": "Book Publisher"}, {"uuid": "597ec67a4d805af1ee3480cbea2faa6d", "title": "Brokerage Office Manager"}]
Satisfies Endpoint 8

Example 4: /skills

[{"uuid": "4d70921065c00a293597936b693345aa", "skill_name": "transportation", "count": 825494}, {"uuid": "162cb662c7ef4dc9e86a2b5e88cbcdf9", "skill_name": "clerical", "count": 373370}, {"uuid": "31c13f47ad87dd7baa2d558a91e0fbb9", "skill_name": "design", "count": 367424}, {"uuid": "7a139a9ea37cb26f0636f24db60d9b77", "skill_name": "telecommunications", "count": 354887}, {"uuid": "9df22f196a33acd0b372fe502de51211", "skill_name": "auto", "count": 293496}, {"uuid": "7e3fdeae0d52916ea5c86c7e5291f5be", "skill_name": "mechanical", "count": 230560}, {"uuid": "8f4d7acea7806e0ab206358f93ccd3e1", "skill_name": "microsoft office", "count": 225979}, {"uuid": "fb5c7f9bb4b32ce2f3bff4662f1ab27b", "skill_name": "science", "count": 204025}, {"uuid":

"ed4e96dec61f1749fe26c4e6d576719a", "skill_name": "time management", "count": 152689}, {"uuid": "912af0dff974604f1321254ca8ff38b6", "skill_name": "player", "count": 124742}, {"uuid": "4a8a08f09d37b73795649038408b5f33", "skill_name": "c", "count": 120273}]

Example 5: /skills/<uuid>
{"uuid": "4d70921065c00a293597936b693345aa", "skill_name": "transportation", "count": 825494}

Example 6: /skills/<onet_soc_code>/uuids
[{"uuid": "2f113e266e5894cbcff29da5dd866335", "onet_soc_code": "25-1011.00", "onet_element_id": "45111604", "skill_name": "carousel slide projectors"}, {"uuid": "0c28c506c11d0da4fa5f346de0e74af6", "onet_soc_code": "25-1011.00", "onet_element_id": "52161515", "skill_name": "compact disk cd players"}, {"uuid": "c75642a615fe303531e024993b514fdc", "onet_soc_code": "25-1011.00", "onet_element_id": "45111609", "skill_name": "computer projectors"}, {"uuid": "a25375c0af186a3f2eb2cf711a00b133", "onet_soc_code": "25-1011.00", "onet_element_id": "43221522", "skill_name": "conference telephones"}]

Example 7:/skills/autocomplete?begins_with="java"
[{"suggestion": "javascript"}, {"suggestion": "javamin composer"}]
Satisfies Endpoint 4

Example 8:/skills/autocomplete?ends_with="java"
[{"suggestion": "oracle java"}, {"suggestion": "sun microsystems java"}]
Satisfies Endpoint 4

Example 9:/skills/autocomplete?contains="java"
[{"suggestion": "javascript"}, {"suggestion": "oracle java"}, {"suggestion": "oracle java ee"}, {"suggestion": "asynchronous javascript and xml ajax"}, {"suggestion": "enterprise javabeans"}, {"suggestion": "oracle javaserver pages jsp"}, {"suggestion": "sun microsystems java 2 platform enterprise edition j2ee"}, {"suggestion": "oracle java 2 platform enterprise edition j2ee"}, {"suggestion": "xerces2 java parser"}, {"suggestion": "yourkit java profiler"}, {"suggestion": "sun microsystems java servlet api"}, {"suggestion": "sun microsystems java"}, {"suggestion": "javamin composer"}, {"suggestion": "oralce java enterprise system"}]
Satisfies Endpoint 4

Example 10:/jobs/autocomplete?begins_with="executive"
[{"suggestion": "Executive Administrator"}, {"suggestion": "Executive Director"}, {"suggestion": "Executive Vice President (EVP)"}, {"suggestion": "Executive Counselor"}, {"suggestion": "Executive Vice President"}, {"suggestion": "Executive Wellness Programs Director"}, {"suggestion": "Executive Chef"}, {"suggestion": "Executive Relations Specialist"}, {"suggestion": "Executive Coach"}, {"suggestion": "Executive Recruiter"}, {"suggestion": "Executive Director of Development and Alumni Relations"}, {"suggestion": "Executive Director of Development, Gift Planning"}, {"suggestion": "Executive Producer"}, {"suggestion": "Executive Director of Content Development"}, {"suggestion": "Executive Editor"},

{"suggestion": "Executive Chef (Ex Chef)"}, {"suggestion": "Executive Sous Chef"}, {"suggestion": "Executive Housekeeper"}, {"suggestion": "Executive Casino Host"}, {"suggestion": "Executive Assistant to the President/Sales Rep"}, {"suggestion": "Executive Vice President of Sales"}, {"suggestion": "Executive Administrative Assistant"}, {"suggestion": "Executive Assistant"}, {"suggestion": "Executive Associate"}, {"suggestion": "Executive Secretary"}, {"suggestion": "Executive Staff Assistant"}, {"suggestion": "Executive, Secretarial, Managerial, or Official Duties Assistant"}, {"suggestion": "Executive Pilot"}, {"suggestion": "Executive Officer, Special Warfare Team"}]
Satisfies Endpoint 1

Example 11:/jobs/autocomplete?ends_with="executive"
[{"suggestion": "Business Development Executive"}, {"suggestion": "Business Executive"}, {"suggestion": "Corporate Executive"}, {"suggestion": "Government Service Executive"}, {"suggestion": "Media Executive"}, {"suggestion": "Music Executive"}, {"suggestion": "Private Sector Executive"}, {"suggestion": "Top Executive"}, {"suggestion": "Account Executive"}, {"suggestion": "Advertising Account Executive"}, {"suggestion": "Advertising Executive"}, {"suggestion": "Market Development Executive"}, {"suggestion": "Marketing Executive"}, {"suggestion": "Merchandise Executive"}, {"suggestion": "Training Executive"}, {"suggestion": "Project Executive"}, {"suggestion": "Scout Executive"}, {"suggestion": "Association Executive"}, {"suggestion": "Branch Account Executive"}, {"suggestion": "Emerging Solutions Executive"}, {"suggestion": "Public Relations Account Executive"}, {"suggestion": "Chief Nurse Executive"}, {"suggestion": "Advertising Sales Executive"}, {"suggestion": "Inside Sales Advertising Executive"}, {"suggestion": "Outside Sales Advertising Executive"}, {"suggestion": "Real Estate Account Executive"}, {"suggestion": "Retail Account Executive"}, {"suggestion": "Retail Advertising Account Executive"}, {"suggestion": "Retail Advertising Executive"}, {"suggestion": "Sales Executive"}, {"suggestion": "Accounts Executive"}, {"suggestion": "Strategic Account Executive"}, {"suggestion": "Investment Executive"}, {"suggestion": "Wholesale Account Executive"}, {"suggestion": "Certified Corporate Travel Executive"}, {"suggestion": "Territory Sales Executive"}, {"suggestion": "Customer Support Executive"}]
Satisfies Endpoint 1

Example 12:/jobs/autocomplete?contains="executive"
[{"suggestion": "Business Development Executive"}, {"suggestion": "Business Executive"}, {"suggestion": "Chief Executive Officer (CEO)"}, {"suggestion": "Corporate Executive"}, {"suggestion": "Executive Administrator"}, {"suggestion": "Executive Director"}, {"suggestion": "Executive Vice President (EVP)"}, {"suggestion": "Government Service Executive"}, {"suggestion": "Media Executive"}, {"suggestion": "Music Executive"}, {"suggestion": "Private Sector Executive"}, {"suggestion": "State Board of Nursing Executive Secretary"}, {"suggestion": "Top Executive"}, {"suggestion": "Sustainability Executive Director"}, {"suggestion": "Account Executive"}, {"suggestion": "Advertising Account Executive"}, {"suggestion": "Advertising Executive"}, {"suggestion": "Promotions Executive Producer (Promos Executive Producer)"}, {"suggestion": "Market Development Executive"}, {"suggestion": "Marketing Executive"}, {"suggestion": "Executive Counselor"}, {"suggestion": "Merchandise Executive"}, {"suggestion": "Training Executive"}, {"suggestion": "Project Executive"}, {"suggestion": "Executive Vice President"}, {"suggestion": "Executive Wellness Programs Director"}, {"suggestion": "Executive Chef"}, {"suggestion": "Red Cross Executive Director"}, {"suggestion": "Scout Executive"}, {"suggestion": "Sheltered Workshop Executive Director"},

{"suggestion": "Association Executive"}, {"suggestion": "Chamber of Commerce Executive Vice President"}, {"suggestion": "Nurses' Association Executive Director"}, {"suggestion": "Executive Relations Specialist"}, {"suggestion": "Executive Coach"}, {"suggestion": "Executive Recruiter"}, {"suggestion": "Executive Director of Development and Alumni Relations"}, {"suggestion": "Executive Director of Development, Gift Planning"}, {"suggestion": "Branch Account Executive"}, {"suggestion": "Emerging Solutions Executive"}, {"suggestion": "Executive Producer"}, {"suggestion": "Executive Director of Content Development"}, {"suggestion": "Public Relations Account Executive"}, {"suggestion": "Executive Editor"}, {"suggestion": "Chief Nurse Executive"}, {"suggestion": "Certified Executive Chef (CEC)"}, {"suggestion": "Corporate Executive Chef"}, {"suggestion": "Executive Chef (Ex Chef)"}, {"suggestion": "Executive Sous Chef"}, {"suggestion": "Executive Housekeeper"}, {"suggestion": "Executive Casino Host"}, {"suggestion": "Advertising Sales Executive"}, {"suggestion": "Inside Sales Advertising Executive"}, {"suggestion": "Outside Sales Advertising Executive"}, {"suggestion": "Real Estate Account Executive"}, {"suggestion": "Retail Account Executive"}, {"suggestion": "Retail Advertising Account Executive"}, {"suggestion": "Retail Advertising Executive"}, {"suggestion": "Sales Executive"}, {"suggestion": "Accounts Executive"}, {"suggestion": "Strategic Account Executive"}, {"suggestion": "Investment Executive"}, {"suggestion": "Wholesale Account Executive"}, {"suggestion": "Certified Corporate Travel Executive"}, {"suggestion": "Executive Assistant to the President/Sales Rep"}, {"suggestion": "Account Executive, Key Accounts"}, {"suggestion": "Executive Vice President of Sales"}, {"suggestion": "Territory Sales Executive"}, {"suggestion": "Customer Support Executive"}, {"suggestion": "Executive Administrative Assistant"}, {"suggestion": "Executive Assistant"}, {"suggestion": "Executive Associate"}, {"suggestion": "Executive Secretary"}, {"suggestion": "Executive Staff Assistant"}, {"suggestion": "Executive, Secretarial, Managerial, or Official Duties Assistant"}, {"suggestion": "Executive Pilot"}, {"suggestion": "Executive Officer, Special Warfare Team"}]

Satisfies Endpoint 1