



**Senior Python Engineer - Coding Challenge**

# Adverity Python Challenge

## Mandatory requirements

- Django 2.0+
- Python 3.6+
- [petl](#)

## Recommended

- [requests](#)

## Scope

- For the sake of simplicity everything should be running in the Django development server (no task queues or similar)
- Interface does not have to be fancy (you can use plain HTML/CSS, Bootstrap, ...)
- Keep things simple, additional comments on how your app can be further improved and optimized are welcome

## Objective

Build a simple app which allows you to collect, resolve and inspect information about characters in the Star Wars universe from the SWAPI.

The entry endpoint for data retrieval is: <https://swapi.co/api/people/>

If the API should be inaccessible for some reason you can host your own version of it.

## Data retrieval and storage

The user should have a way to download the latest complete dataset of characters from the API by clicking on a button, the collected and transformed data should be stored as a CSV file in the file system. Metadata for downloaded datasets (e.g. filename, date, etc.) should be stored inside the database. Fetching and transformations should be implemented efficiently, minimize the amount of requests, your app should be able to process large amounts of data.

Star Wars Explorer		Collections
Collections		<button>Fetch</button>
Feb. 19, 2020, 9:32 a.m.		
Feb. 19, 2020, 9:21 a.m.		
Feb. 19, 2020, 9:21 a.m.		
Feb. 19, 2020, 9:20 a.m.		
Feb. 19, 2020, 9:19 a.m.		
Feb. 19, 2020, 8:56 a.m.		
Feb. 19, 2020, 8:55 a.m.		
Feb. 19, 2020, 8:55 a.m.		
Feb. 19, 2020, 8:53 a.m.		
Feb. 19, 2020, 8:50 a.m.		
Feb. 18, 2020, 4:08 p.m.		

<https://user-images.githubusercontent.com/640755/75017565-2ec0eb00-5485-11ea-913c-0b15ba62bf48.png>

### Transformations

- Add a date column (%Y-%m-%d) based on edited date
- Resolve the homeworld field into the homeworld's name (/planets/1/ -> Tatooine)
- Fields referencing different resources and date fields other than date/birth\_year can be dropped

### Data representation

The user should be able to inspect all previously downloaded datasets, as well as do simple exploratory operations on it.

Star Wars Explorer Collections

847c432d131546f9b965862891ddc3dd.csv

name	height	mass	hair_color	skin_color	eye_color	birth_year	gender	homeworld	date
Luke Skywalker	172	77	blond	fair	blue	19BBY	male	Tatooine	2014-12-20
C-3PO	167	75	n/a	gold	yellow	112BBY	n/a	Tatooine	2014-12-20
R2-D2	96	32	n/a	white, blue	red	33BBY	n/a	Naboo	2014-12-20
Darth Vader	202	136	none	white	yellow	41.9BBY	male	Tatooine	2014-12-20
Leia Organa	150	49	brown	light	brown	19BBY	female	Alderaan	2014-12-20
Owen Lars	178	120	brown, grey	light	blue	52BBY	male	Tatooine	2014-12-20
Beru Whitesun Lars	165	75	brown	light	blue	47BBY	female	Tatooine	2014-12-20
R5-D4	97	32	n/a	white, red	red	unknown	n/a	Tatooine	2014-12-20
Biggs Darklighter	183	84	black	light	brown	24BBY	male	Tatooine	2014-12-20
Obi-Wan Kenobi	182	77	auburn, white	fair	blue-gray	57BBY	male	Stewjon	2014-12-20

[Load More](#)

<https://user-images.githubusercontent.com/640755/74833466-6ad33f00-5311-11ea-8e3c-03c814dd863f.png>

## Functionality

### Load more

By default the table should only show the first 10 rows of the dataset, by clicking on a button “Load more” additionally 10 rows should be shown - reloading the page is fine.

### Value Count

Provide the functionality to count the occurrences of values (combination of values) for columns. For example when selecting the columns date and homeworld the table should show the counts as follows:

homeworld	birth_year	Count
Tatooine	19BBY	1
Tatooine	112BBY	1
Naboo	33BBY	1
Tatooine	41.9BBY	2
Alderaan	19BBY	1
..	..	..

Star Wars Explorer [Collectors](#)

847c432d131546f9b965862891ddc3dd.csv

birth_year	homeworld	name	height	mass	hair_color	skin_color	eye_color	gender	date
birth_year	homeworld	Count							
19BBY	Tatooine	1							
112BBY	Tatooine	1							
33BBY	Naboo	1							
41.9BBY	Tatooine	2							
19BBY	Alderaan	1							
52BBY	Tatooine	1							
47BBY	Tatooine	1							
unknown	Tatooine	1							
24BBY	Tatooine	1							
57BBY	Stewjon	1							
64BBY	Eriadu	1							
200BBY	Kashyyyk	1							
29BBY	Corellia	1							
41BBY	Rodia	1							

<https://user-images.githubusercontent.com/640755/74833446-5ee77d00-5311-11ea-95d8-ce1b2bb13404.png>

## Scope

- "Value Count" does not have to support "Load more"