

## Project README

### Purpose:

The program will take an input of ingredients, and return a list of recipes that can be made using those ingredients. The user can select one of the recipes for display. An option, the user can display an image of the recipe in their browser.

A planned option to convert any recipe into a vegetarian or vegan option was not implemented due to the complexity being higher than anticipated.

### Entities:

#### Classes:

##### Recipe class:

##### Class Attributes:

`all_ingredients_list`: takes unfiltered ingredients as scraped from [allingredients.com](http://allingredients.com)

`recipe_list`, `recipe_dict`: list and dictionary, respectively, of all initialized instances of Recipe Class

`pure_ingredient_dict`: dictionary of ingredients that is used to create instances of Ingredient Class, and for performing searches based on user input ingredients

##### Instance Attributes:

`title`: recipe title

`number`: recipe number within the program

`time`: total recipe time in minutes

`ingredient_list`: recipe ingredients with measurements and description, as scraped from [allrecipes.com](http://allrecipes.com)

`instructions`: recipe cooking instructions, as scraped from [allrecipes.com](http://allrecipes.com)

`image_link`: hyperlink for an image of the recipe

##### Methods:

`__init__`: initializes recipe instances, and adds the recipe to `recipe_dict`, `recipe_list`, and adds `ingredient_list` to `all_ingredient_list`

`ingredients (@property)`: cleans `ingredient_list`, due to minor issue with the scraper script

`search_ingredients (@property)`: returns individual Ingredient objects, to be searched against input ingredients

`lookup_byname`: looks up the recipe object by name

`lookup_bynumber`: looks up the recipe object by number

`display_image`: displays `image_link` in browser

`display_recipe`: displays the complete recipe text

#### Ingredient Class:

##### Class Attributes:

`ingredient_dict`: of all initialized instances of Ingredient Class names as keys, and a list of the object, `veggie_flag`, `vegan_flag`, and alternate names as values

##### Methods:

`__init__`: initializes Ingredient instances, and adds the Ingredient to `ingredient_dict`

`__str__`: returns the name of the Ingredient object

`alt_name`: returns list of potential alternate names to Ingredient

### Functions:

`find_recipe(ingredient_list)`: this function takes an input of up to three ingredients to search for in the recipes that are loaded into the program. The function returns a print-out of the recipes that match all the ingredients, some of the ingredients, and each individual ingredient. Each recipe is displayed with its recipe number, for easy retrieval and display.

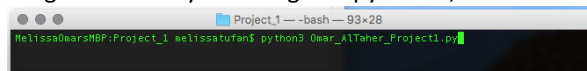
## Challenges:

- 1) The biggest challenge was finding recipe data to use with the program. I tried to find recipe files that were open source and available online, but could not find any with a suitable format and selection of recipes. Some of the recipe websites have their own systems, but I could not find a way to get to the source data files. I did find one set of files that were available, but they were using a proprietary xml format that while probably decipherable, was out of the scope of this project.
- 2) The second challenge was understanding the way I need to structure my classes, lists, and functions in order to achieve the result I wanted. I found myself iterating often, and by the time I was done, I found many of the elements I built were not necessarily needed (like the alt\_names attribute for Ingredient class instances).
- 3) The third challenge, was understanding how to initiate many instances of a class, and being able to keep track of them. This was finally accomplished by using list comprehensions running off of other lists containing information needed to initialize instances of each object. This is really due to the different thinking approach needed for object-oriented programming, which I found a bit challenging.
- 4) The last big challenge was adding handling of plural ingredient names. This seemed straightforward, but proved to be time consuming.
- 5) Time. Not enough time to do what I wanted. Namely: the veggiefy and veganize options, which would be difficult to add. Less difficult would be the ability to add recipe and ingredient objects from the program while it is running.

## Use and Testing

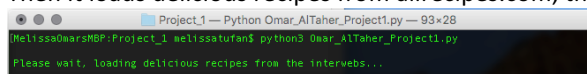
### User Interface:

Program is run by initiating it in python 3, via the command shell



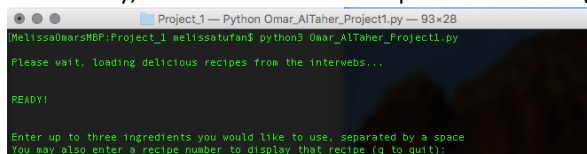
```
Project_1 — -bash — 93x28
Melissa@warsMDF:Project_1$ python3 Omar_AlTaher_Project1.py
```

Then it loads delicious recipes from allrecipes.com, this takes 30-60 seconds



```
Project_1 — Python Omar_AlTaher_Project1.py — 93x28
(Melissa@warsMDF:Project_1$ python3 Omar_AlTaher_Project1.py
Please wait, loading delicious recipes from the interwebs...
```

Once ready, it asks for the user to input their three ingredients, or a recipe number, or q to quit

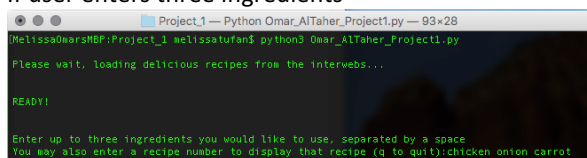


```
Project_1 — Python Omar_AlTaher_Project1.py — 93x28
Melissa@warsMDF:Project_1$ python3 Omar_AlTaher_Project1.py
Please wait, loading delicious recipes from the interwebs...

READY!

Enter up to three ingredients you would like to use, separated by a space
You may also enter a recipe number to display that recipe (q to quit):
```

If user enters three ingredients



```
Project_1 — Python Omar_AlTaher_Project1.py — 93x28
Melissa@warsMDF:Project_1$ python3 Omar_AlTaher_Project1.py
Please wait, loading delicious recipes from the interwebs...

READY!

Enter up to three ingredients you would like to use, separated by a space
You may also enter a recipe number to display that recipe (q to quit):chicken onion carrot
```

the program returns a list of recipes:

Omar Al Taher  
Recipe Recommendation Program  
7/18/2016

```
Project_1 — Python Omar_AlTaher_Project1.py — 93x28

Recipes that include all your ingredients:
Recipe_1 : Bolognese Sauce

Recipes that only include chicken & onion :
Recipe_5 : Grandma's Chicken Noodle Soup

Recipes that only include onion & carrot :
Recipe_21 : Black Bean Soup with Bacon

Recipes that only include chicken :
Recipe_18 : Citrus Chicken Stir Fry
Recipe_6 : Turkish Chicken Kebabs

Recipes that only include onion :
Recipe_8 : Tuna Fish Salad
Recipe_14 : Avocado Salad
Recipe_4 : Turkey Burgers
Recipe_12 : Yummy Veggie Omelet
Recipe_9 : Baked Beans II
Recipe_0 : Old Fashioned Mac and Cheese
Recipe_7 : BBQ Steak
Recipe_13 : Fresh Broccoli Salad
Recipe_17 : Salvadorian Baked Fish

Enter up to three ingredients you would like to use, separated by a space
You may also enter a recipe number to display that recipe (q to quit):
```

The user can enter the recipe number to display it

If user enters recipe number

```
Project_1 — Python Omar_AlTaher_Project1.py — 93x28

[Melissa@marsMBP:Project_1 melissaturfan$ python3 Omar_AlTaher_Project1.py

Please wait, loading delicious recipes from the interwebs...

READY!

Enter up to three ingredients you would like to use, separated by a space
You may also enter a recipe number to display that recipe (q to quit):12
```

That recipe is displayed

```
Project_1 — Python Omar_AlTaher_Project1.py — 93x28

Enter up to three ingredients you would like to use, separated by a space
You may also enter a recipe number to display that recipe (q to quit):7

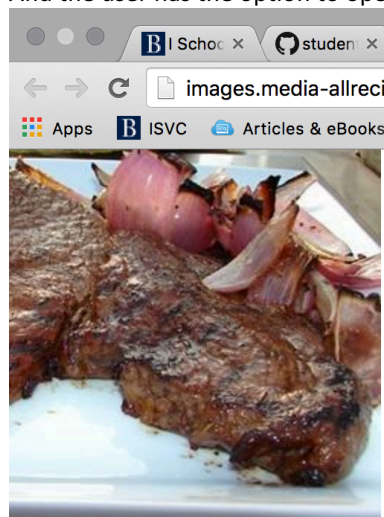
BBQ Steak
Total time: 210 minutes

Ingredients:
1 small onion, chopped
7 cloves garlic
1/2 cup olive oil
1/2 cup vinegar
1/2 cup soy sauce
2 tablespoons chopped fresh rosemary
2 tablespoons Dijon-style prepared mustard
2 teaspoons salt
1 teaspoon black pepper
1 (2 pound) tri-tip steak

Instructions:
Place onion, garlic, olive oil, vinegar, soy sauce, rosemary, mustard, salt, and pepper into
the bowl of a food processor. Process until smooth. Place steak in a large resealable plastic
bag. Pour marinade over steaks, seal, and refrigerate for about 3 hours.
Preheat the grill for high heat.
Brush grill grate with oil. Discard marinade, and place steak on the prepared grill. Cook for
7 minutes per side, or to desired doneness.

Would you like to see an image of this recipe in your browser? (y/yes to display):
```

And the user has the option to open an image of the recipe in their browser

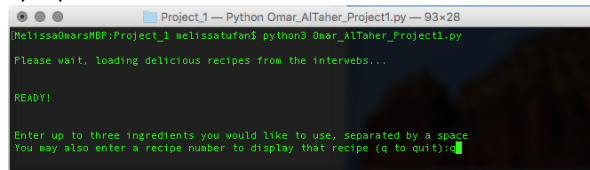


If user enters q, the program quits!

Omar Al Taher

Recipe Recommendation Program

7/18/2016



```
Project_1 — Python Omar_AlTaher_Project1.py — 93x28
[Melissa@marsMBP:Project_1 melissatufan]$ python3 Omar_AlTaher_Project1.py
Please wait, loading delicious recipes from the interwebs...

READY!

Enter up to three ingredients you would like to use, separated by a space
You may also enter a recipe number to display that recipe (q to quit):q
```

#### Testing:

The program can be tested by entering different ingredients, displaying recipes and their images. Different “nonsense” inputs, or different numbers of inputs can be tried to see if that crashes the program. The program should also tolerate plural vs singular ingredients, returning the same results for both.