# RecipEat

## Technology Review: Spoonacular, Edamam

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# Outline

- Project Overview
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- APIs: Spoonacular vs. Edamam
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- API Pros and Cons
- Decision
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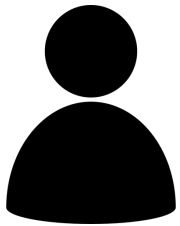
# Project Overview

- Goals:
  - Fast and simple to find recipes based on the ingredients you have at home
  - Easy to incorporate a balanced diet based on nutrient targets
- Requirements:
  - User can log-in
  - User can keep a running list of available ingredients
  - User can input ingredient-based & nutrient-based inputs
  - RecipEat will return some recommended recipes
  - RecipEat will provide a visual comparison of recipes

# Use Case



**User:** Max, a working dad

**Objective:** Max wants to make healthy recipes for his kids with the ingredients he has on hand, so he doesn't have to run to the grocery store

**Action:** Max logs into RecipEat and enters the ingredients he has at home, along with some nutritional targets he has for him and his kids

**Result:** Max receives a list of the most relevant recipes and can view a visual comparison of the two

# APIs: Spoonacular vs. Edamam

## Spoonacular

- Free version allows for 150 points per day (Roughly 150 searches)
- Allow for filtering based on food intolerances and desired dietary goals
- Returns recipes based on ingredients based on “what’s in your fridge”

## Edamam

- Free version allows for 200 recipes per month
- Allows for analyzing nutrients of a meal given ingredients
- Can return recipes based on nutrient or ingredient inputs

# Spoonacular Output

- Returns a JSON output that is easily converted into a pandas DataFrame
- Based on ingredients and nutrient information will receive back a recipe with protein, calories, carbs, and fat.
- A .jpg file path is also returned for a visual of the recipe

# Spoonacular Response

## Search Recipes by Nutrients

```
request_url = 'https://api.spoonacular.com/recipes/findByNutrients?'
apikey =
filterby = '&minCarbs=10&maxCarbs=50&number=2000'

url = request_url + apikey + filterby
payload={}
headers = {
  'Cookie': '__cfduid=dff952ebbf9c020c4f07c314e6bcb9c711613423774'
}

response = requests.request("GET", url, headers=headers, data=payload)

pd.DataFrame(response.json())
```

| | calories | carbs | fat | id | image | imageType | protein | title |
|---|---|---|---|---|---|---|---|---|
| **0** | 114 | 12g | 6g | 157109 | https://spoonacular.com/recipeImages/157109-31... | jpg | 4g | Raw Vegan Peanut Butter Pumpkin Bites |
| **1** | 218 | 25g | 10g | 631763 | https://spoonacular.com/recipeImages/631763-31... | jpg | 8g | Warm and Luscious Sipping Chocolate with Xocai... |
| **2** | 359 | 38g | 21g | 631769 | https://spoonacular.com/recipeImages/631769-31... | jpg | 6g | Bad Boy" Giant Double Chocolate Cookies |
| **3** | 125 | 14g | 7g | 632168 | https://spoonacular.com/recipeImages/632168-31... | jpg | 2g | Almond Pistachio Cookied With Saffron Icing |
| **4** | 279 | 33g | 10g | 632944 | https://spoonacular.com/recipeImages/632944-31... | jpg | 19g | Asparagus Soup |
| **5** | 128 | 17g | 6g | 632952 | https://spoonacular.com/recipeImages/632952-31... | jpg | 6g | Asparagus Stir-Fry With Black Bean Sauce |
| **6** | 358 | 47g | 19g | 633091 | https://spoonacular.com/recipeImages/633091-31... | jpg | 4g | Autumn Cheesecake |

# Edamam Output

- Returns a heavily nested JSON output that is not easily converted into a pandas DataFrame
  - The JSON requires a lot of processing before converting to a DataFrame (JSON Normalization)
- Displays link to recipes with given ingredients
- Nutrition information is also returned, such as calories, sugars, and fats

# Edamam Response

GET https://api.edamam.com/api/nutrition-data?app_id=0eed04fd&app_key=cb51c2ee6467fbd470dc3b47520a32c6&ingr=1%20large%20apple


```
{
  "uri" : "http://www.edamam.com/ontologies/edamam.owl#recipe_ec290b2568b7d745a0762f6d5db4a042",
  "yield" : 15.0,
  "calories" : 21814,
  "dietLabels" : [ "LOW_CARB" ],
  "healthLabels" : [ "DAIRY_FREE", "MILK_FREE", "PEANUT_FREE", "TREE_NUT_FREE", "SOY_FREE", "FISH_FREE", "SHELLFISH_FREE" ],
  "cautions" : [ ],
  "totalNutrients" : {
    "ENERC_KCAL" : {
      "label" : "Energy",
      "quantity" : 21814.306200000003,
      "unit" : "kcal"
    },
    "FAT" : {
      "label" : "Fat",
      "quantity" : 1562.5579472000002,
      "unit" : "g"
    },
    "FASAT" : {
      "label" : "Saturated",
      "quantity" : 538.5602623999998,
      "unit" : "g"
    },
```

# Spoonacular: Pros and Cons

Pros:

- Well documented with extensive tutorials for support and maintenance
- API is not limited to recipes, includes grocery products and menu items
- Ability to search for recipes based on ingredients and nutrients using one endpoint
- Extensive list of nutrition filters available to filter on
- Output is easily converted into a pandas DataFrame
- Includes over 365,000 recipes and 86,000 food products

Cons:

- Can only return a maximum of 100 recipes per search
- Some API functionalities are not listed out in as much detail as Edamam

# Edamam: Pros and Cons

Pros:

- Has built in visualization tools for comparing recipes
- Edamam extracts nutrition and ingredient data from ingredient text
- Edamam returns information for calories, fats, carbohydrates, protein, cholesterol, and sodium for each ingredient or food entered

Cons:

- The API is split into 3 API's
  - Each has their own documentation
- Documentation is not very clean or easy to read
- Less ingredient and nutrient filters than Spoonacular
- No commercial use
- Output is a heavily nested JSON object, requiring a lot of processing to convert to a DataFrame

# Decision: Spoonacular

- Edamam and Spoonacular are similar solutions but overall Spoonacular is better suited for our purposes
- Spoonacular is better documented, only requires use of one API, and output is easily converted to pandas DataFrame
- Spoonacular fulfills all of our requirements
  - Keep a running list of available ingredients - “what’s in your fridge?” search
  - Input ingredient-based & nutrient-based inputs
  - Returns some recommended recipes - find similar recipes
  - RecipEat will provide a visual comparison of recipes

# Tech Stack

- Python
- Flask
- Firebase - Realtime Database
- Pyrebase
- HTML, CSS, Bootstrap

# Thank you!