Packaged Food: What is it?

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Background

Dataset Information

- USDA open-sourced dataset on food ingredients and food category
- Part of larger branded food product database

Goals

- Understand what ingredients go into packaged food and their nutritional impact
- Visualize findings for easier comprehension
- Answer our 4 questions

Methodology

Data Cleaning
- OpenRefine
- Python

Data Analysis
- Python

Data Visualization
- Bar charts created through Python Matplotlib library

https://en.wikipedia.org/wiki/OpenRefine

https://en.wikipedia.org/wiki/Python_(programming_language)

What are the most popular ingredients in all meals overall?

- Most items are preservatives, additives or stabilizers
- Lots of soy products
- Some redundancy

Ingredient	Count
salt	3277
water	2651
sugar	1665
citric acid	1204
spices	833
soybean oil	792
sodium phosphate	685
xanthan gum	649
dextrose	621
natural flavor	605
garlic	592
yeast extract	581
maltodextrin	575
modified corn starch	558
whey	524
nonfat milk	459
wheat	457
soy lecithin	456
onions	454
sea salt	452
butter	432
spice	423
corn starch	420
soy	412
vegetable oil	398
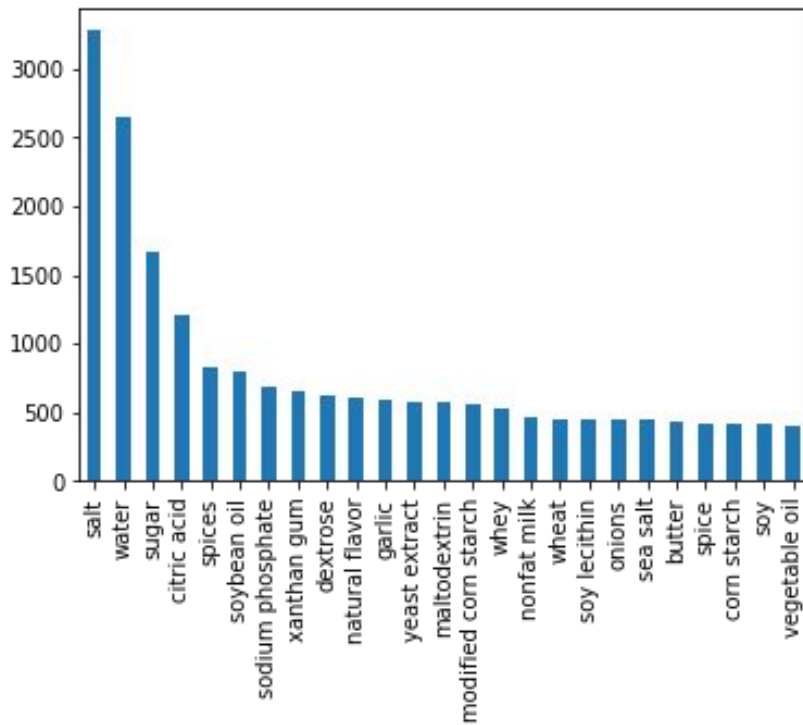
What are the most popular ingredients in each meal category?

- Salt, water, and sugar dominate vast majority of categories
- Preservatives and spices are also very common in many categories
- Most ingredients seem to be physically miniscule items

What combinations have appeared together most often?
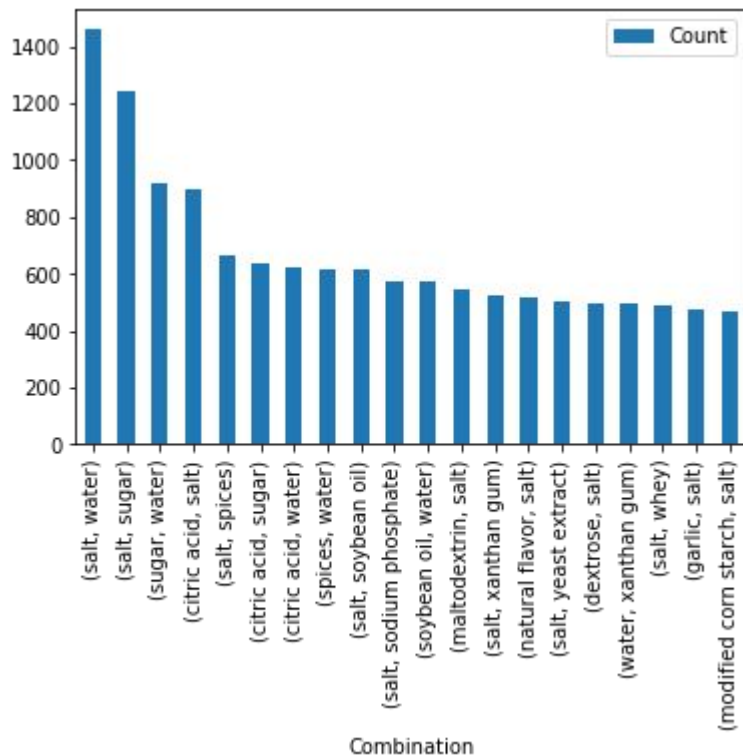
- Salt is the most common ingredient within combinations of ingredients.
- Salt is used not only as a preservative which is important for packaged foods but also for flavor!

Which are the healthiest meal options?

- Dairy/egg-based products/ meals seem to be the healthiest category because of the high amount of vitamins/minerals and low amount of preservatives in their top ingredients

egg whites	20
spices	20
color	20
iron	18
folic acid	18
vitamin b1	18
vitamin e	18
vitamin b12	18
zinc	18
onion powder	18

What supply chain aspects should we focus on?

- Since soy was a top overall agricultural ingredient, companies should invest and focus on growing, harvesting, processing, and manufacturing soy
- Not only is soy an important food ingredient, but it is also used in the meat industry

https://static.agriculture.com/styles/node_article_image_full_large/s3/s3fs-public/image/2016/09/26/StraightSoybeans-WideShot.jpg?timestamp=1550619443

Takeaways and Recommendations

- Most packaged foods are not as healthy as we may think
- Most of the ingredients are not what the average person would expect
- Most people are unfamiliar as to what many of the top ingredients even are
- We would recommend dairy/egg based products for highest nutritional value
- We would recommend a focus on the soy industry

Credits

Thanks to: UMD Discord data science team, dataset partners, data analysts, volunteers, judges, UMD Ischool, Stack Overflow, each other!

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