Microsoft

Dynamic Filtering for Recipes

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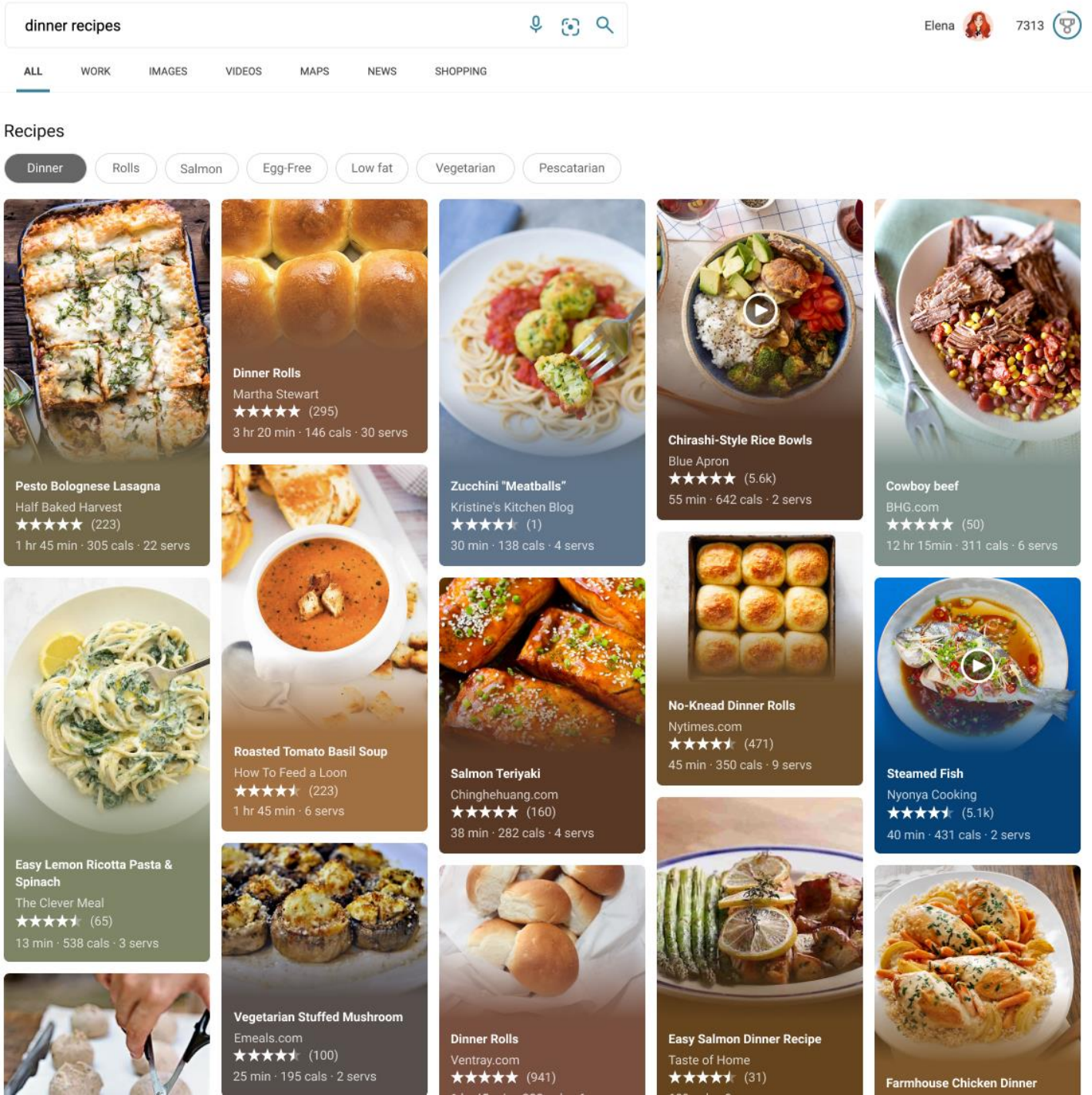
Introduction

- Software Engineer Intern on the Answers and Segments team
- Rising junior at Cornell

Dynamic Filters

- Allows for *deep* exploration for users
- Leverage extracted recipe tags as dynamic filters
- Clustering and ranking algorithm



chicken recipes

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Recipes

Top rated | Quick | Low cal | Low carb | Low fat | High protein | Low sodium | Videos | Chicken | Butter

Salsa Chicken
Recipesrun.com
3.0k reviews
45 min · 235 cals · 8 servs

Pizza Chicken
Getmacroed.com
418 reviews
50 min · 410 cals · 6 servs

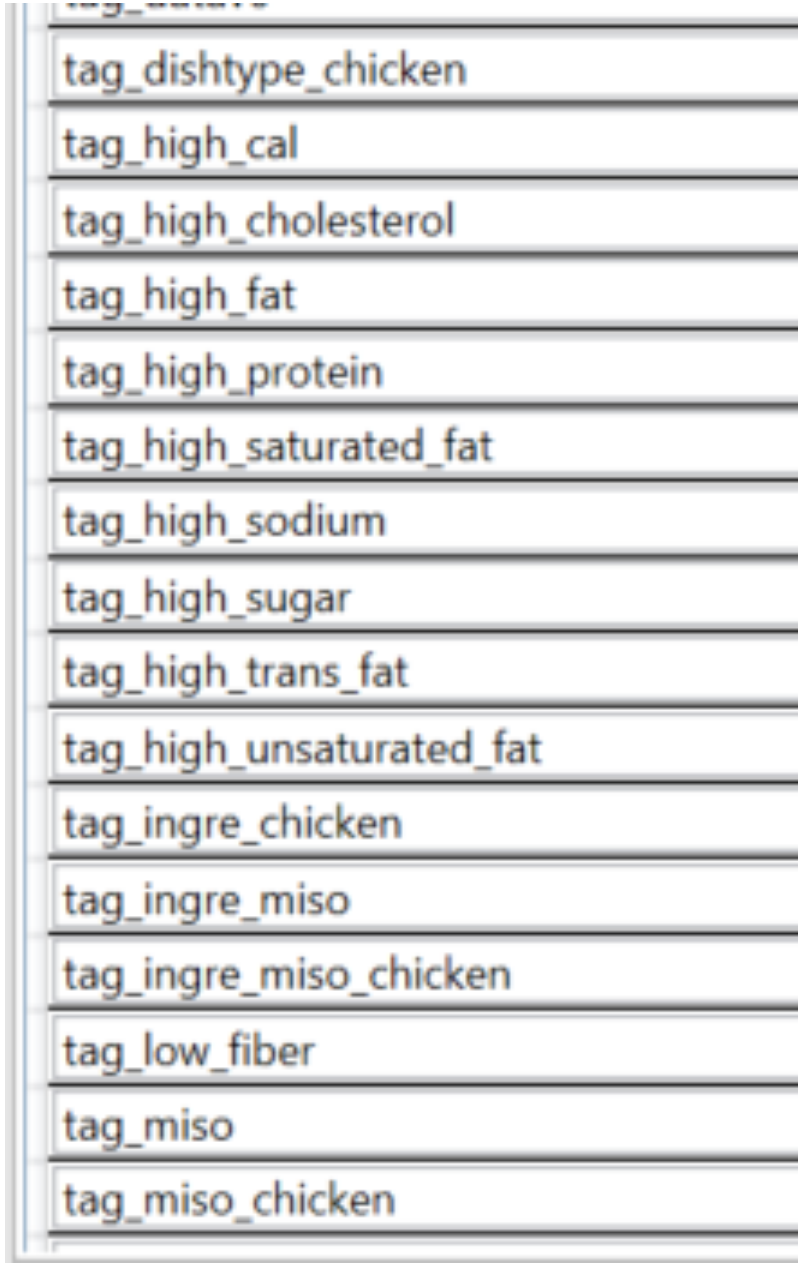
Chicken Curry
Webindia123.com
671 reviews
258 cals · 10 servs

Chicken Satay
Nyonya Cooking
3.2k reviews
1 hr 20 min · 336 cals · 3 servs

Chicken Paprikash
Newbieto.com
434 reviews
20 min · 160 cals · 6 servs

Recipe MetaTags

- Each recipe has a list of metatags
- Various categories
  - Ingredients
  - Diets
  - Dish Types
  - Meal Types
  - Cook Methods
  - Cooking Time



Coverage for Metatags

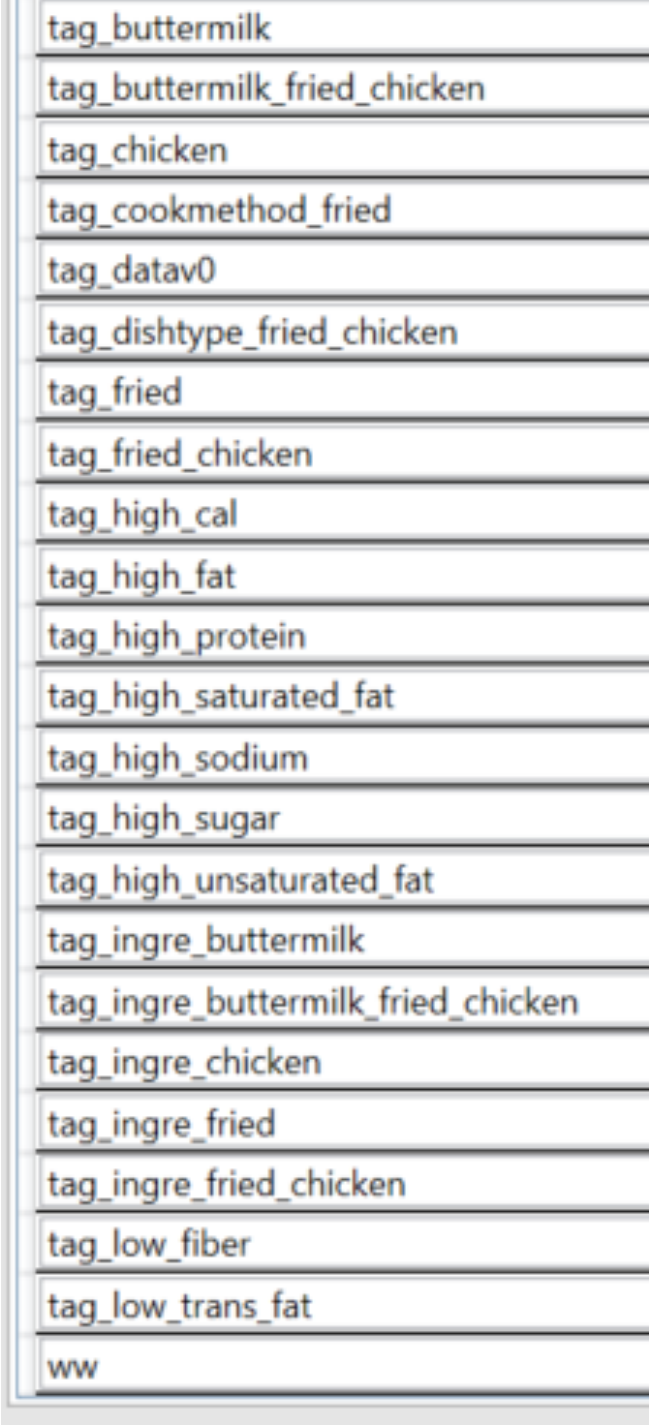
Tag	Coverage	Source
Edamam	4.5%	External COSMOS Stream
Ingredients	38.7%	Osearch
Diet	73.4%	Osearch
Dish Type	12.2%	Osearch
Meal Type	2.1%	Osearch
Cook Method	14.6%	Osearch

Clustering and Ranking Algorithm

- Each filter has a FilterCluster object
- For every filter in a new recipe, we add the recipe to the filter's FilterCluster
- Mergesort the FilterClusters to see which filters are the most prevalent

Removing Duplicates

- Metatags are not always the most accurate
- Notice the list of ingredient metatags overlap with tags for dishtype and cookmethod



Removing Duplicates

- Maintain a set of “current filters”
- Tokenize each new filter
- Compare with set of current filters
- Biases ingredients > diets > etc..
- Improvement: gain access to the query (“chicken recipes”) and add that to set of current filters

First Working with Hard Coded Values

- RecipeV2ConfigScheme.ini
- Outside of config file in SchemePreTriage, we can modify:
  - Rendered Value
  - FilterOptionToTagValueMap

```
[dynamicfilter1]
_meta.type=EntitySegments.UiFilterConfig_1
Predicate=dynamicfilter1
FriendlyName=dynamic

CorrespondTagId=<dynamicFilters.ingredient>
FilterOptionToTagValueMap=1:ingre_salad
AvailableUiOptions=dynamicfilters1
HistogramMetaword=
HistogramMarker=0
FilterType=Boolean
PresetFilterFromAnyDolphinTokens=false
PlaceBeforeDynamicFilters&ui:mobile=true
```

On Click Behavior

- RecipeV2ConfigScheme.ini
- Onclick-behavior using Metaword to modify TLA query
- Similar existing configs for dish, nutrition, and cooking method
- To do: expand to diet and mealtype

```
[dynamicFilters.ingredient]
_meta.type = EntitySegments.TagTranslationConfig_1
Enabled=true
TagName=<dynamicFilters.ingredient>
Metaword=#:" _OSMetaTags_tag_{0}"
MetawordTranslateType=UseDolphinValuesAsAnd
TranslateCondition=StructureOnly
AllowMultipleId=false
AllowMultipleTagsStacking=true
TagTranslateType=UseCalQuery
RemoveQueryWord=true
```

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Recipes

Soup | Top rated | Quick | Low cal | Low carb | Low fat | High protein | Low sodium | Videos | Curry | Dyna

Chicken Soup
Samosa Street
★★★★★ 2 reviews

Chicken Soup
Make Mine Lemon
★★★★★ 21 reviews
253 cals · 10 servs

Chicken Soup
Just A Pinch
★★★★★ 2 reviews
268 cals · 14 servs

Chicken Soup
Simmer To Slimmer
★★★★★ 1 review
25 min · 232 cals

Chicken Soup
The Peach Kitchen
★★★★★ 1 review
299 cals · 16 servs

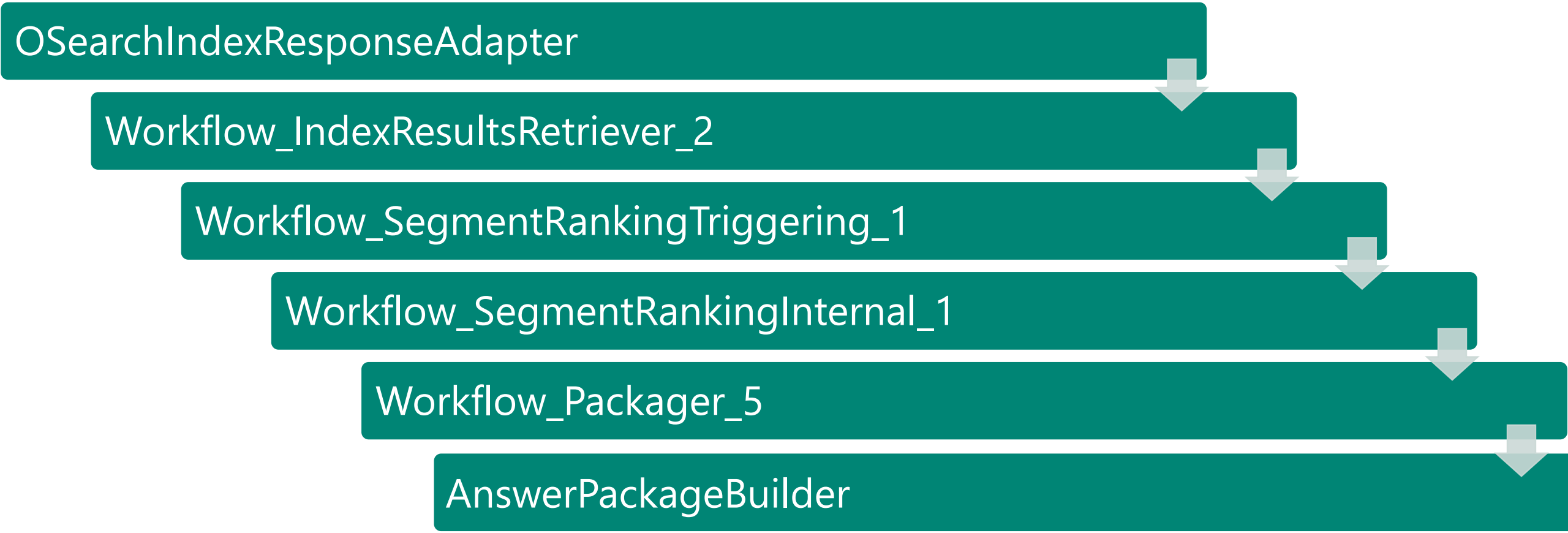
Extracting Metatags in XAP

- Use OSearchIndexResponseAdapter to access recipes and their list of metatags
- Apply Clustering and Ranking algorithm and return a list of UiFilterConfigs
- Downside: only have access to 25 recipes

AnswerPackageBuilder

- Create and input for list of UiFilterConfigs
- Merge the list of UiFilterConfigs with existing static list of UiFilterConfigs

Data Flow


OSearchIndexResponseAdapter
Workflow_IndexResultsRetriever_2
Workflow_SegmentRankingTriggering_1
Workflow_SegmentRankingInternal_1
Workflow_Packager_5
AnswerPackageBuilder

Experiment Endpoint: pixpt-mere | DependencyView | taco recipes - Bing | https://www.bing-exp.com/searc

https://www.bing-exp.com/search?q=taco+recipes&atlahostname=CH1BAPF979E461A

Microsoft Bing

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Recipes

Top rated | Quick | Low cal | Low carb | Low fat | High protein | Low sodium | Videos | Taco | Fish | Dyna

Garden Salad Tacos
Food & Wine
3.4k reviews
30 min · 307 cals · 4 servs

Fish Tacos
Nytimes.com
2.9k reviews
30 min · 446 cals · 6 servs

Fried Chicken Tacos
Food & Wine
2.3k reviews
35 min · 1022 cals · 4 servs

Taco Pie
Pinterest.com
1.9k reviews
30 min · 1487 cals · 4 servs

196 ms Feedback

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