Assignment 3 by N.Spell:

Food Network, recipes and ingredients of happiness[1].
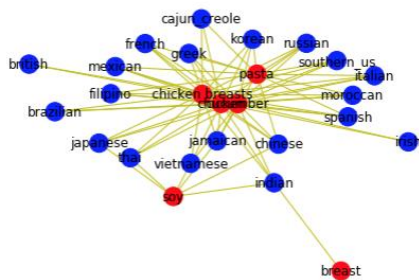

min_aff | 180

Find specific ingredient cuisines interconnections

'PREVALENCE OF INGREDIENT X IN CUISINES, ..in search for unusual pairings X+Y'

sushi

ing_list | soy,pasta,cucumber, chi

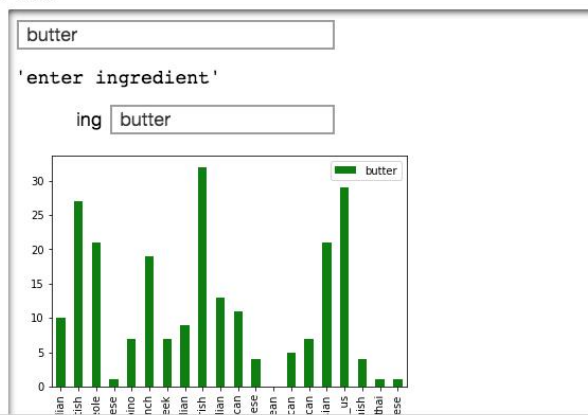## Cuisines by % of given ingredient in recipes,

e.g. what % of recipes in Italian cusine contains ingredient "salt"

'Visualization of ingredient prevalence in cuisines'

ing | butter

TABLE for ingredient: butter

	% ingredient	cuisine_name
8	32	irish
16	29	southern_us
1	27	british
15	21	russian
2	21	cajun_creole

butter

'enter ingredient'

ing | butter

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[1] The prototype (files) included as zip archive with this submission

1. **My Questons, audience & Task List.** The visualization with Jupyter notebook in python using NetworkX is developed for diverse audience that might range from regular person curious about different cuisines to students studying nutrition or culinary art to antropology researchers exploring different aspects of cultural, socio-economic and other connections to world cuisines.

   On my humble opinion of well travelled person, just like language, architecture, traditions, religion of any ethnos or culture, national cuisine is rich yet simple reflection of national character. It tells the story of you as representative of your nation, tells the wolrd who you are, what are you coming from and what your future might hold for you. Unlike the D3 vizualizaton developed by my teammates, which tents to center more on practical aspects of cooking and coocking ingredients/recipe exploration, my **tasks and goals** are more global, probably representing my experience and spirit of public health worker:

   a) I would like to know how the ingredients of different cuisines are interconnected. Does the common ingredients cluster around specific cuisines group/groups of countries they represent. Are they race or geolocaton specific.

   b) I would like to see how the same ingredents are represented in different cuisines, e.g "how specific a soy sauce to Asian cuisines? Does that ingredient connects wth other ingredients, say from European cuisine like Italian ?

   c) I would like to do exploration of ingredients wthin the recipes, but do it different from D3 bubble chart presented by my classmates: table view and ability to find recipe with a given ingredient using recipe ID.

   d) We often talk about cuisine being spicy or salty, or sweet. Can we really find out whch cuisine is sweetest-saltiest … watery… etc?

   e) finally, as someone very familiar with the concept of environmental medicine, I would like to explore the connecton of national cuisines to national helath and happiness. Anymals eat to live. With humans it is far more complex. To the extreme, we sometimes live to eat. There is a reason why we call cooking a "Culinary Art"(yes, with capital letter". We know that diet is connected to health. Could it be visible from exploration of world cuisines? What about food and happiness? Are there any ingredients that unversally make humans more /less happy?

   …. Let's start

2. **Schedule Participants**: Three people were selected to review and comment on my vizualization: my daughter (IT student), my co-worker Food and Drug scientist and my friend who simply love to cook.

   a. **The good**: the user easily find out the way to type in windows, hit return (especially IT student) and see ingredients connections on the graphs. As relatively well educated audience, they quite quickly understood what the correlation of food and happiness graph could mean: linear correlation and OLS analysis, no correlation in scatter plot and tried to make some sense of why the visual correlation even exists and speculate a lot about causation. It was fun to listen.

   b. **The bad**: in some cases there are two text boxes presented. In case where there is one main ingredient (first window) and second is supposed to be a list of

ingredients to build graph network and see cuisine connections, user didn't quite understand the idea. They didn't like that chart or table or graph where "moving" insde of window frame and different resolution (min affinity , 100) graph tend to take some time to load. One person didn't realize that ingredient typed in a box for initial scatter plot for Happiness vs % ingredient in cuisine doesn't have to match ingredient typed into text box for linear regression. He thought that it must be the same ingredient.One user was perplexed about the slider that allows to see ID of more or less recipes. Slider first apperes in "less" positon and no ingredient ID is shown initially until the slider moves right ("more recipes") by user. Other 2 users figured that very quickly.

c. **The ugly:** the NetworkX graph that opens inline cannot be zoomed and labels just clog the picture. There are total of half a million ingredients but I limited the lst to 10000. It works fine in most cases,but I think some exotic ingredients become non-visible and one cannot visualize the recipes where they come from. My friend couldn't make any sense of linear regresson table with coeffcients.

3.   Priorities:
- include some instructions/explanation in a text box.
- make some plots/table smaller to fit the window without moving
- include some humorous explanation for regression analysis results
- try to include graph viz in D3 inside Jupyter using %%HTML magic method (suggested by teammates)
- provide instruction regarding slider when lookng for recipes given ingredient occurs. It could be simple" move slder to the right to render more recipe IDs"