Computational Gastronomy

Coding Assignment 2

You may use Python and Jupitor Notebook as an IDE for completing the assignments and documentation.

Note: You are responsible for the backup of data as well as results, which will be used for evaluation.

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1. Implement the following copy-mutate algorithm for the data of recipes from Kaggle: **[20]**
    1. **Start** with Epoch =0 and Number of Recipes Per Epochs = Round (Number of recipes/Number of Epochs)
    2. **Initiate the primordial cuisine** ($t = 0$), Nature Basket and the Kitchen Basket:
        - Size of recipes = (say) 10
        - Number of recipes at $t = 0$, $N_R^{t=0} = 500$
        - Size of Kitchen Basket = 50
        - $N_R^{t=0} \gg$ Size of KB
    3. Pick a random recipe from the primordial kitchen for the 'modification'.
    4. Pick an ingredient randomly from the chosen recipe & one from KB compare the ingredients.
    5. If the KB ingredient is not the same as recipe ingredient replace the latter with the former.
    6. **Repeat Steps 4—5** until the Recipe gets modified.
    7. Add the new 'modified/mutated' recipe to the Kitchen Basket if the same isn't there already.
    8. **Repeat 3—7** until the number of recipes reaches the desired number of the **next Epoch.**
    9. Analyze the cuisine for the recipe size as well as the frequency-rank statistics the end of each Epoch.

2. **Improvise the above algorithm** to incorporate ingredient deletion as well as addition as opposed to only replacement. Analyze the cuisine for the recipe size as well as the frequency-rank statistics the end of each Epoch. What is the complexity of these algorithms. **[20]**