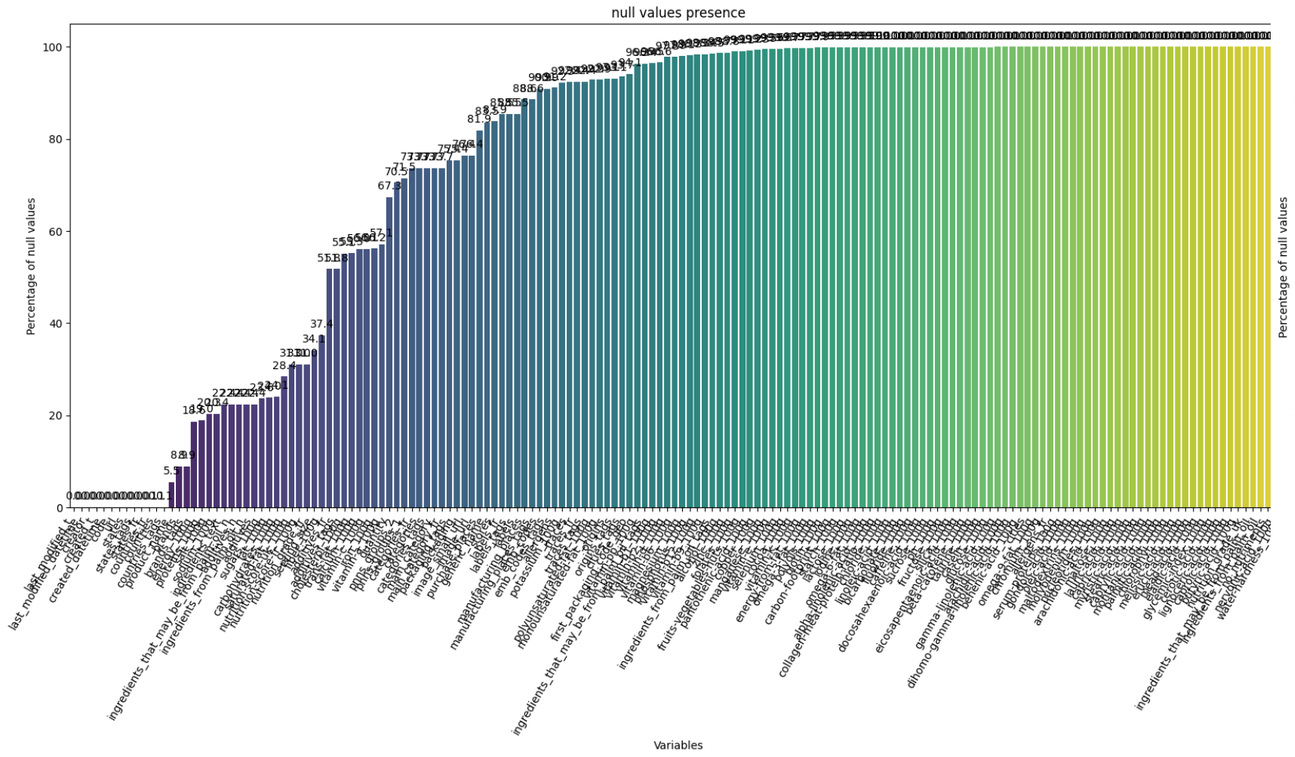
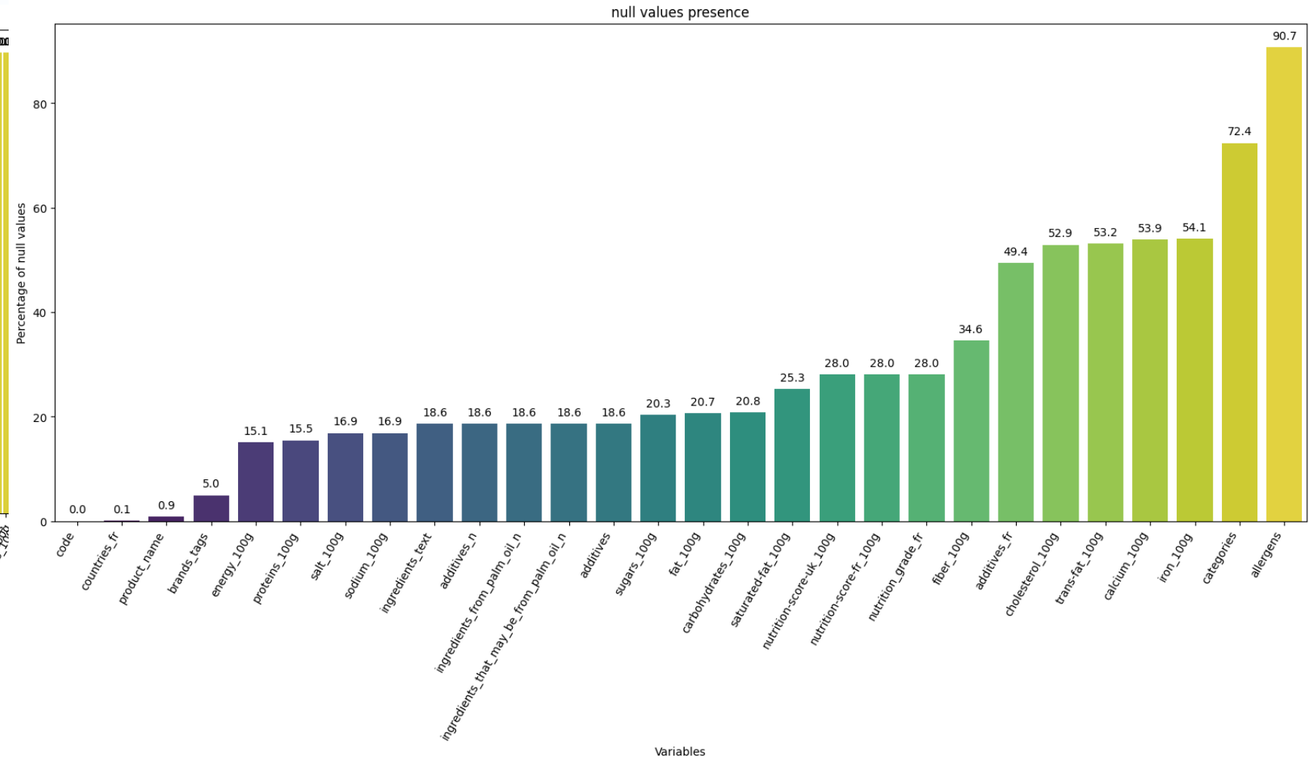
Machine Learning Engineer

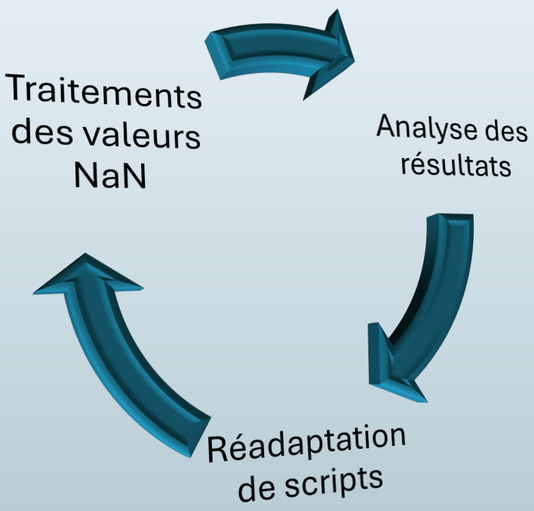
Préparez des données pour un organisme de santé publique

Faisabilité d’une application pour la gestion d’ajout des données openFood

Machine Learning Engineer





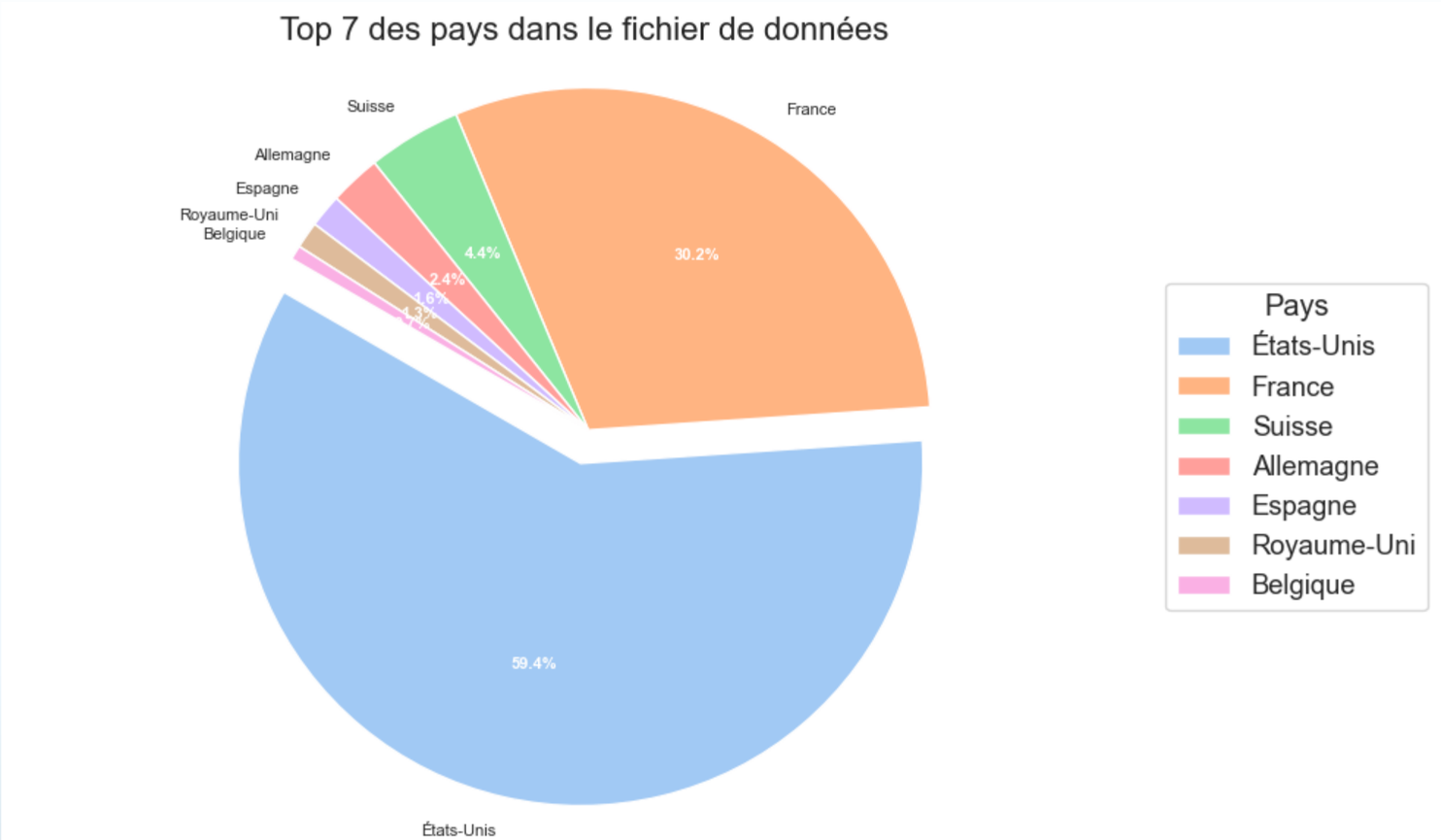


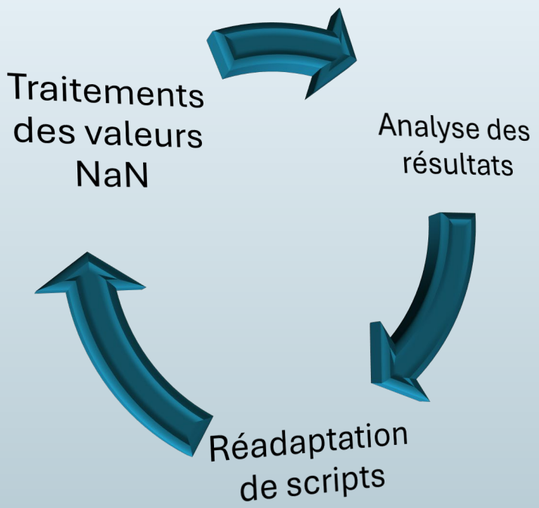
- Traitement large des valeurs null sur les données
- Respect de la RGPD dans la conservation de certaines données

La préparation des données
Suppression et Imputation de données

Machine Learning Engineer

- Conservation des 7 pays les plus alimentés en données

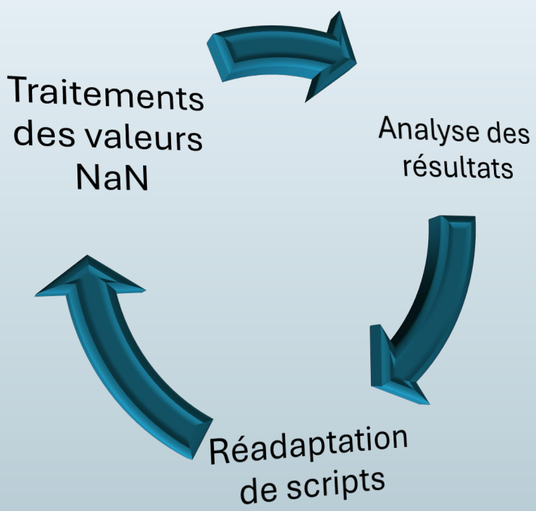




La préparation des données
Suppression et Imputation de données

- Traitement des doublons : chaque produit est unique au sein de sa marque

- .Nettoyage de la colonne Ingredient_text dans une démarche d’anticipation

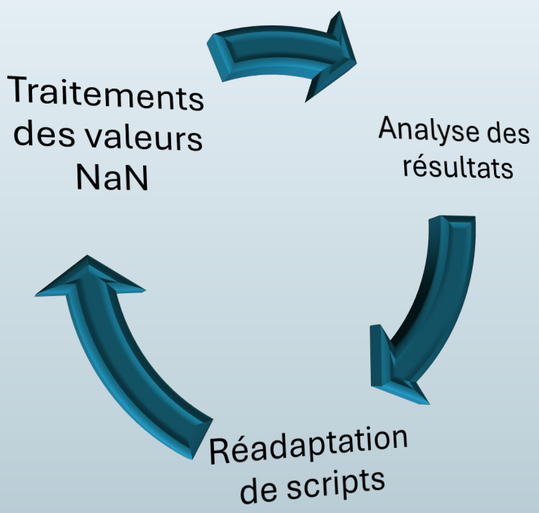


La préparation des données
Suppression et Imputation de données

- Traitement général de valeur null

- Limitation générale des valeurs abérrantes

  - Les calories joules ne sont pas supérieurs à 3900 unités pour 100g
  - Les variables numériques pour 100g ne peuvent pas être inférieur à 0 ni supérieur à 100



La préparation des données
Suppression et Imputation de données

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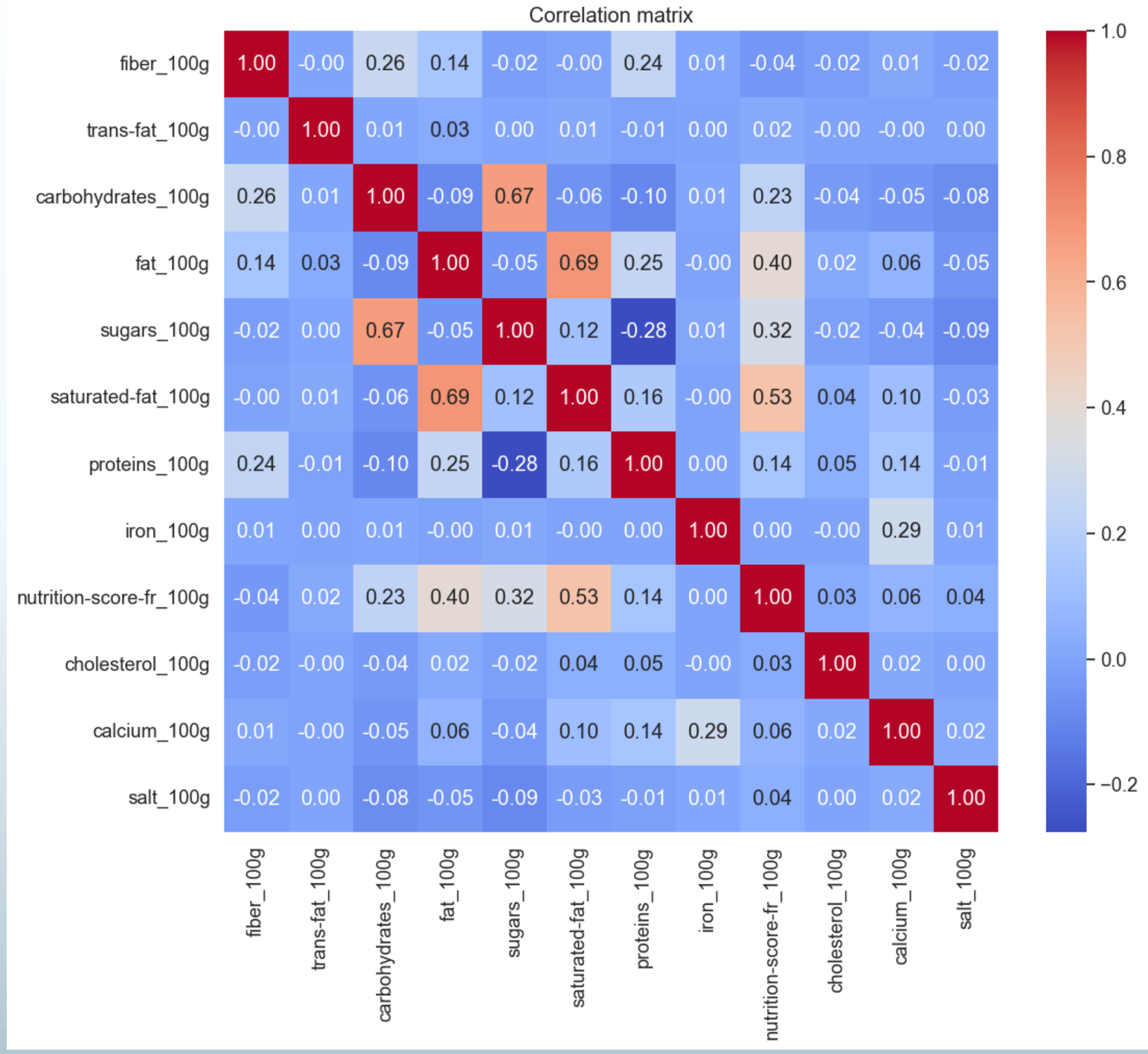
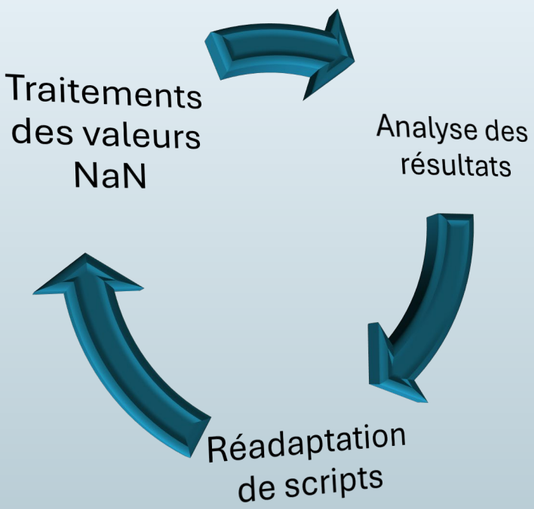
Matrix de Correlation





Vérification de la relation entre les données
Analyse et Imputation de données

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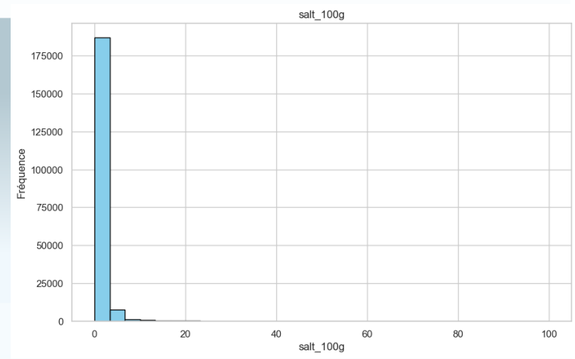
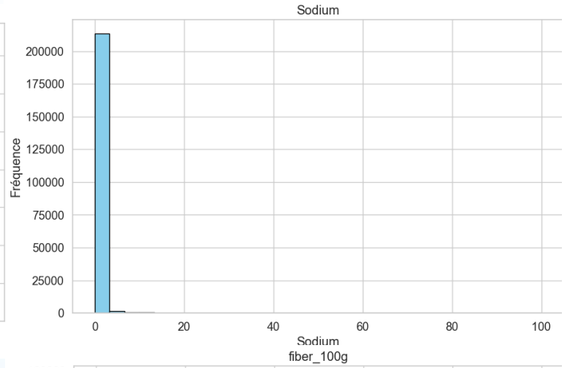
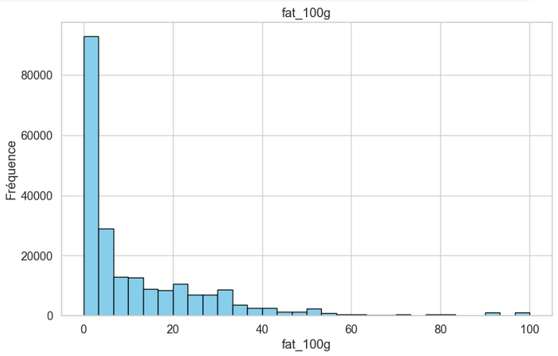
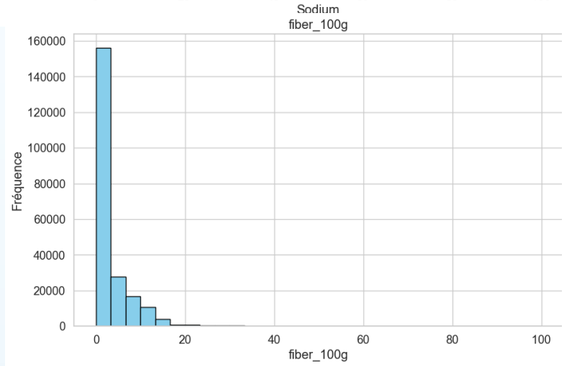
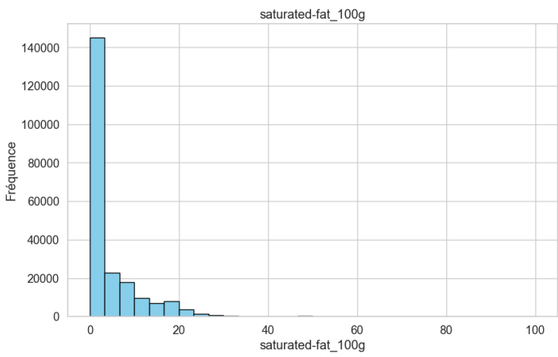
Imputation des valeurs Nan



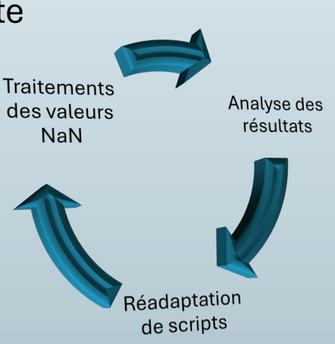


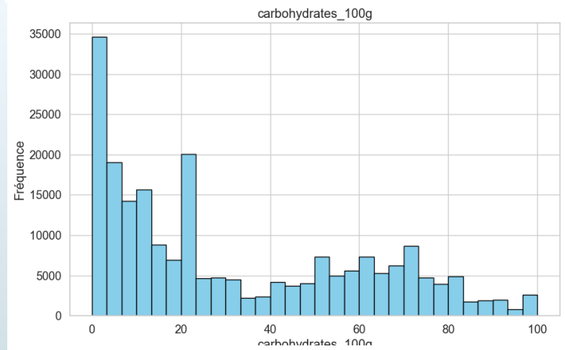


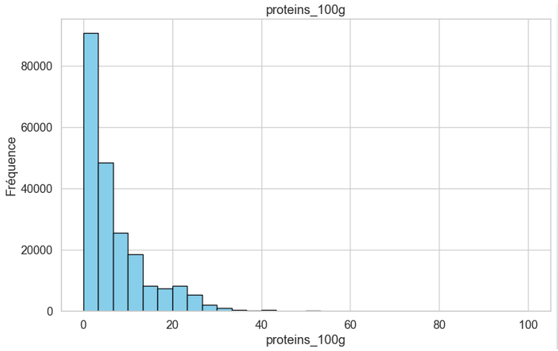


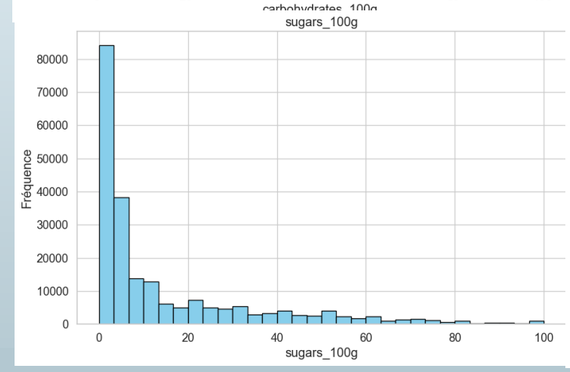


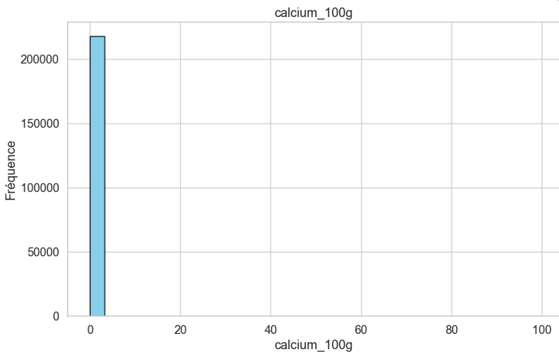
- La variable salt_100g : la médiane dont la moitié est diminué si le sucre est conséquent pour ses valeurs NaN
- La variable sodium_100g : un ratio de 40% du poids du sel
- Les variables sugar_100g, carbohydrates_100g, fiber_100g, leur valeur NaN sont imputé en relation les un avec les autres.
- Les variables fat_100g et saturated-fat_100g sont correlées, leur imputation se fait par ratio selon les valeurs présentes.
- La variable protein_100g et celle du calcium_100g, leur Nan sont imputé et influencé par la présence du sucre
- La variable Cholesterol_100g : nous estimons que si elle est null, elle est absente









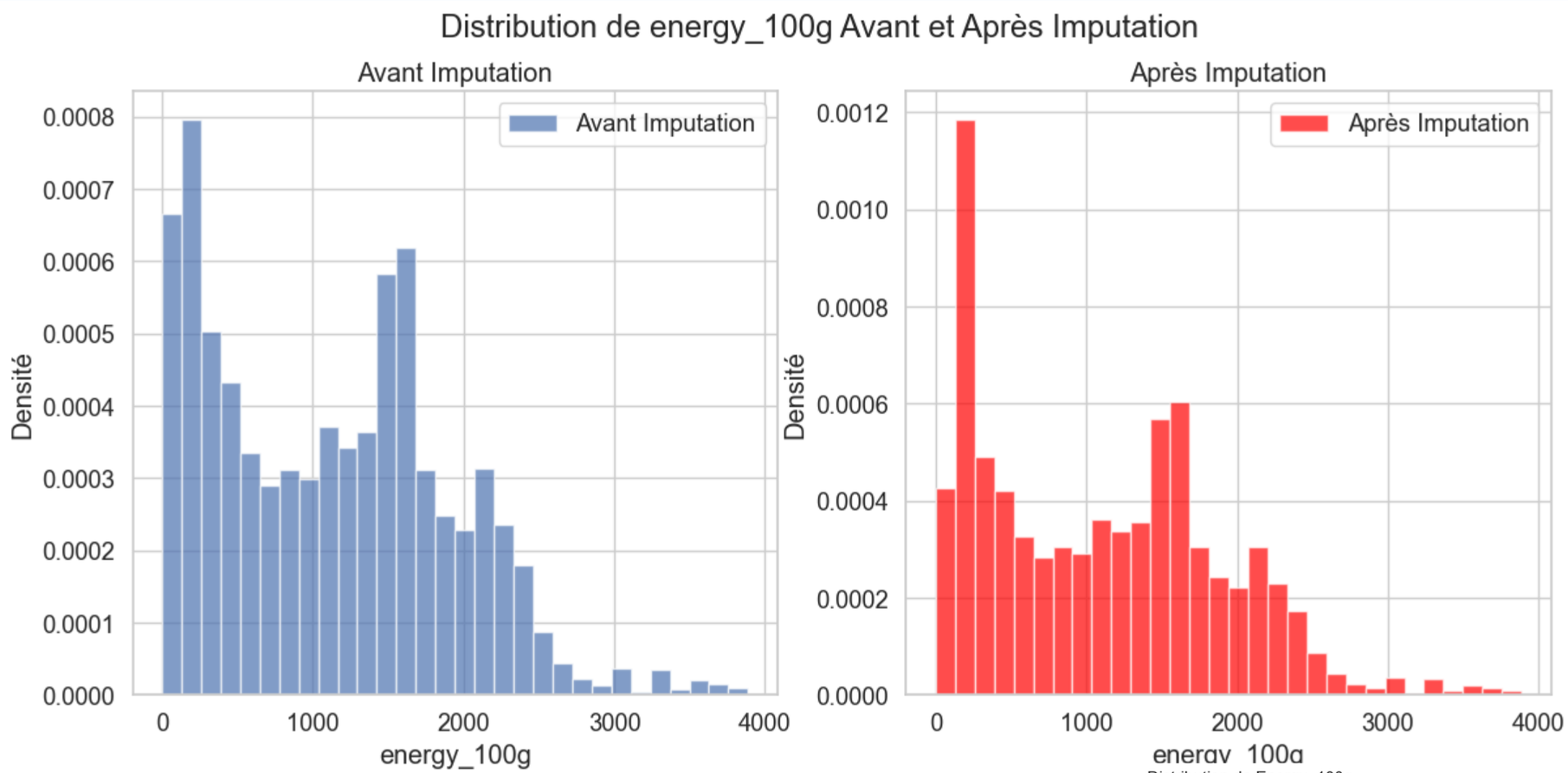


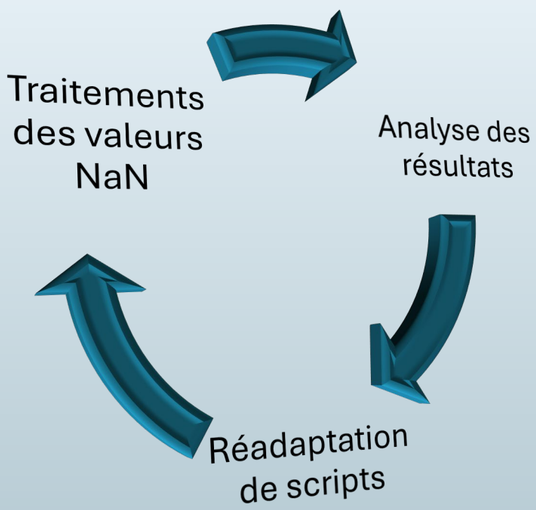
Vérification de la relation entre les données
Analyse et Imputation de données

Machine Learning Engineer

Distribution des calories

- Constat de la presence de 2 unites de mesure : Les joules et calories
- Imputation avec la méthode KNN : influence des plus proches voisins
- Certaines valeurs abérrantes concernent des produits en rapport avec le domaine des huiles, donc légitime





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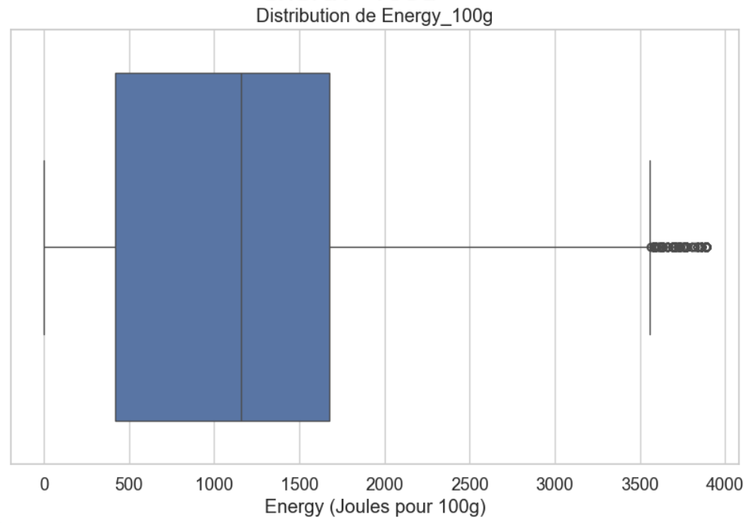
554	643	100 california avocado oil garlic
580	669	100 canola oil
626	718	100 extra virgin coconut oil
627	719	100 extra virgin olive oil
...	...	...
211273	246833	westcott vegetable oil
211619	247196	whipped shortening
212469	248064	white truffle oil
215216	250929	x virgin olive oil
217520	253815	zoye premium vegetable oil

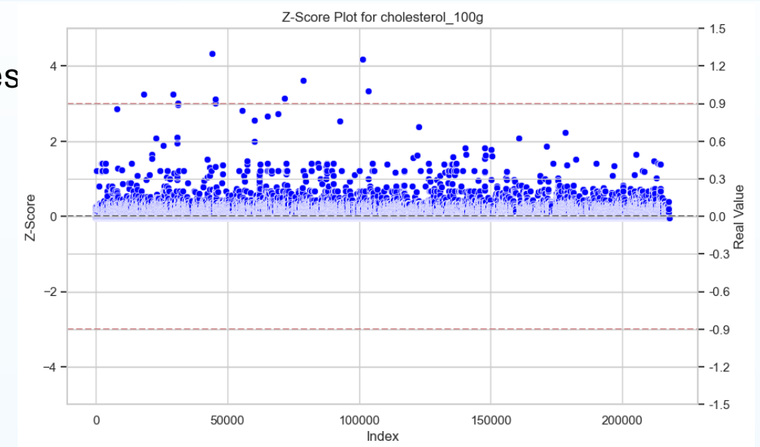


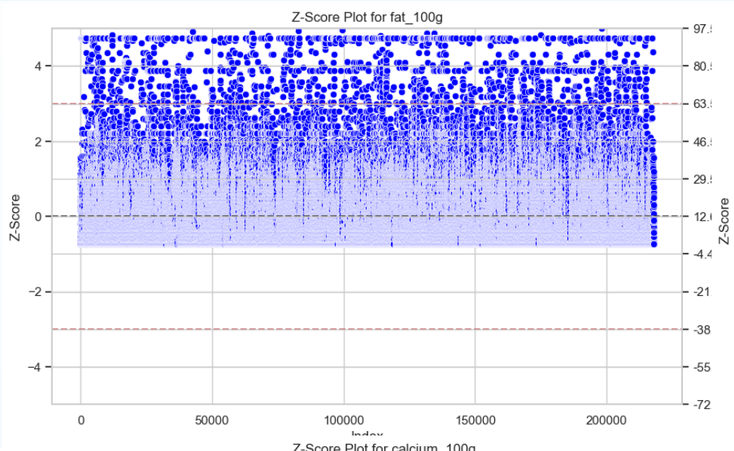
La préparation des données
Analyse et Imputation de données

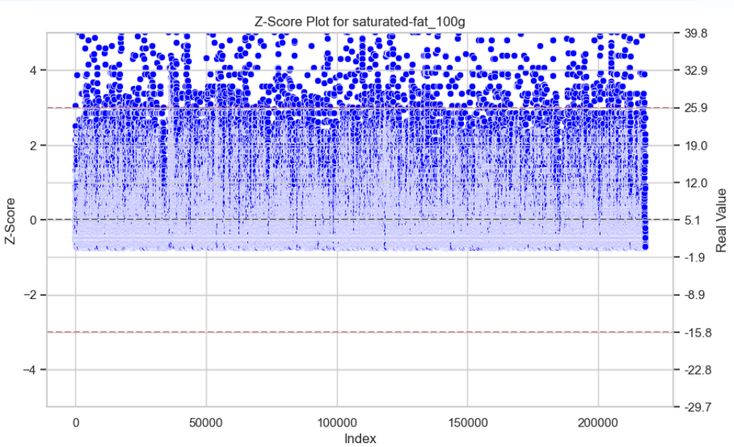
Machine Learning Engineer

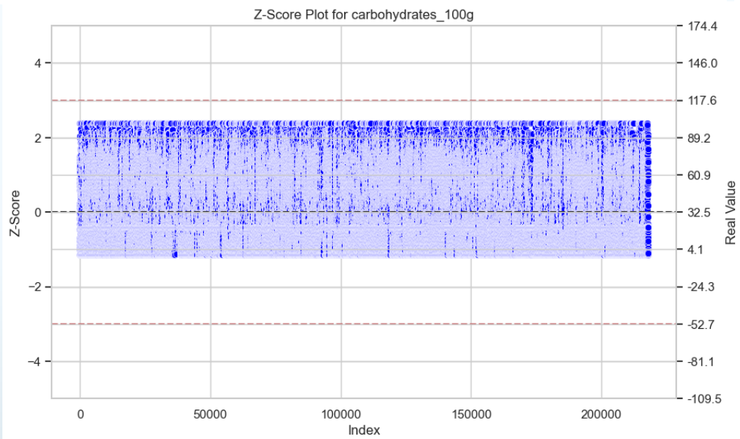
Z-Score

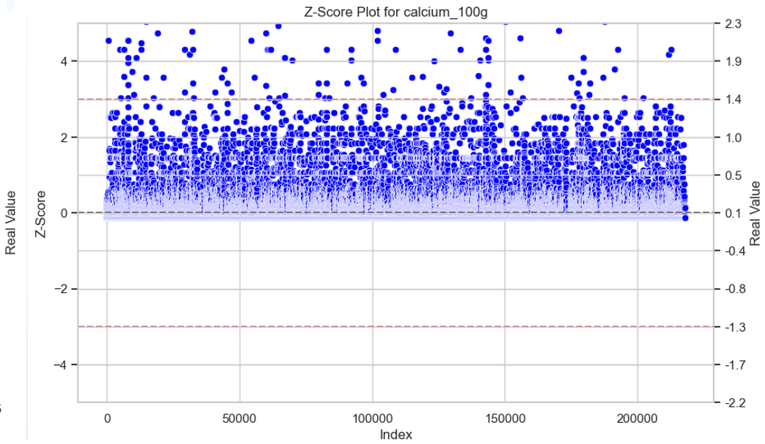
- Travaille sur les valeurs aberrantes :

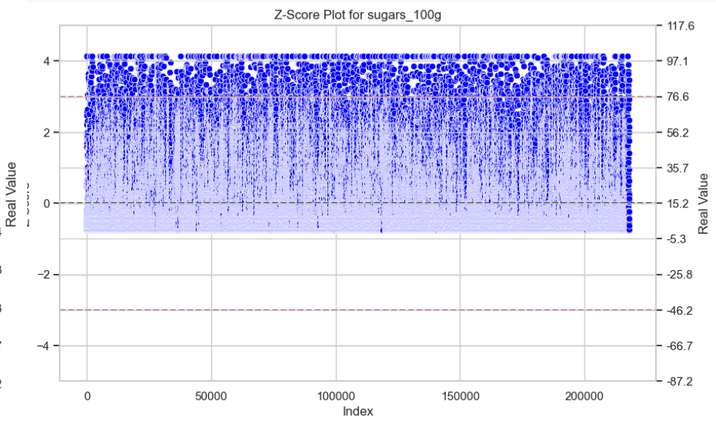


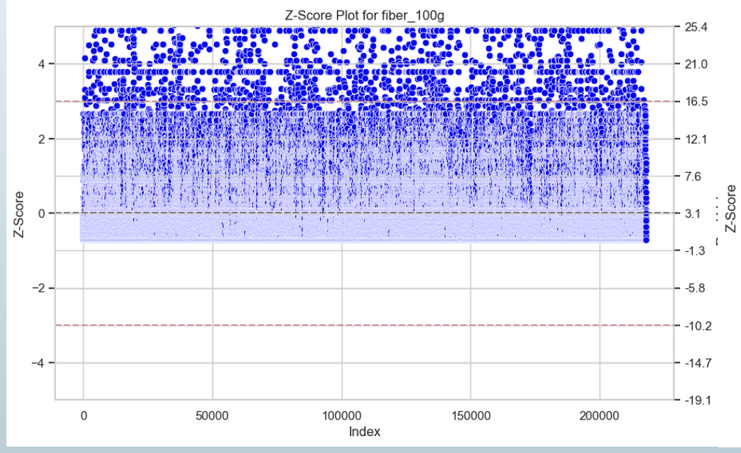


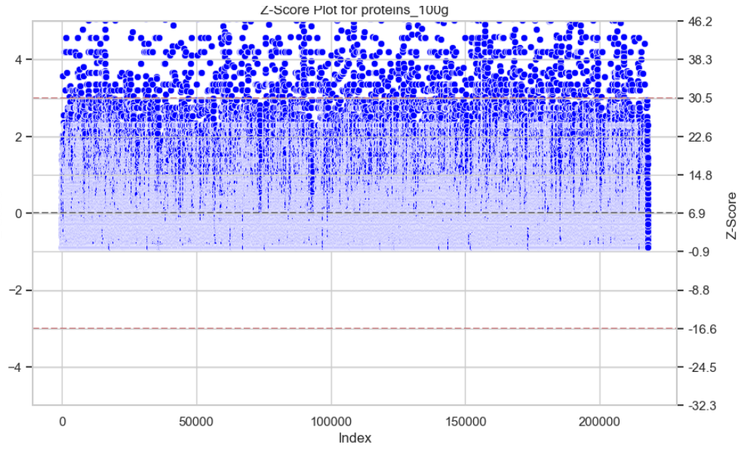


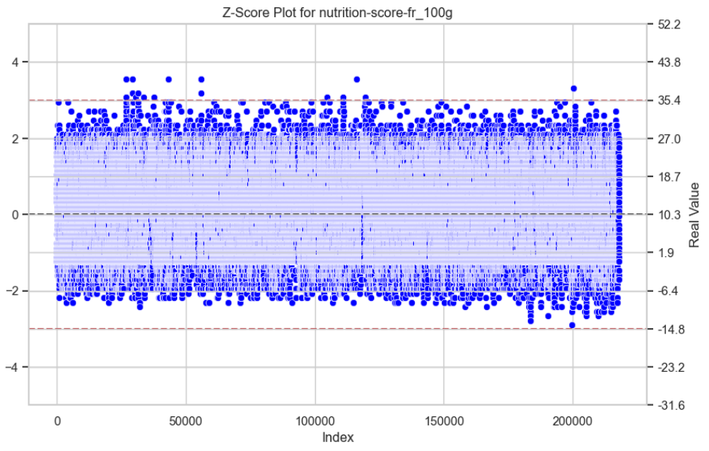












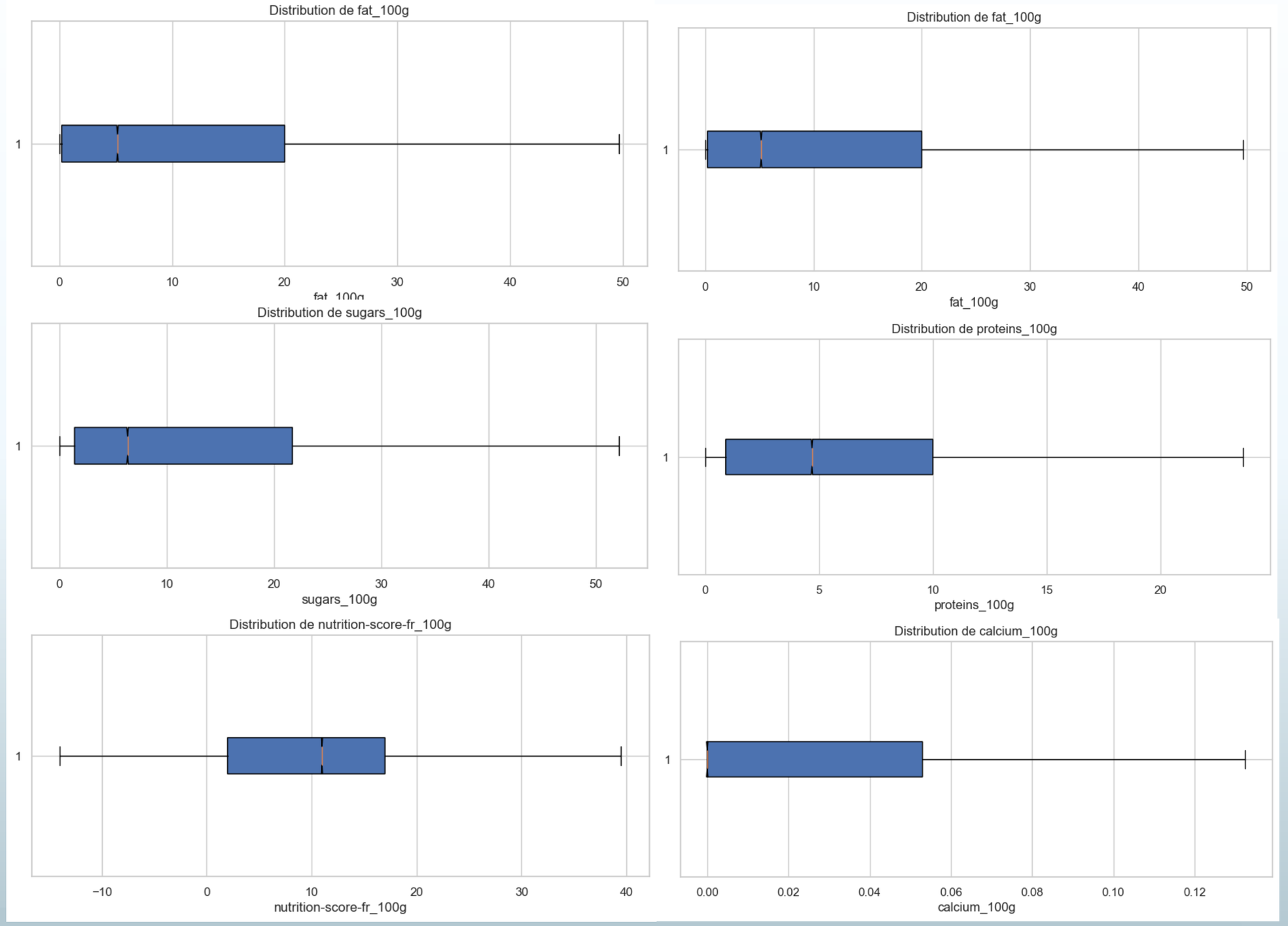
La préparation des données
Analyse et Traitement des valeurs abérrantes

Machine Learning Engineer

Z-Score

- Travail sur les valeurs aberrantes
- Nous repérons la valeur non aberrante la plus forte et nous adaptons l'extréme à cette valeur, cela permet de respecter la variance entre les données

Après traitement :



La préparation des données
Analyse et Traitement des valeurs abérrantes

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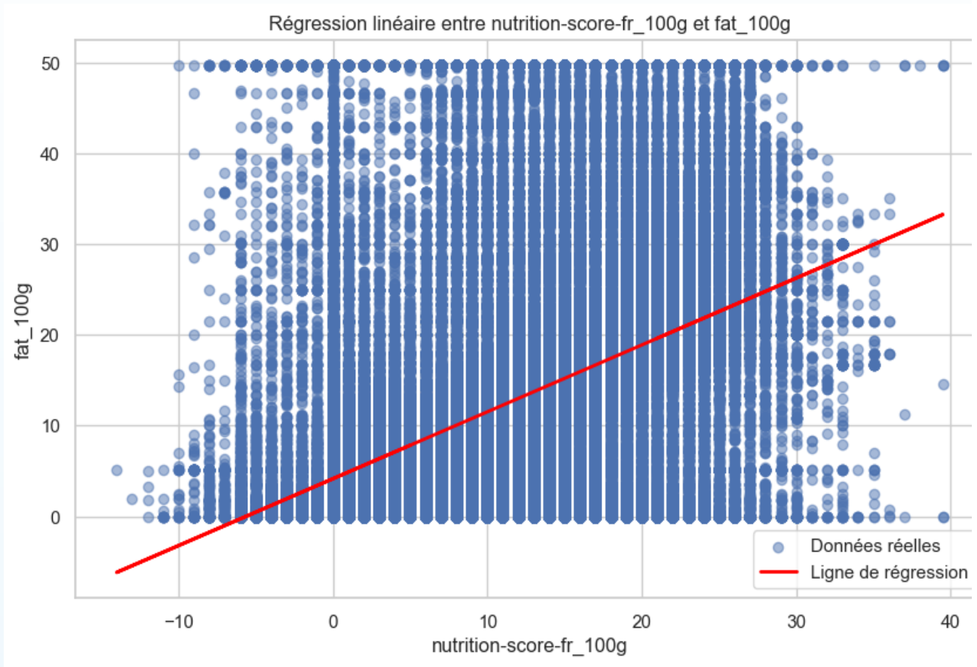
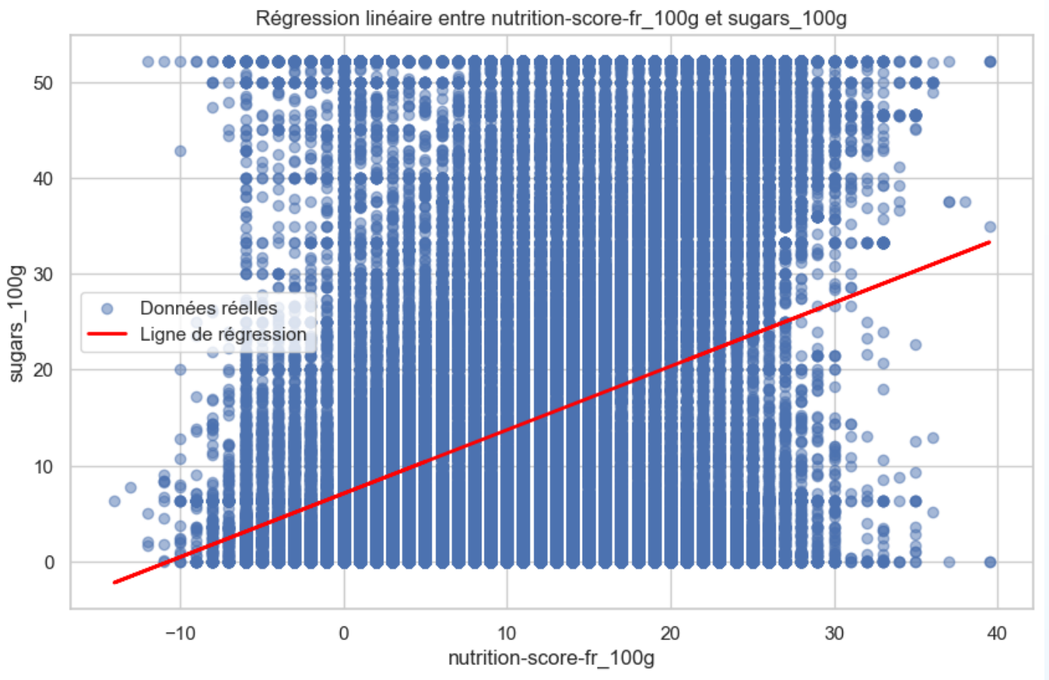
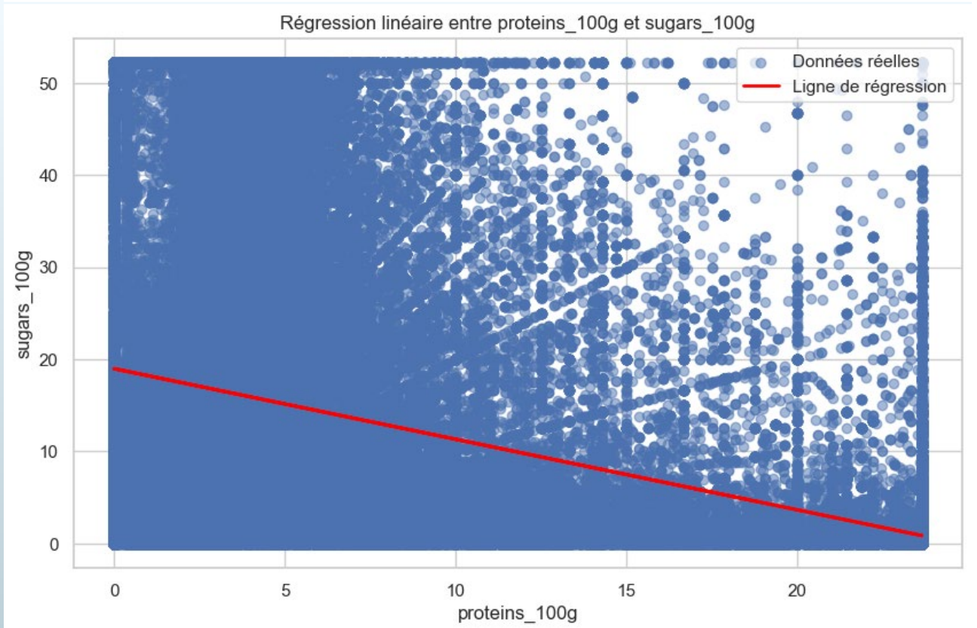
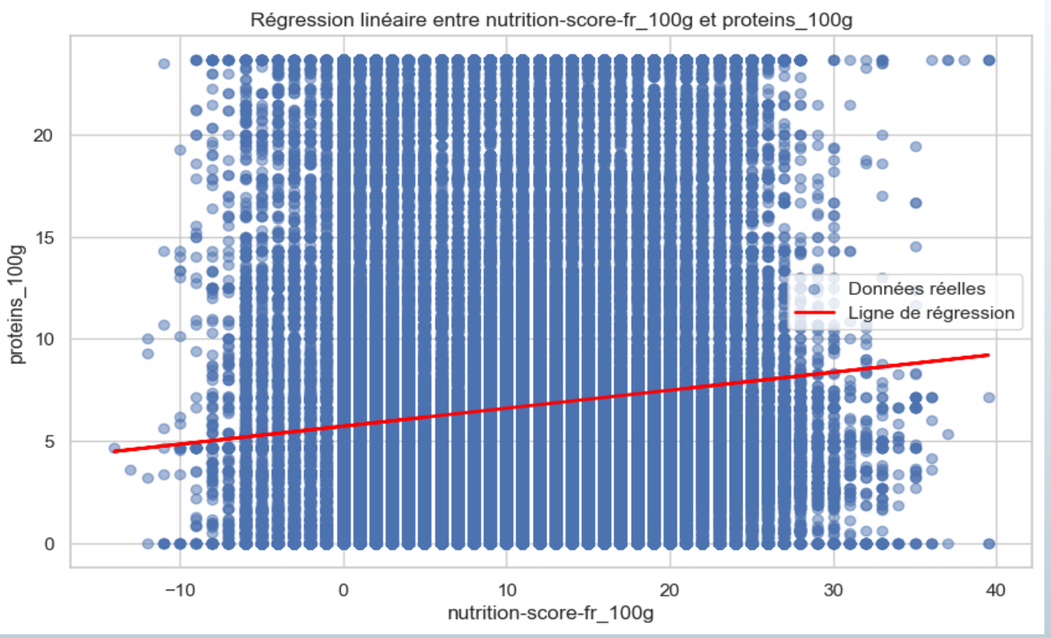
- Le gras et le sucre influencent légèrement le score de nutrition
- La proteine ne semble pas impacter le score de nutrition





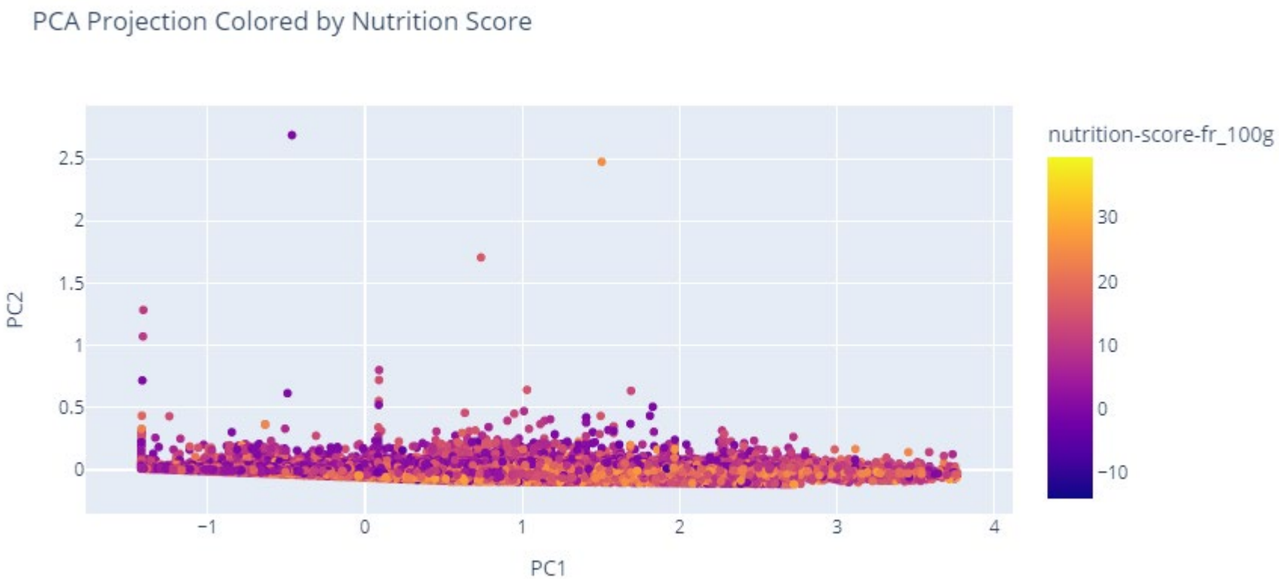




Regression Lineaire

Etude des tendances
Analyse Bivariée

Machine Learning Engineer

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['fat_100g', 'proteins_100g', 'iron_100g',
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```


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```


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['fiber_100g', 'carbohydrates_100g', 'sugars_100g', 'calcium_100g', 'fat_100g',
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ACP

Analyse des Composants Principaux

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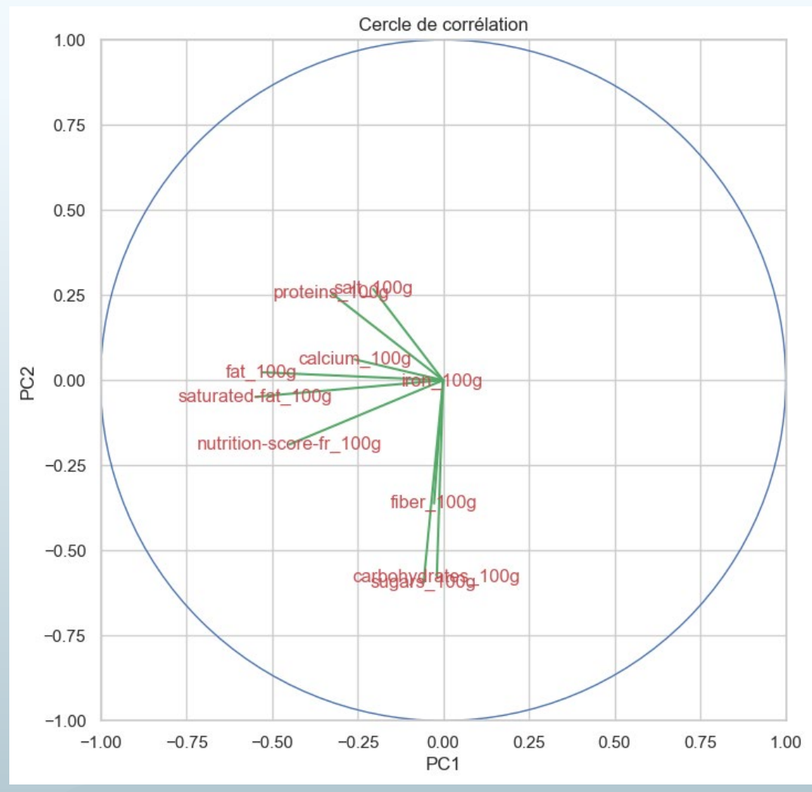

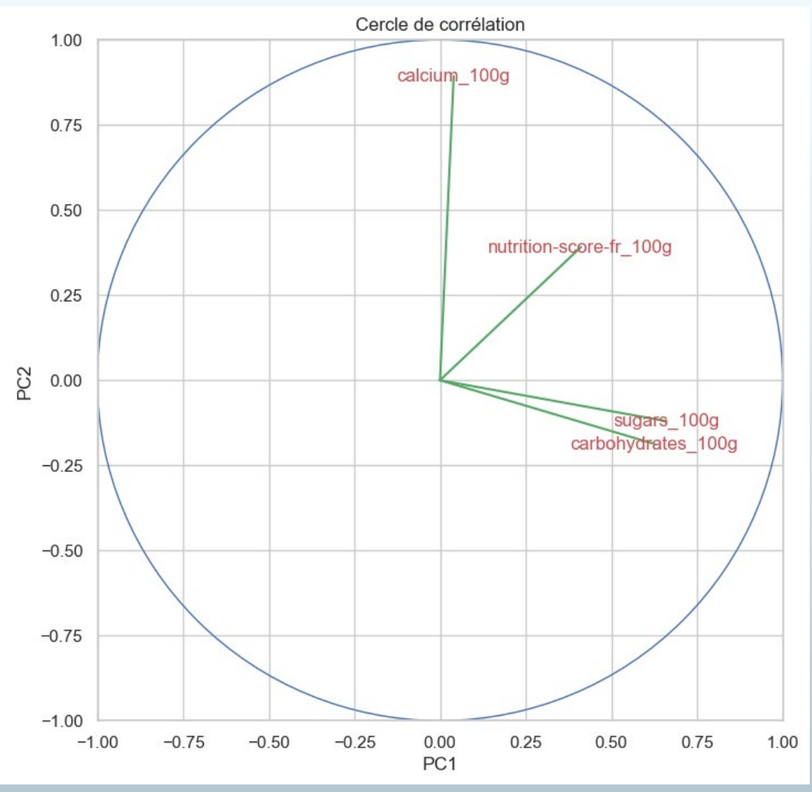

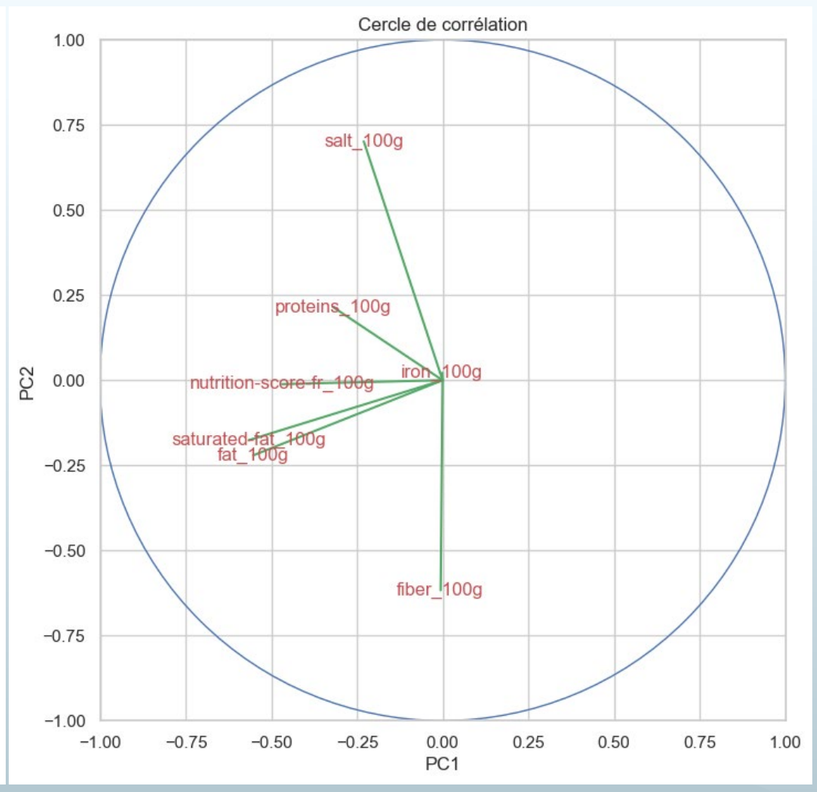

Cercle de Corrélation

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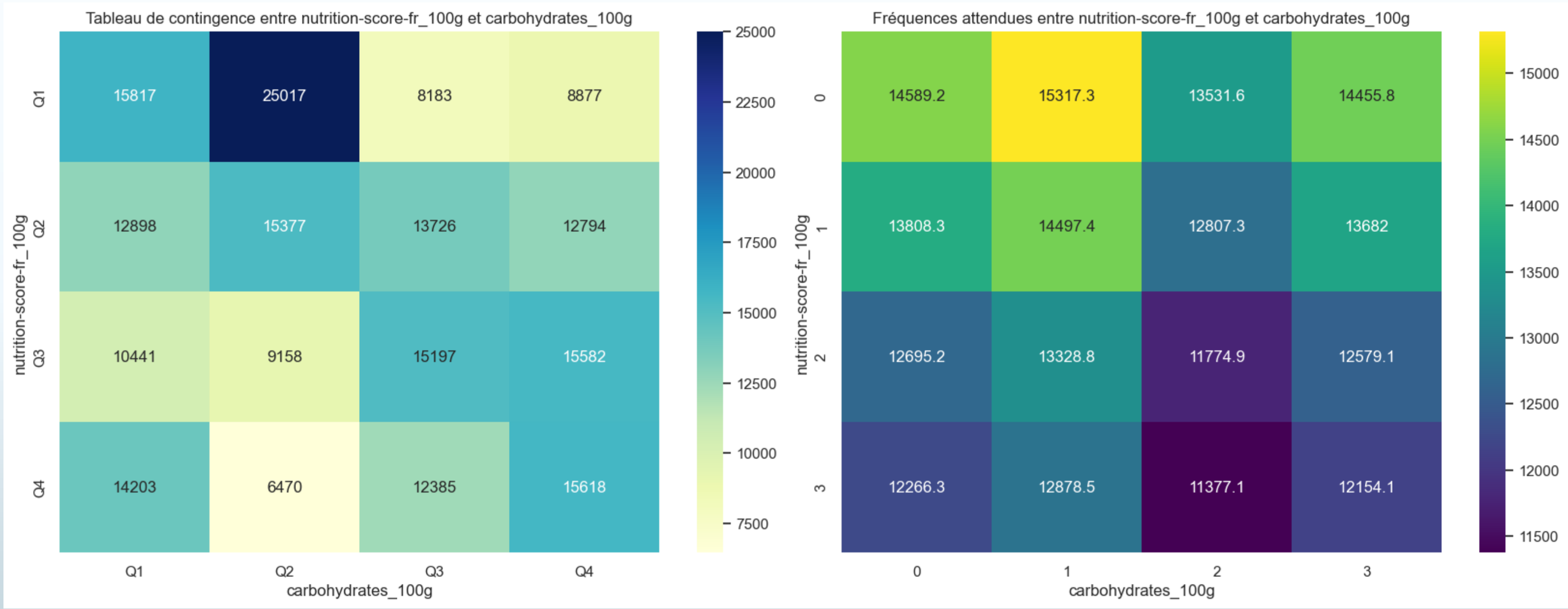

Le test Chi-carre

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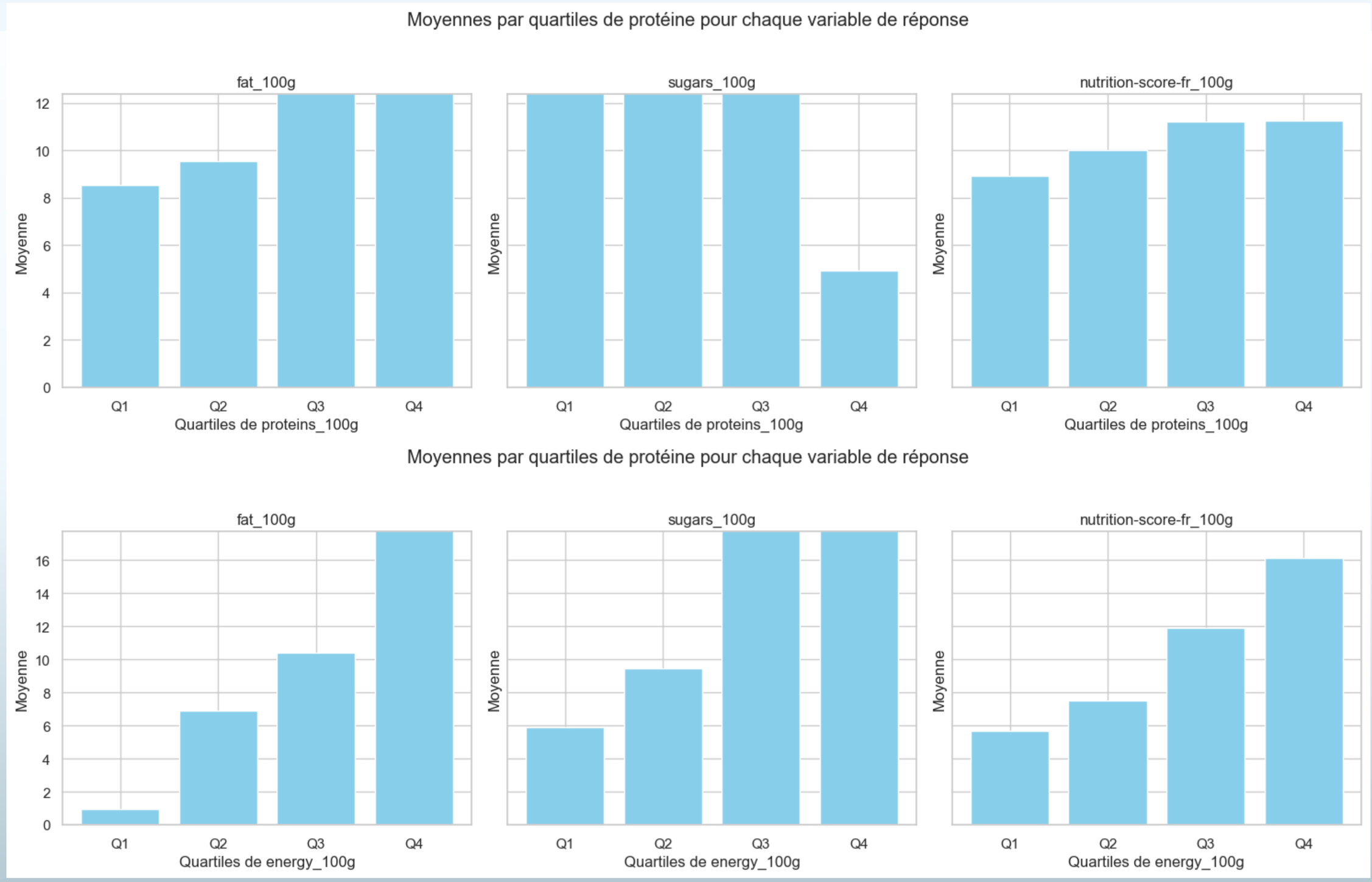

ANOVA

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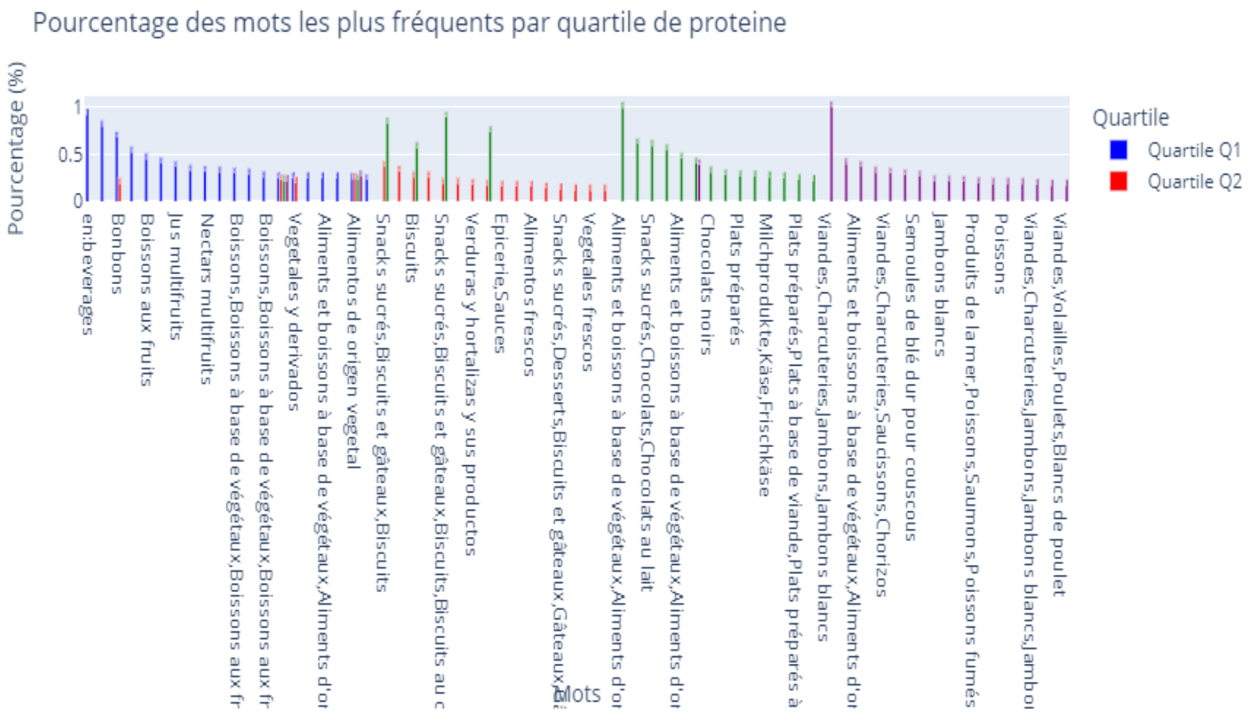
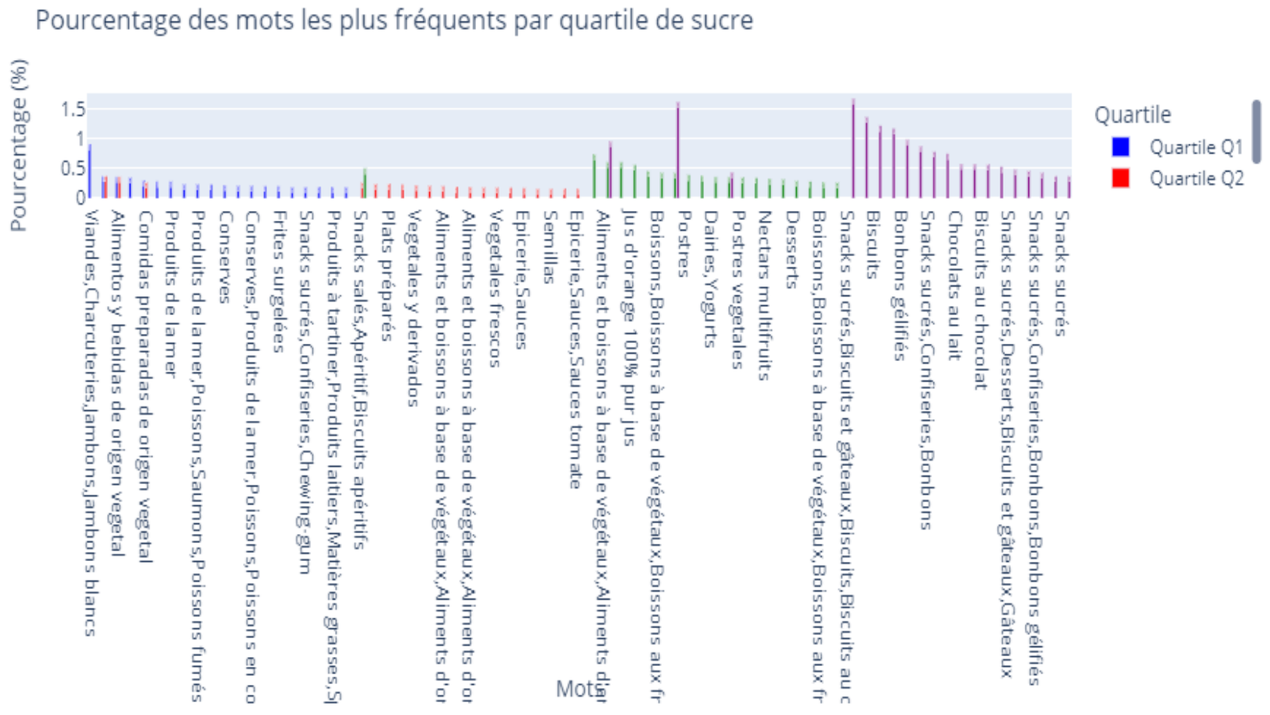


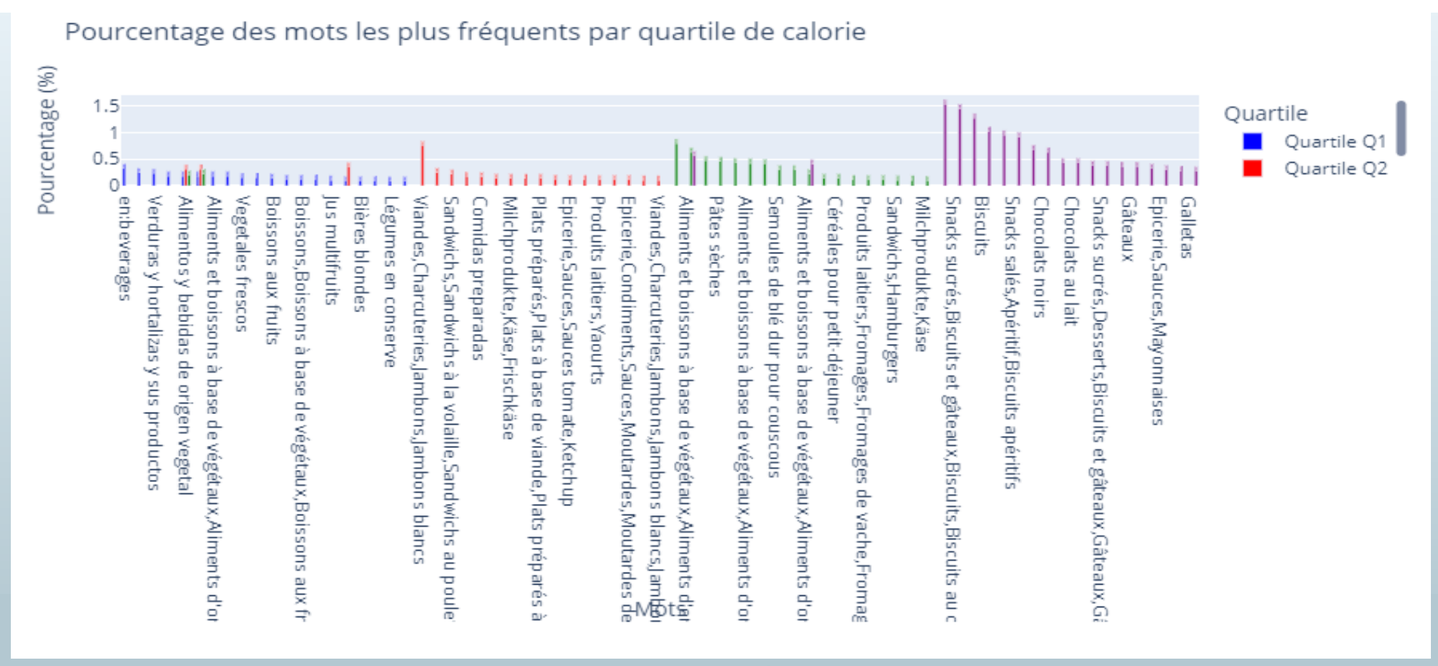


Q1

Q2

Q3

Q4



ANOVA

Faisabilite de l’application