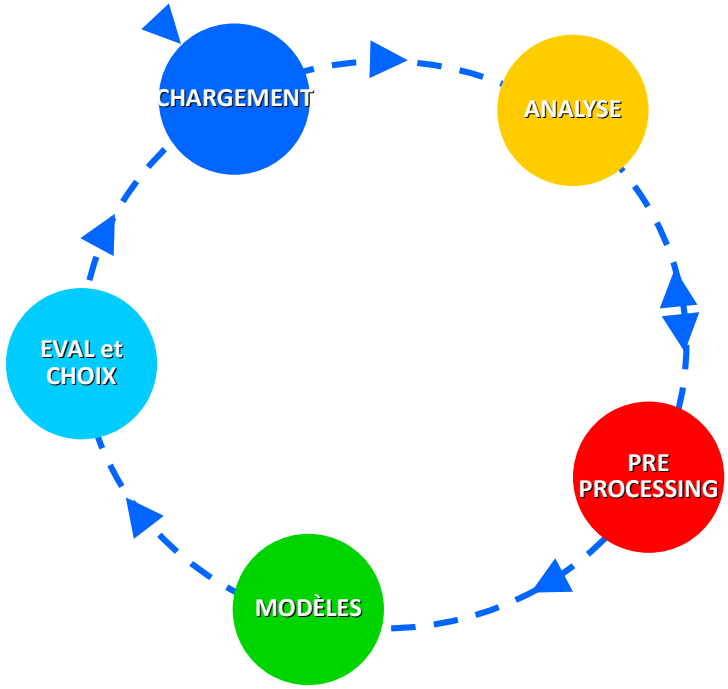
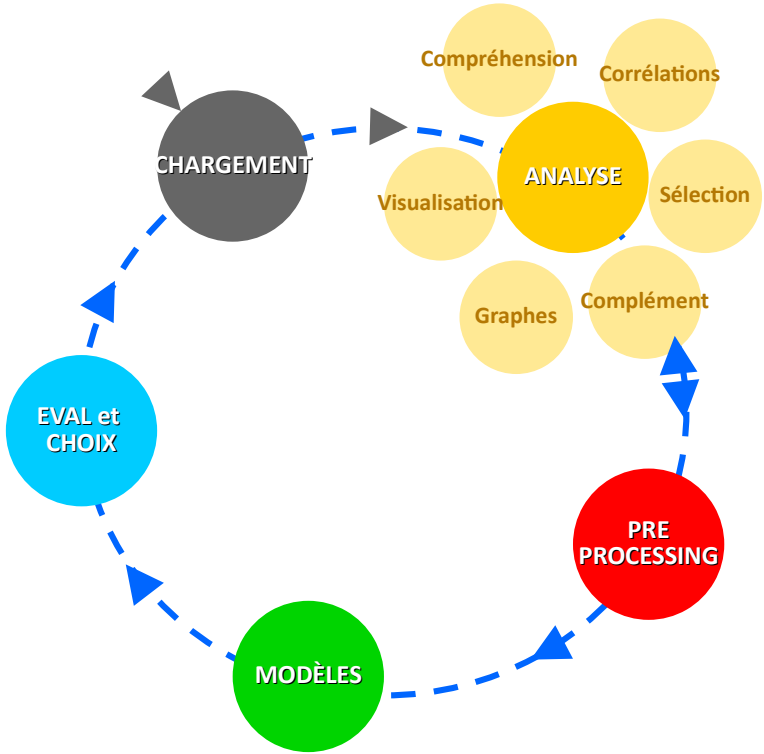
Par Aurélie RAOUL

Process général



Sommaire



Logements californiens by Aurélie RAOUL

ANALYSE

Analyse de la forme

Shape : 20640 x 10

Type

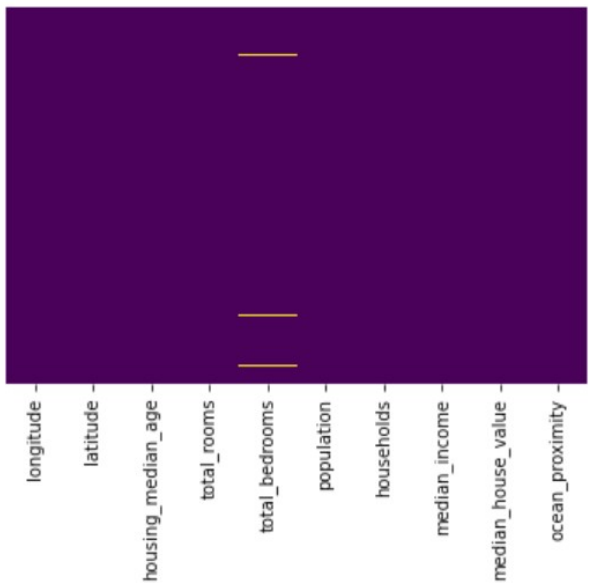
```
longitude             float64
latitude              float64
housing_median_age    float64
total_rooms           float64
total_bedrooms        float64
population            float64
households            float64
median_income         float64
median_house_value    float64
ocean_proximity        object
dtype: object
```

NaN

```
data.isna().sum()
✓ 0.4s
longitude             0
latitude              0
housing_median_age    0
total_rooms           0
total_bedrooms      207
population            0
households            0
median_income         0
median_house_value    0
ocean_proximity       0
```

Describe

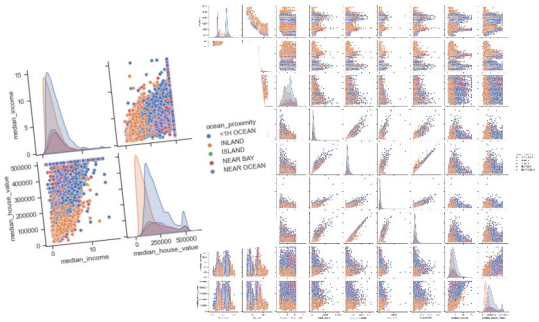
Target



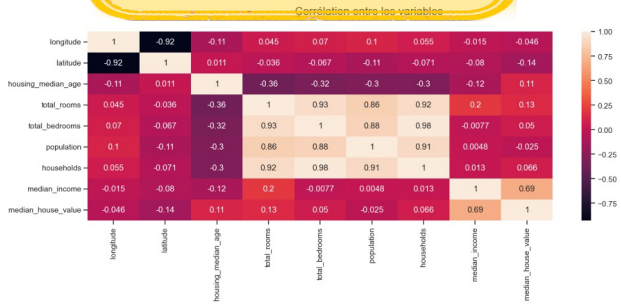
ANALYSE

Analyse du fond

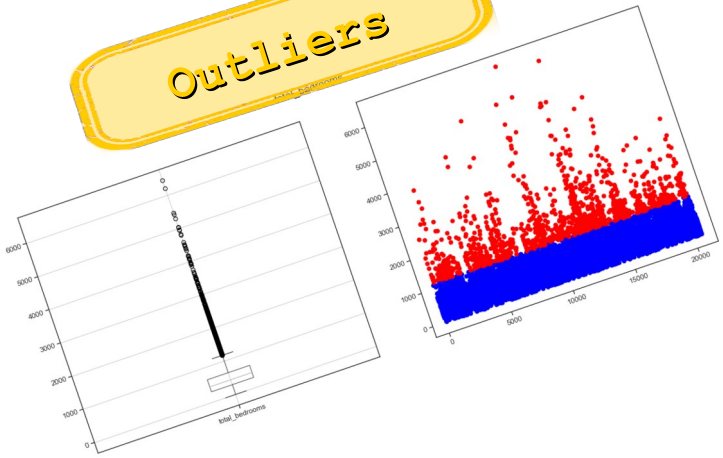
Pairplot



Corrélations



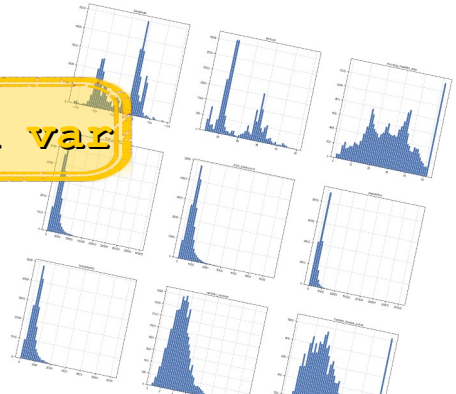
Outliers

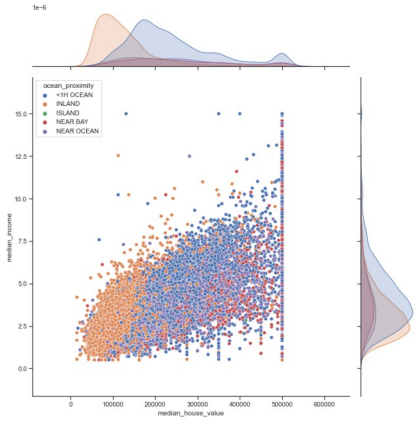


Chi² :

- longitude
- latitude
- age
- chambres
- population

Hist. Num var



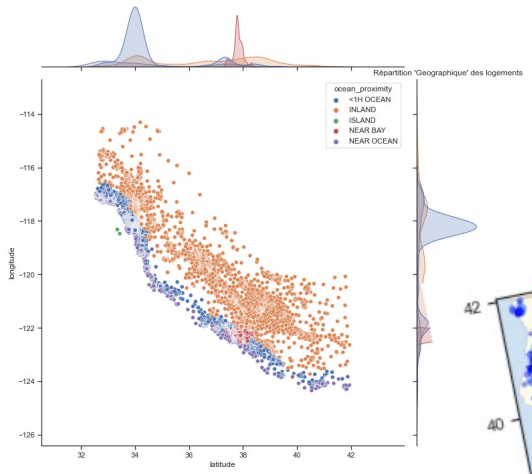


Recherches

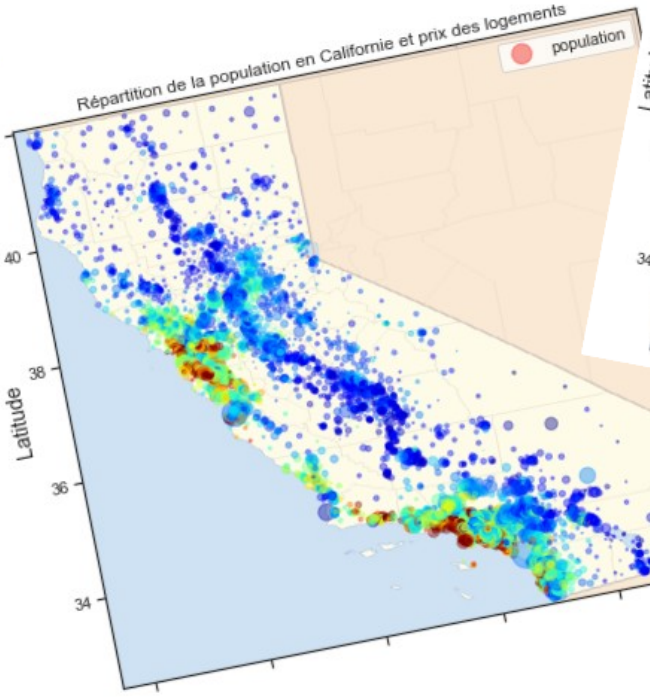
Logements californiens by Aurélie RAOUL

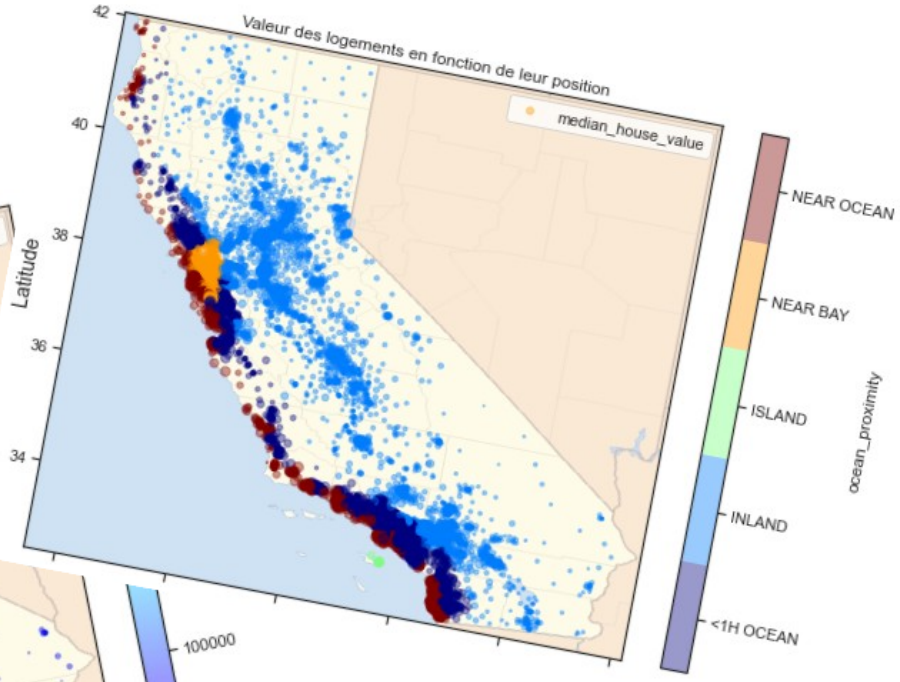
ANALYSE

2nd niveau



MAP





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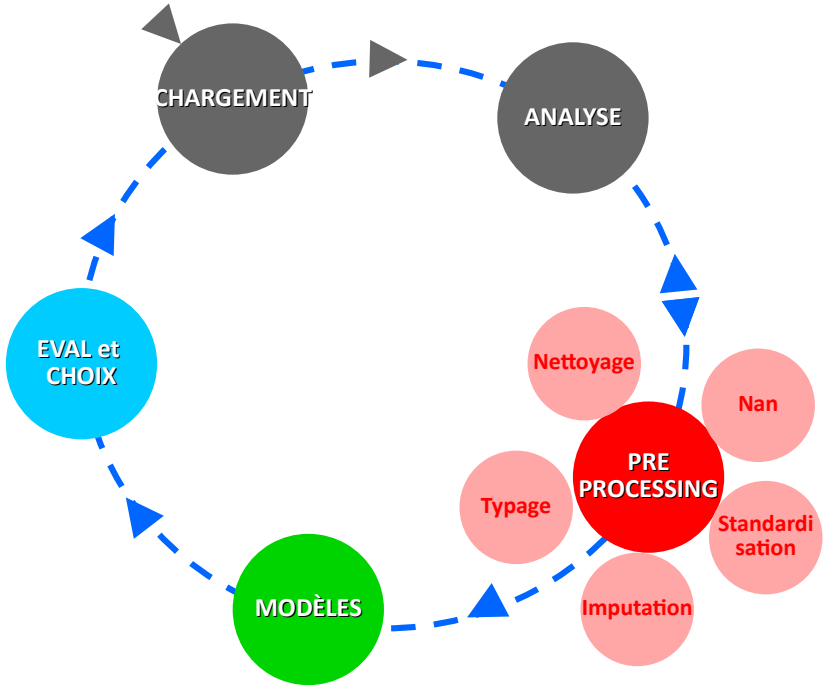
Sommaire


CHARGEMENT
ANALYSE
EVAL et CHOIX
MODÈLES
PRE PROCESSING
Nettoyage
Nan
Typage
Standardisation
Imputation

PRE-PROCESSING

Nettoyage

Type

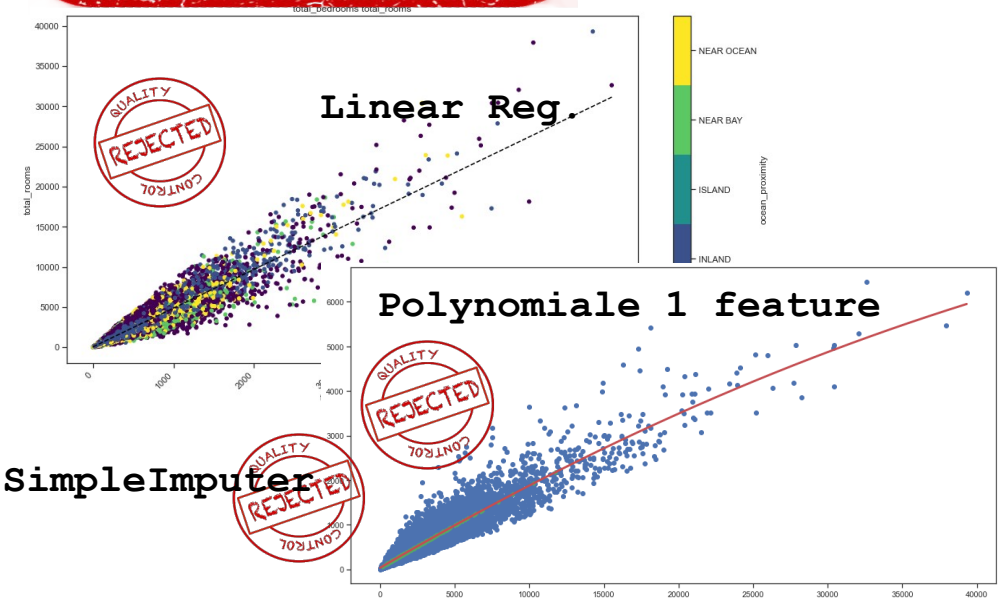
ocean_proximity

Encodage

OneHotEncoder

Imputation / NaN

total_bedrooms



SimpleImputer

Polynomiale :
total_rooms + households + population

Valeurs aberrantes

Standardisation

PRE-PROCESSING

Nettoyage

APPROVED

Type

ocean_proximity

Imputation / NaN

total_bedrooms

Valeurs aberrantes

3 lignes DELETE

Encodage

OneHotEncoder

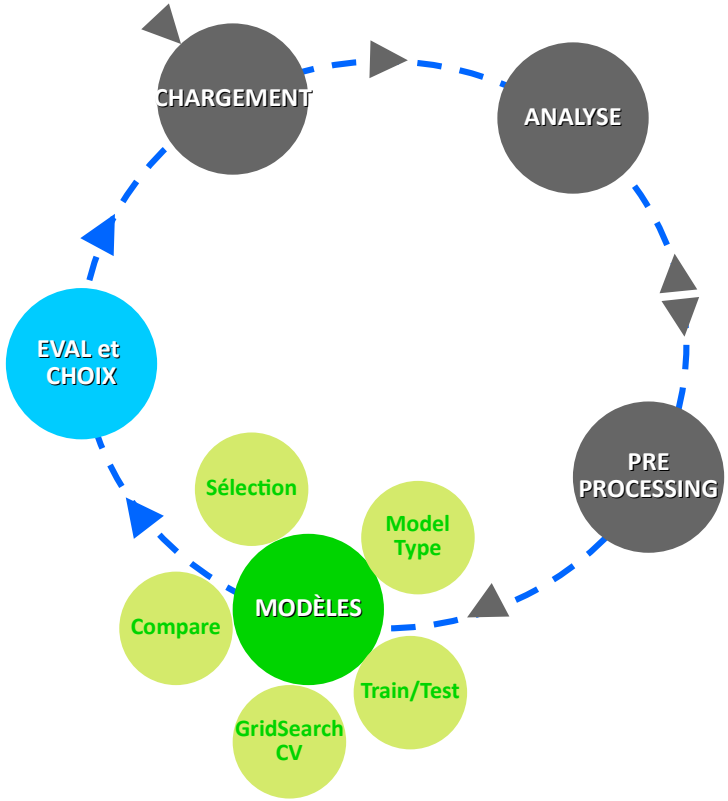
Polynomiale :
total_rooms + households + population

Outliers

KEEP ✓

Logements californiens by Aurélie RAOUL

Sommaire


CHARGEMENT
ANALYSE
PRE PROCESSING
MODÈLES
Sélection
Model Type
Train/Test
GridSearch CV
Compare
EVAL et CHOIX

MODÈLES

Train/Test | Model Type | GridSearch CV | Compare | Sélection

Split dataset

Train | Test

Features ?

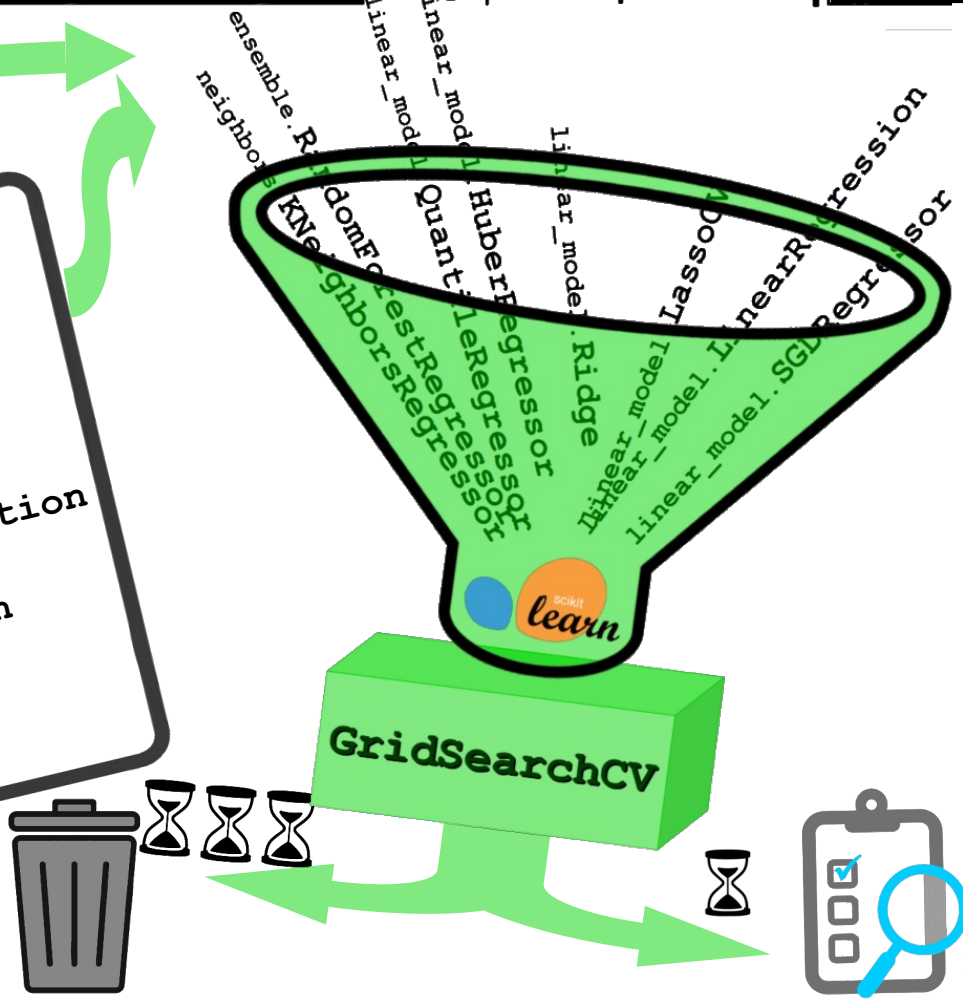
Manuelle

Variance Threshold

SelectKBest

SelectFromModel

RFECV

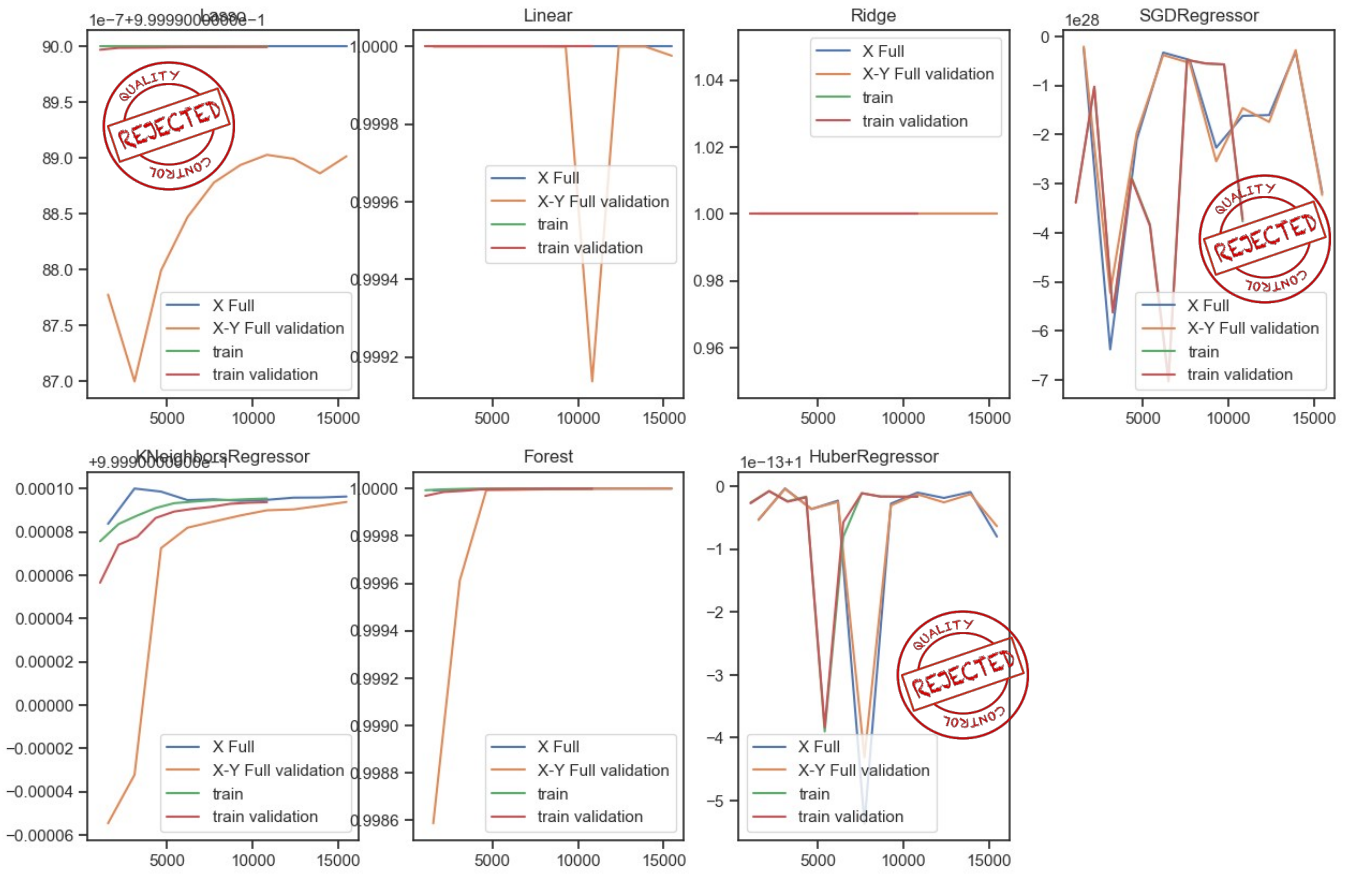


Logements californiens by Aurélie RAOUL

MODÈLES

Courbe d'apprentissage

learning_curve > x=train_sizes



MODÈLES

Train/Test → Model Type → GridSearch CV → Compare → Sélection

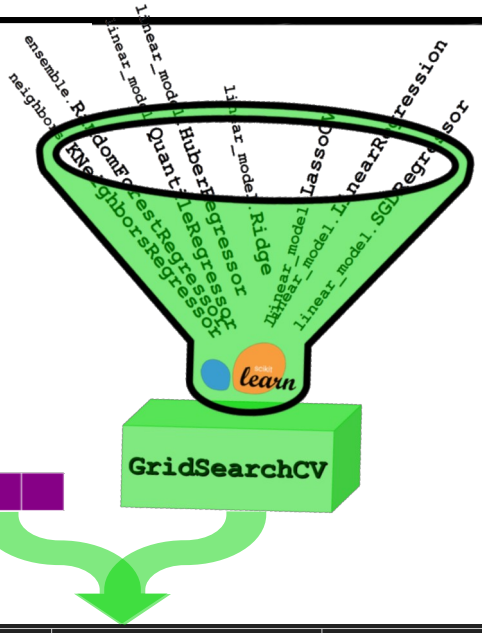
Split dataset

Train | Test

70 / 30

Features ?

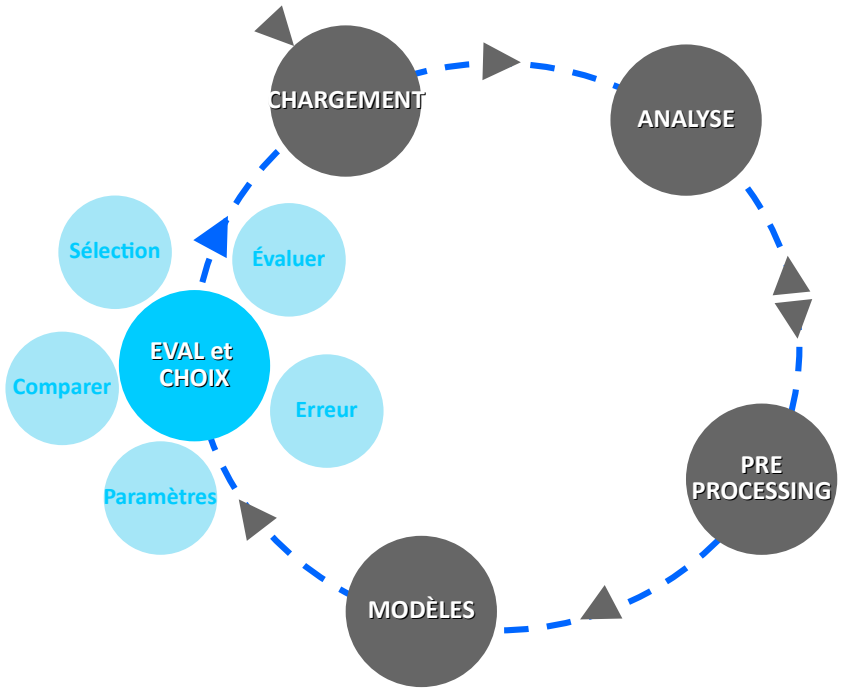
Manuelle



APPROVED

Model	Score (Toutes colonnes)	Paramètres
RandomForestRegressor	0.9999996421039528	{'randomforestregressor__max_features': 'auto', 'randomforestregressor__n_estimators': 81}
Linear	1.0	{'linearregression__fit_intercept': True, 'linearregression__normalize': False, 'linearregression__positive': True}
Ridge	1.0	{'ridge__alpha': 1, 'ridge__fit_intercept': True, 'ridge__solver': 'auto'}
Lasso	0.9999989999649406	{'lassocv__alphas': None, 'lassocv__fit_intercept': True}
KNeighborsRegressor	0.9999946882516152	{'kneighborsregressor__n_neighbors': 7}
SGDRegressor	-2.4498384279180864e+26	{'sgdregressor__fit_intercept': True, 'sgdregressor__loss': 'squared_error', 'sgdregressor__penalty': 'l1'}
HuberRegressor	0.9999999999999741	{'huberregressor__fit_intercept': False}
QuantileRegressor	Trop long à exécuter	

Sommaire


CHARGEMENT
ANALYSE
PRE PROCESSING
MODÈLES
EVAL et CHOIX
Sélection
Évaluer
Comparer
Erreur
Paramètres

ÉVALUATION ET CHOIX

Erreur | Évaluer | Comparer | Paramètres | Sélection

Métriques

Modèle	R2	MAE	MSE	RMSE	Media AE
Lasso	1.0	91.296	13289.368	115.28	76.549
Linear	1.0,	0.0	0.0	0.0	0.0
Ridge	1.0,	0.0	0.0	0.0	0.0
SGDRegressor	-2.44..e+26	1.59..e+18	3.2555..e+36	1.8031..e+18	1.405...e+18
KNeighborsRegressor	1.0	125.487	70587.303	265.683	71.429
Forest	1.0	21.317	4756.045	68.964	6.173
HuberRegressor	1.0	0.015	0.0	0.019	0.014

R2 = Coefficient de Détermination

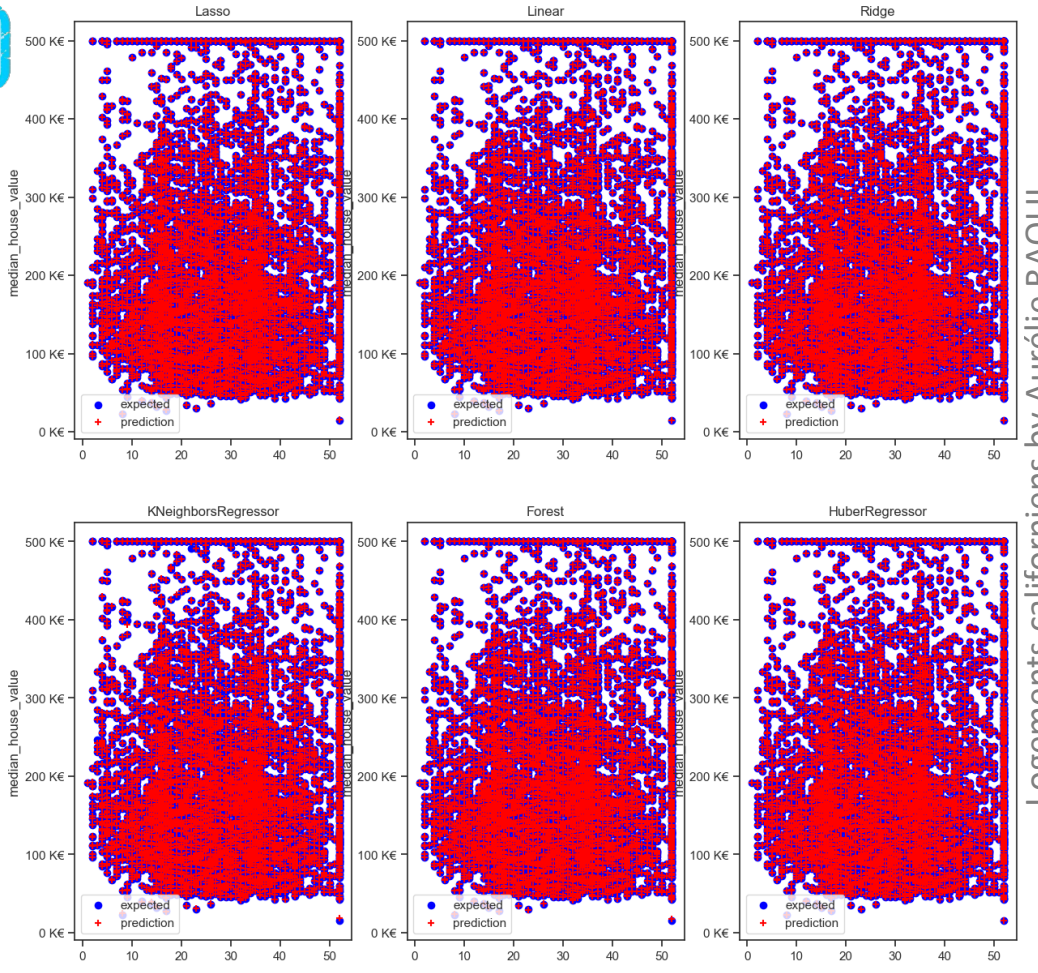
MAE = Mean Absolute Error : l'importance d'une erreur est linéaire avec son amplitude. Si le dataset contient des outliers

MSE = Mean Squared Error : vous accordez une grande importance aux grandes erreurs

RMSE = Root Mean Squared Error : Remise à l'échelle, donc racine carré de MSE

Media AE = Median Absolute Error : très peu sensible aux outliers

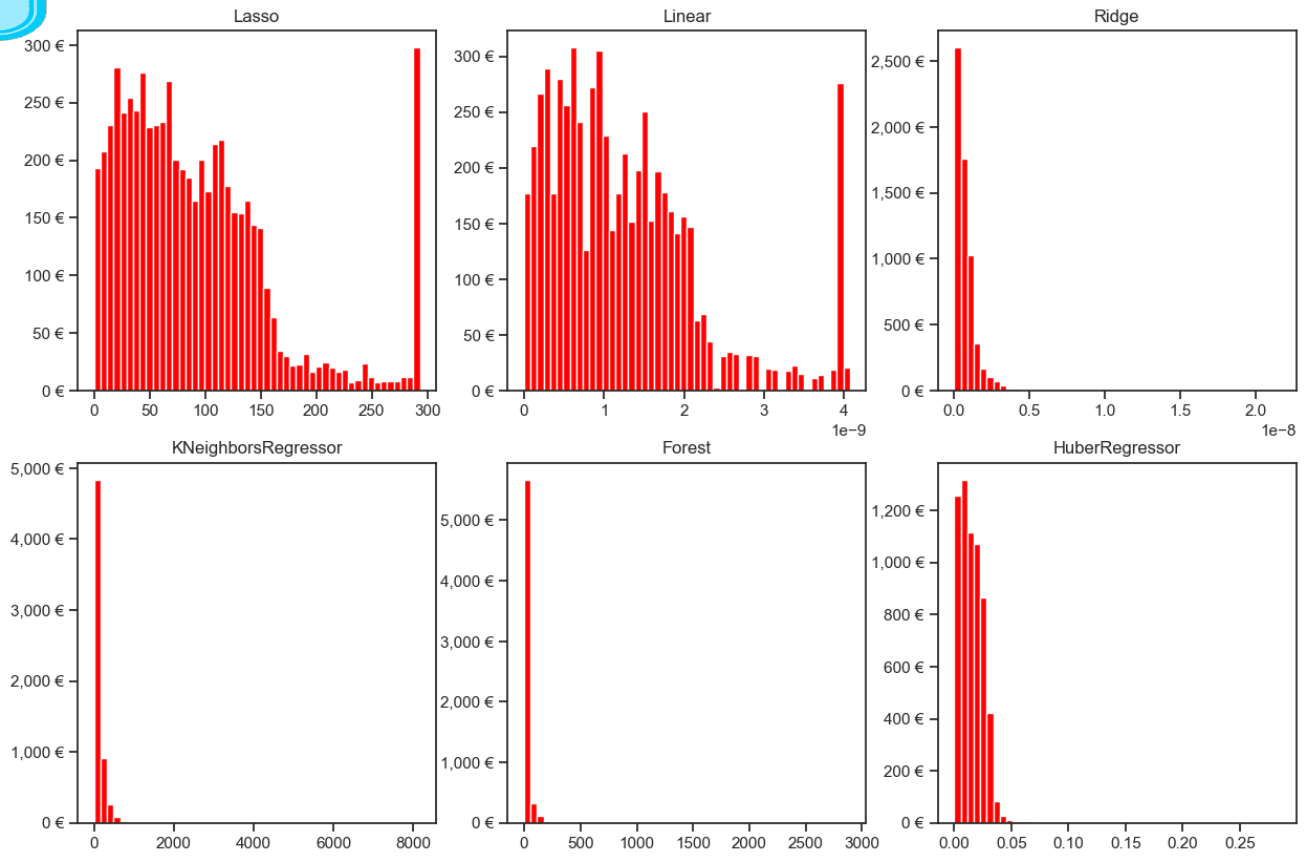
Visualisation de la cible



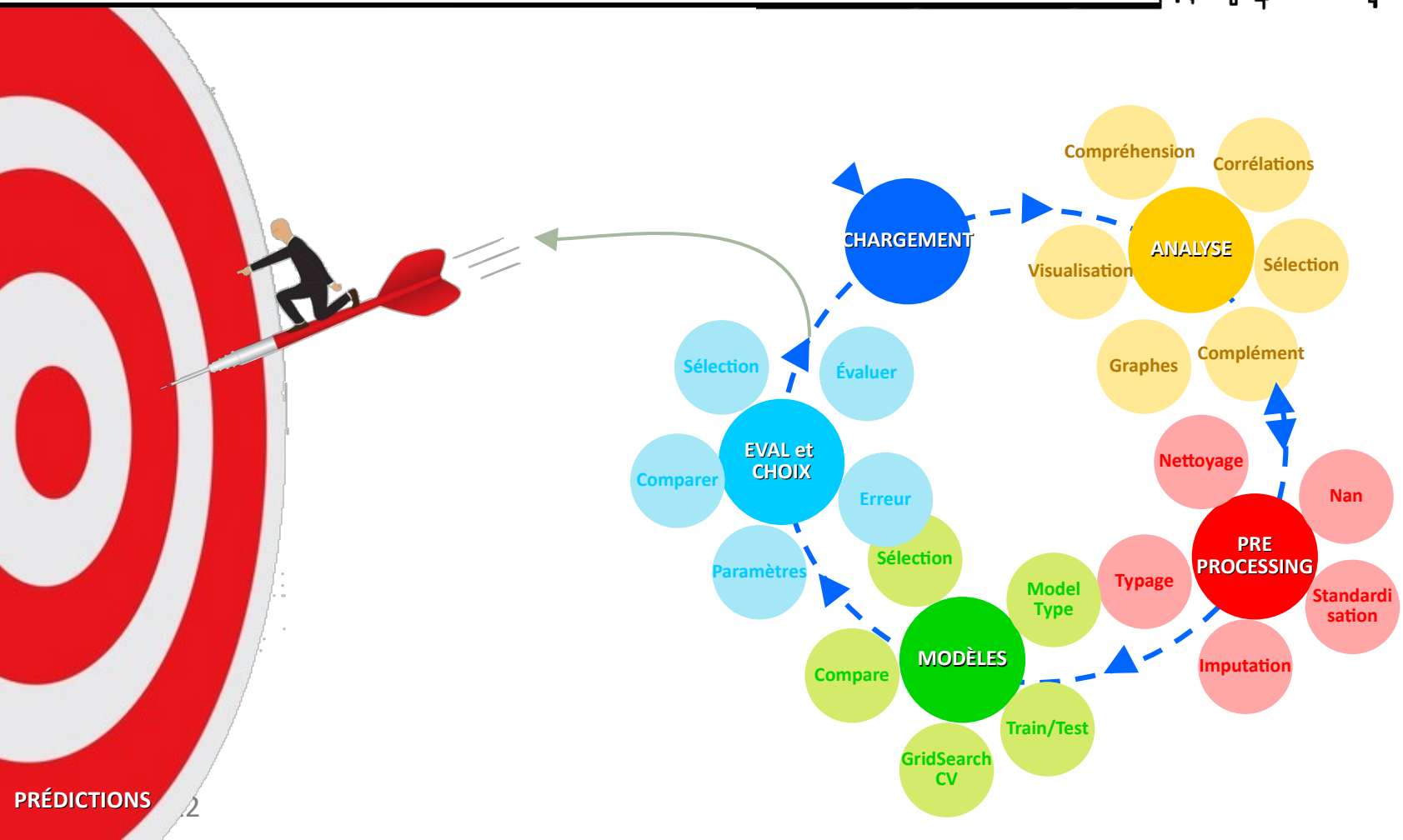
ÉVALUATION ET CHOIX

Erreurs

Représentation du montant des erreurs par nombre (montant en moins par rapport à l'attendu).



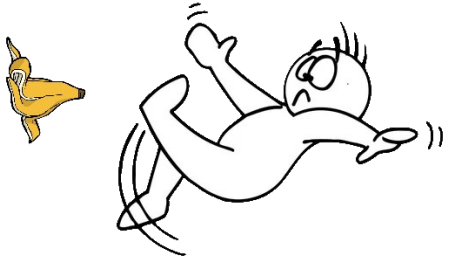
Synthèse



Discussion

BILAN

```
Forest               : 0.8256368989269849    {'randomforestregressor__max_features': 'auto',
'randomforestregressor__n_estimators': 91}
```



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