# Brewer's Friend Beer Recipes

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**Github:** https://github.com/Danny-8/APC\_Kaggle **Dataset:** https://www.kaggle.com/jtrofe/beer-recipes

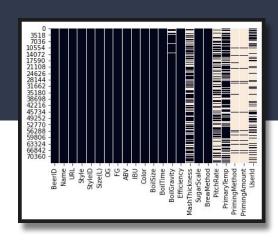
### Introducció

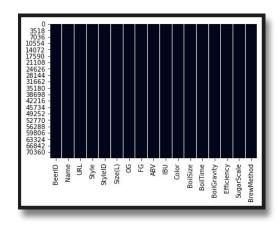
#### Dataset:

< recipeData.	∓ □					
Detail Compact (	Column			10 of 23 columns 🗸		
ev BeerlD =	▲ Name F	▲ URL F  Location of recipe webpage at https://www.brewersfrien d.com	▲ Style =	ew StyleID = Numeric ID for type of brew	# A	
1 73.98	Awesome Recipe         2%           IPA         0%           Other (72353)         98%	73861 urique values	American IPA         16%           American Pale Ale         10%           Other (\$4340)         74%	1 176		
1	Vanilla Cream Ale	/homebrew/recipe/vie w/1633/vanilla- cream-ale	Cream Ale	45	2	
2	Southern Tier Punking clone	/homebrew/recipe/vie w/16367/southern- tier-punking-clone	Holiday/Winter Special Spiced Beer	85		
3	Zombie Dust Clone - EXTRACT	/homebrew/recipe/vie w/5928/zombie-dust- clone-extract	American IPA	7		
4	Zombie Dust Clone - ALL GRAIN	/homebrew/recipe/vie w/5916/zombie-dust- clone-all-grain	American IPA	7		
5	Bakke Brygg Belgisk Blonde 50 l	/homebrew/recipe/vie w/89534/bakke-brygg- belgisk-blonde-50-1	Belgian Blond Ale	28	5	
6	Sierra Nevada Pale Ale Clome	/homebrew/recipe/vie w/28546/sierra- nevada-pale-ale- clone	American Pale Ale	18	2	
7	Russian River Pliny the Elder (original)	/homebrew/recipe/vie w/37534/russian- river-pliny-the-	Imperial IPA	86	2	



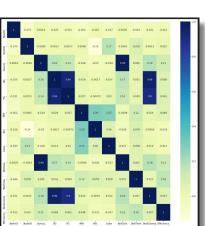
#### Nulls:

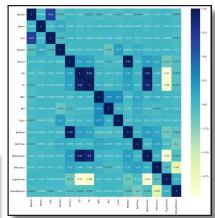




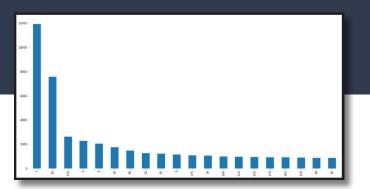
## Preprocessat

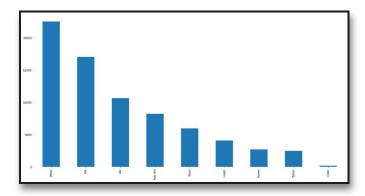
Correlació:





Classificació:





['Other', 'Ale', 'IPA', 'Pale Ale', 'Lager', 'Stout', 'Bitter', 'Cider', 'Porter']

### Mètodes Utilitzats

```
X = recipe_dataset.drop(['StyleID', 'GenericStyleID'], axis=1)
Y_s = recipe_dataset['StyleID']
Y_gs = recipe_dataset['GenericStyleID']
```

GridSearch:

```
hyp_c = [0.01, 0.1, 1.0, 10]
hyp_tol = [0.0001, 1, 1000]
hyp_criterion = ['gini', 'entropy']
hyp_n_estimators = [100, 200, 300]
hyp_min_samples_leaf = [1, 2, 3]
```

Regresión Logística

Random Forest

**Decision Tree** 

Ada Boost

Ex:

```
Decision Tree
F1 score Style: 0.1123056073685654
F1 score GenericStyle: 0.3716018062432864
Criterion: gini
F1 score Style: 0.09895491662789191
F1 score GenericStyle: 0.39268361931125084
Criterion: entropy
```

## Resultats i Exemples

#### Millor model:

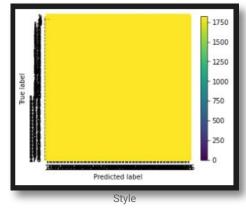
std	mean	model	
0.006265	0.157530	Random Forest	1
0.002877	0.108205	Decision Tree	2
0.003953	0.059266	Regresión Logística	0
0.001686	0.008849	Ada Boost	3

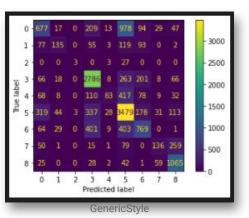
Style

std	mean	model	
0.019237	0.458610	Random Forest	1
0.014562	0.381387	Decision Tree	2
0.020857	0.361104	Ada Boost	3
0.015013	0.271721	Regresión Logística	0

GenericStyle

#### **Confusion Matrix:**





### Classification Report:

accuracy			0.39	14773				
macro avg	0.27	0.15	0.17	14773				
weighted avg	0.38	0.39	0.35	14773				
	Style			accuracy			0.62	14773
Style			macro avg	0.57	0.44	0.46	14773	
				weighted avg	0.60	0.62	0.59	14773

GenericStyle

### Conclusió i Treball a futur

