

BVRIT HYDERABAD

College of Engineering for Women



PRODUCT CLASSIFICATION 2

Team No: 9

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Problem Statement



 Each row in the dataset has been labeled with one true Class.
For each row submit the predicted probabilities that the product belongs to each class label. Submissions are evaluated using multi-class logarithmic loss.

$$\log \text{loss} = -\frac{1}{N} \sum_{i=1}^{N} \sum_{j=1}^{M} y_{ij} \log(p_{ij}),$$



Python Packages Used



- Numpy
- Pandas
- Label encoder
- sklearn



Algorithm



- Multinomial Logistic Regression.
- XGBoost
- Random Forest Classifier.



Output



RANDOM FOREST CLASSIFIER

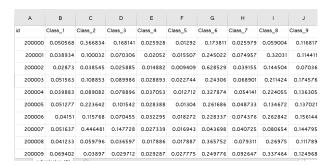
Α	В	C	D	Е	F	G	Н	1	J
id	Class_1	Class_2	Class_3	Class_4	Class_5	Class_6	Class_7	Class_8	Class_9
200000	0.05	0.583333	0.139167	1.00E-15	1.00E-15	0.13	1.00E-15	0.01	0.0875
200001	0.02	0.11	0.14	1.00E-15	0.01	0.21	0.06	0.34	0.11
200002	0.06	0.09	0.03	0.01	1.00E-15	0.53	0.03	0.13	0.12
200003	0.03	0.09	0.05	0.03	0.02	0.3	0.07	0.18	0.23
200004	0.04	0.16	0.1	0.04	0.02	0.23	0.1	0.19	0.12
200005	0.04	0.12	0.16	0.03	0.01	0.29	0.07	0.17	0.11
200006	0.03	0.11	0.08	0.02	0.05	0.18	0.05	0.26	0.22
200007	0.03	0.48	0.19	0.04	0.03	0.04	0.04	0.06	0.09
200008	0.05	0.09	0.04	0.02	0.03	0.37	0.05	0.26	0.09
200009	0.04	0.05	0.05	0.03	0.02	0.3	0.12	0.29	0.1
200010	0.03	0.09	0.07	0.01	1.00E-15	0.44	0.05	0.18	0.13
200011	0.05	0.23	0.09	0.02	0.01	0.12	0.06	0.26	0.16



Output



XGBOOST





Comparison Table



ALGORITHM	LOG LOSS
MULTINOMIAL NAÏVE BAYES	4.53
MULTINOMIAL LOGISTIC REGRESSION	1.82
XGBOOST	1.65
RANDOM FOREST	0.67





THANK YOU