DigitalHouse > Coding School

DESAFÍO 3:
Predicción de clicks

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Objetivo

- Elaborar un predictor de clicks
- Aplicación de modelos de clasificación
- Considerar la probabilidad de la predicción

GENERALIDADES

Dataset - Archivos

ctr_15.zip	1,239,524
ctr_16.zip	1,092,413
ctr_17.zip	1,093,607
ctr_18.zip	1,013,581
ctr_19.zip	1,326,180
ctr_20.zip	1,356,066
ctr_21.zip	1,523,221
TOTAL	**8,644,592**

TRAIN

ctr_test_labeled.zip	1,139,639

TEST

Dataset – Features

(#: Features Hasheados)

51 Features

Label	• Etiqueta click (1) o no click (0)
Nums. (6)	• ['auction_age','auction_bidfloor','auction_time', • 'creative_height','creative_width','timezone_offset']
String (41) - #	• ['action_categorical_xx','auction_boolean_xx','auction_categorical_xx', • 'creative_categorical_xx','device_id','device_id_type','gender']
Listas (3) - #	• ['action_list_1','action_list_2','auction_list_0']
Bool (1)	• ['has_video']

APLICACIÓN

Pre-Procesamiento

- Cálculo de media y desvío
  - Para el total del dataset
  - Normalización de variables numéricas

- Reducción del dataset
  - a) Raw Data
  - b) Random Sample (p=25%) -> adoptada
  - c) DownSample (Labels=0)

Pipeline

Extractor

- Eliminación de features de listas
- Estandarización
- Reemplazo de NaNs

Vectorizer

- Feature Hasher
- Combinaciones entre features (n_degree)

Classifier

- SGDClassifier (partial_fit, con batches)
- Regresión logística
- Score: r^2 / log-loss

Grid

Features	• [[:15] , [:]]
N_features	• [2^20, 2^21, 2^22]
degree	• [1 o 2]
l1_ratio	• [0.15, 0.5, 0.85]
alpha	• [0.0001, 0.001, 0.01, 0.1]

TRAIN

TRAIN – Modelos fitteados

features	n_features	degree	l1_ratio	alpha	score
[:15]	2^20	1	0.15	0.0001	0.999
				0.001	0.945
				0.01	0.312
				0.1	-0.044
			0.5	0.0001	0.998
				0.001	0.945
				0.01	0.311
				0.1	-0.044
			0.85	0.0001	0.999
				0.001	0.944
				0.01	0.311
				0.1	-0.044
		2	0.15	0.0001	0.961
				0.001	0.997
				0.01	0.923
				0.1	0.402
			0.5	0.0001	0.980
				0.001	0.988
				0.01	0.923
				0.1	0.352
			0.85	0.0001	0.989
				0.001	0.997
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TEST

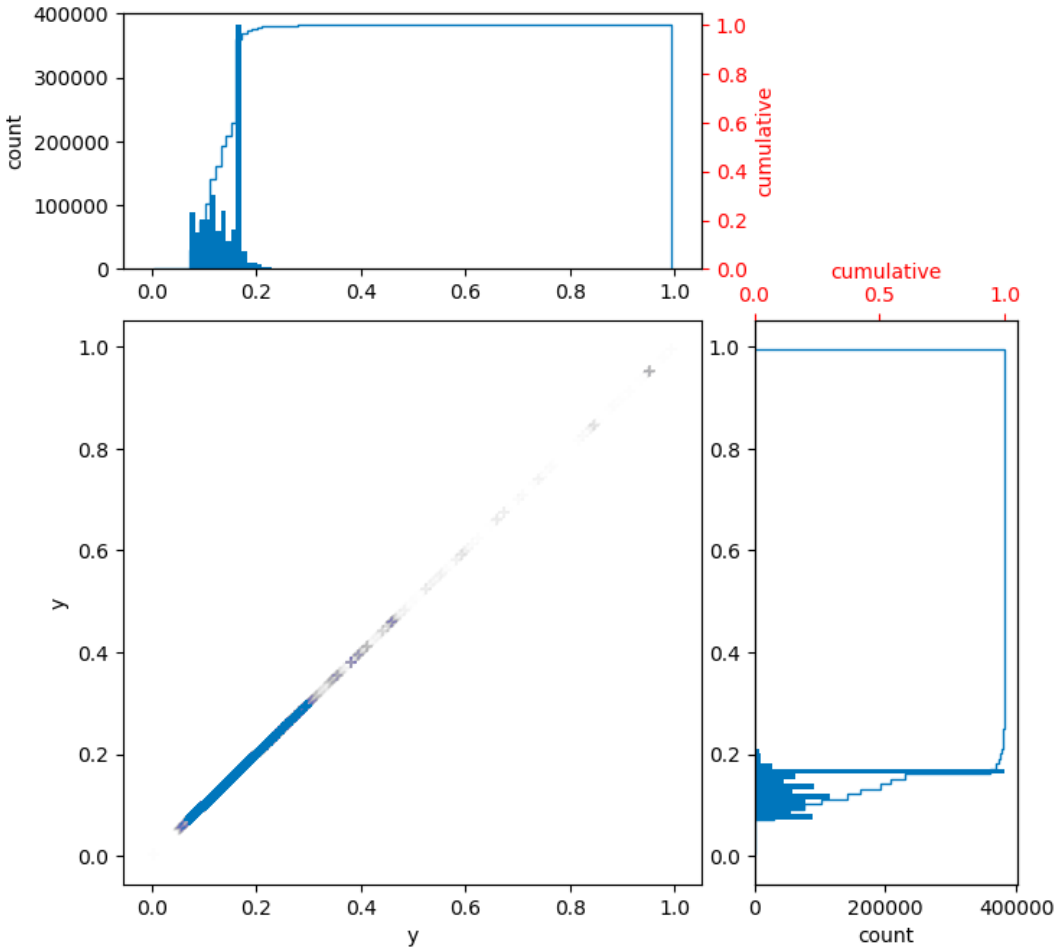
TEST – (Label = 0)

Probabilidad de click

Mean (y_proba | Label=0) = 0.13653

Min (y_proba | Label=0) = 0.00311

Max (y_proba | Label=0) = 0.99380



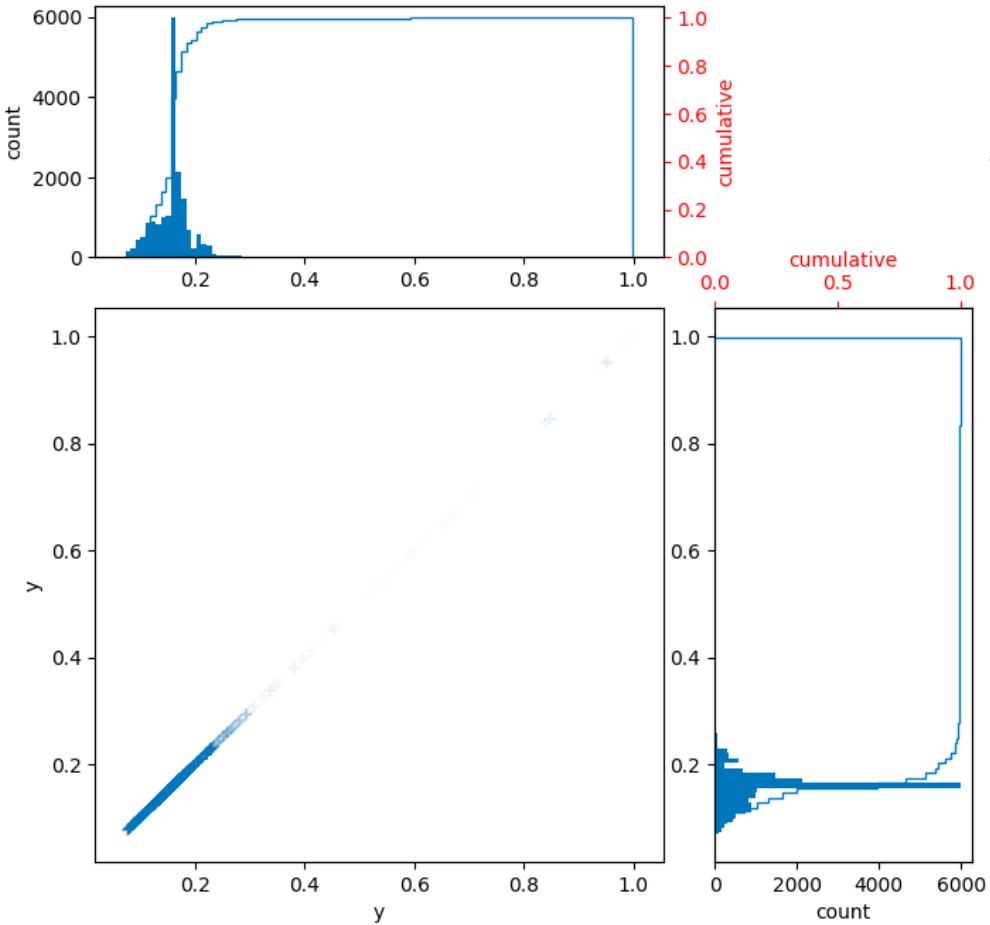
TEST – (Label = 1)

Probabilidad de click

Mean (y_proba | Label=0) = 0.16096

Min (y_proba | Label=0) = 0.07274

Max (y_proba | Label=0) = 0.99891



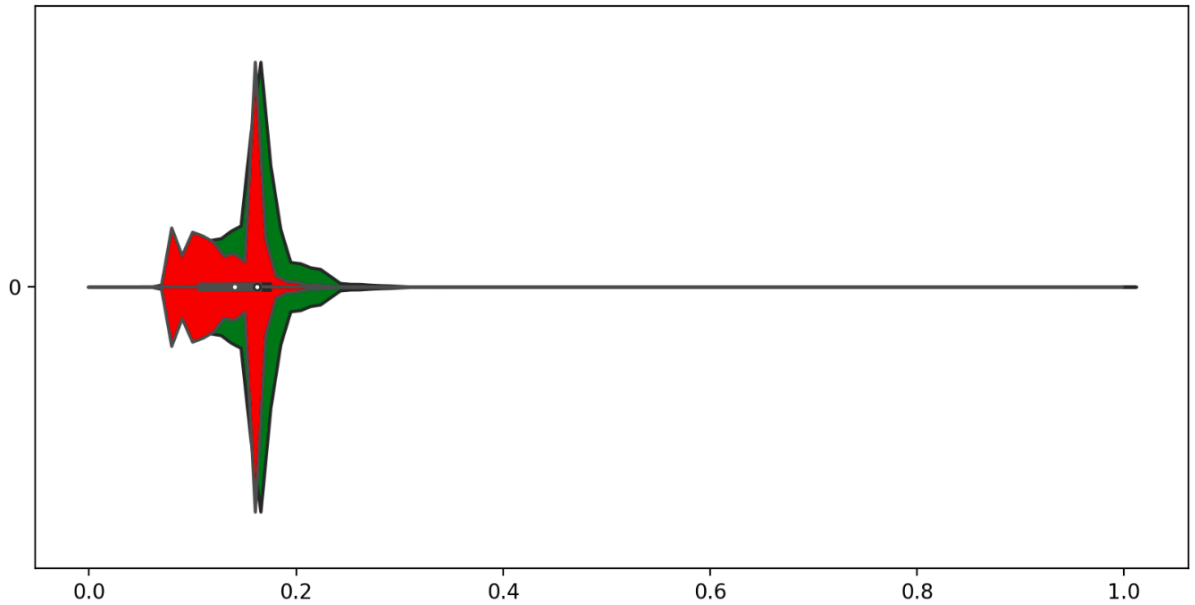
TEST – Label = [0 , 1]

Label = 0

Mean = 0.13653

Min = 0.00311

Max = 0.99380



Label = 1

Mean = 0.16096

Min = 0.07274

Max = 0.99891

TEST – Report

	precision	recall	f1-score	support
0	0.98413	0.99971	0.99186	1121523
1	0.11141	0.00226	0.00444	18116
accuracy			0.98385	1139639
macro avg	0.54777	0.50099	0.49815	1139639
weighted avg	0.97026	0.98385	0.97616	1139639

Muchas Gracias!

Preguntas ?