LAVBOT

IES Abastos - 8IA - AI & BigData

Herramienta de Análisis y Predicción Financiera con IA para el Mercado de Divisas

¿Quiénes somos?

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Data Engineer
P.Documentation

Edvard Khachatryan

Data architect
(Scrum Master)

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AI Developer

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Main AI
Developer

Vicente Real

FullStack

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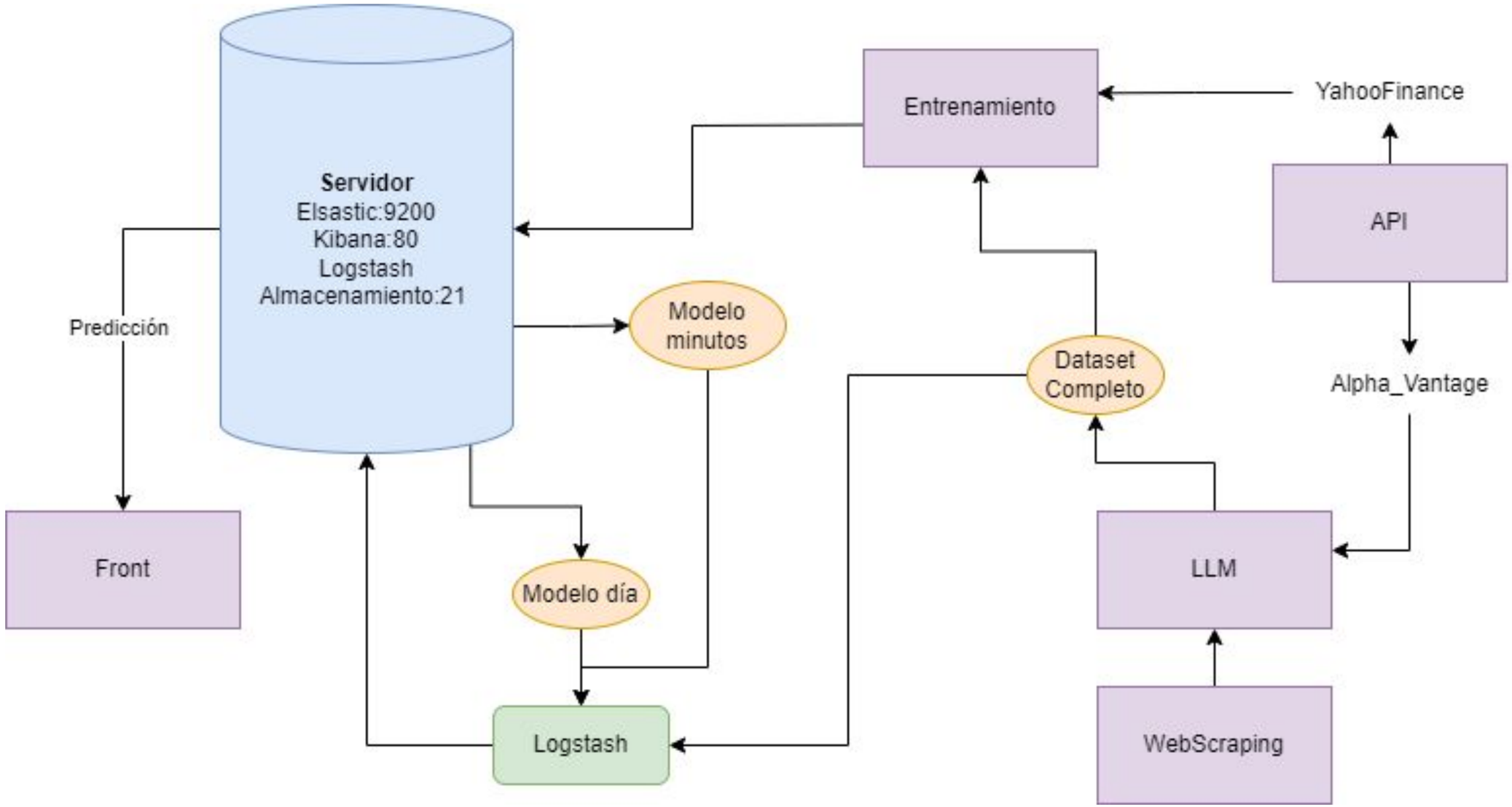
¿Qué es LavBot?

Arquitectura



Obtención y generación de datos

Librerías

ALPHA VANTAGE

yahoo! finance

Web Scraping

Se

Modelo LLM

groq™

Meta

Alpha Vantage

```
date,open,high,low,close,volume
2024-05-03 04:00:00,183.013,183.013,182.113,182.363,41079.0
2024-05-03 04:01:00,182.364,182.803,182.303,182.453,29584.0
2024-05-03 04:02:00,182.493,182.603,182.423,182.553,7338.0
2024-05-03 04:03:00,182.573,182.603,182.373,182.403,13197.0
2024-05-03 04:04:00,182.413,182.503,182.363,182.413,4684.0
2024-05-03 04:05:00,182.413,182.613,182.373,182.603,8593.0
2024-05-03 04:06:00,182.623,182.743,182.463,182.633,11020.0
```

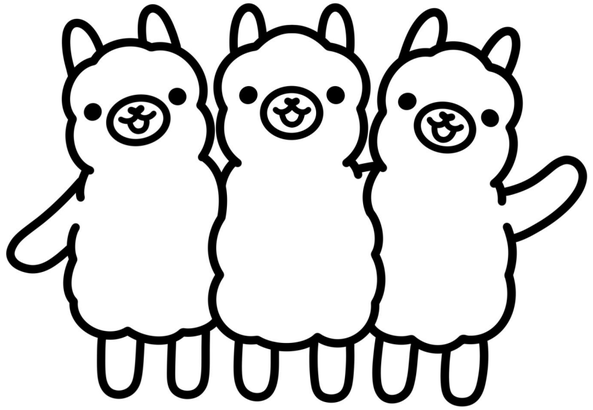
Yahoo Finances

```
Datetime,Open,High,Low,Close,Adj Close,Volume
2022-06-01 09:30:00,149.89999389648438,151.74000549316406,149.02000427246094,
149.15719604492188,149.15719604492188,22117918
2022-06-01 10:30:00,149.13999938964844,149.99000549316406,148.19000244140625,
148.67999267578125,148.67999267578125,10308786
2022-06-01 11:30:00,148.6999969482422,148.77499389648438,147.67999267578125,
148.05999755859375,148.05999755859375,7419539
2022-06-01 12:30:00,148.05999755859375,148.8800048828125,147.89999389648438,
148.3321990966797,148.3321990966797,5742671
2022-06-01 13:30:00,148.35000610351562,149.79490661621094,148.00999450683594,
149.58999633789062,149.58999633789062,6923034
2022-06-01 14:30:00,149.60000610351562,149.8800048828125,148.81410217285156,
149.66799926757812,149.66799926757812,8122426
2022-06-01 15:30:00,149.6699981689453,149.99000549316406,148.52000427246094,
148.6999969482422,148.6999969482422,7632870
2022-06-02 09:30:00,147.8300018310547,149.02999877929688,146.86000061035156,
147.41000366210938,147.41000366210938,19486157
```

Selenium Web Driver

Llama3

Meta



Groq

groq™
GROQ102FFA a
2043 3CYEK00R0E
01LP767 ESD PQ
Q|102FFA00-BINP0
9316 CANADA
B5790740

Groq

groq
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Privacy Policy
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Security
Support
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All rights reserved
MODEL: Llama 2 70B-4k
Acting as an expert marketer, segment the market for precision agriculture into buyers, creating a persona for each and a potential reason for purchasing
Total Requests: 1,345,434
This is a Llama 2-based chatbot. Accuracy, correctness or appropriateness cannot be guaranteed. | Powered by Groq LPU™ Inference Engine | alpha release v0.9.24

Llama3

```
client = Groq(api_key=API_KEY)
resultados = []

for texto in noticias_textos:
    chat_completion = client.chat.completions.create(
        messages=[
            {
                "role": "system",
                "content":
"You are a financial bot specialized in predicting the stock market value of Apple Inc.
(AAPL). Your role involves analyzing the sentiment of input text to assess its impact on
Apple's stock. You provide a sentiment score ranging from 0 to 1, where 0.5 is neutral.
Texts positively influencing Apple's stock will score closer to 1, while those negativel
y affecting it will score closer to 0. You will ONLY provide the sentiment score as a nu
mber without any additional explanation or any other output."
,
            },
            {
                "role": "user",
                "content": texto,
            }
        ],
        model="llama3-8b-8192",
        temperature=0,
        max_tokens=4
    )
    resultados.append(chat_completion.choices[0].message.content)
```

Llama3

```
Fecha,URL,Texto,Resultado
20240513103016,
https://es.finance.yahoo.
com/noticias/apple-integr
a-chatgpt-siri-revolucion
a-103016327.html,
"Texto de la noticia",
0.83
```

Dataset Final

```
date,open,high,low,close,volume,Resultado
2024-05-03 04:00:00,183.013,183.013,182.113,182.363,41079.0,0.93
2024-05-03 04:01:00,182.364,182.803,182.303,182.453,29584.0,0.93
2024-05-03 04:02:00,182.493,182.603,182.423,182.553,7338.0,0.93
2024-05-03 04:03:00,182.573,182.603,182.373,182.403,13197.0,0.93
2024-05-03 04:04:00,182.413,182.503,182.363,182.413,4684.0,0.93
2024-05-03 04:05:00,182.413,182.613,182.373,182.603,8593.0,0.93
2024-05-03 04:06:00,182.623,182.743,182.463,182.633,11020.0,0.93
```

Modelos

Minutos

LSTM

30

Días

LSTM

10

Otros

Decision tree

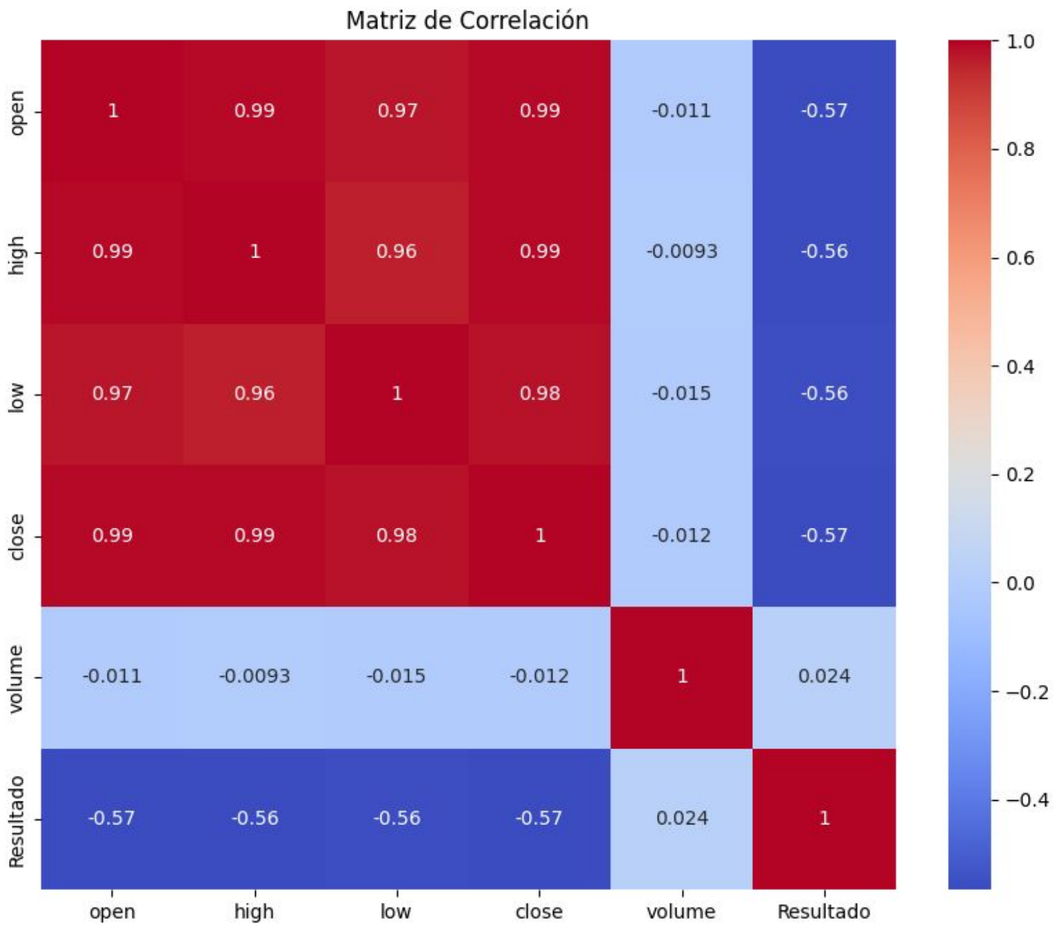
Linear regression

Lasso regression

Ridge regression

CNN - Wyckoff

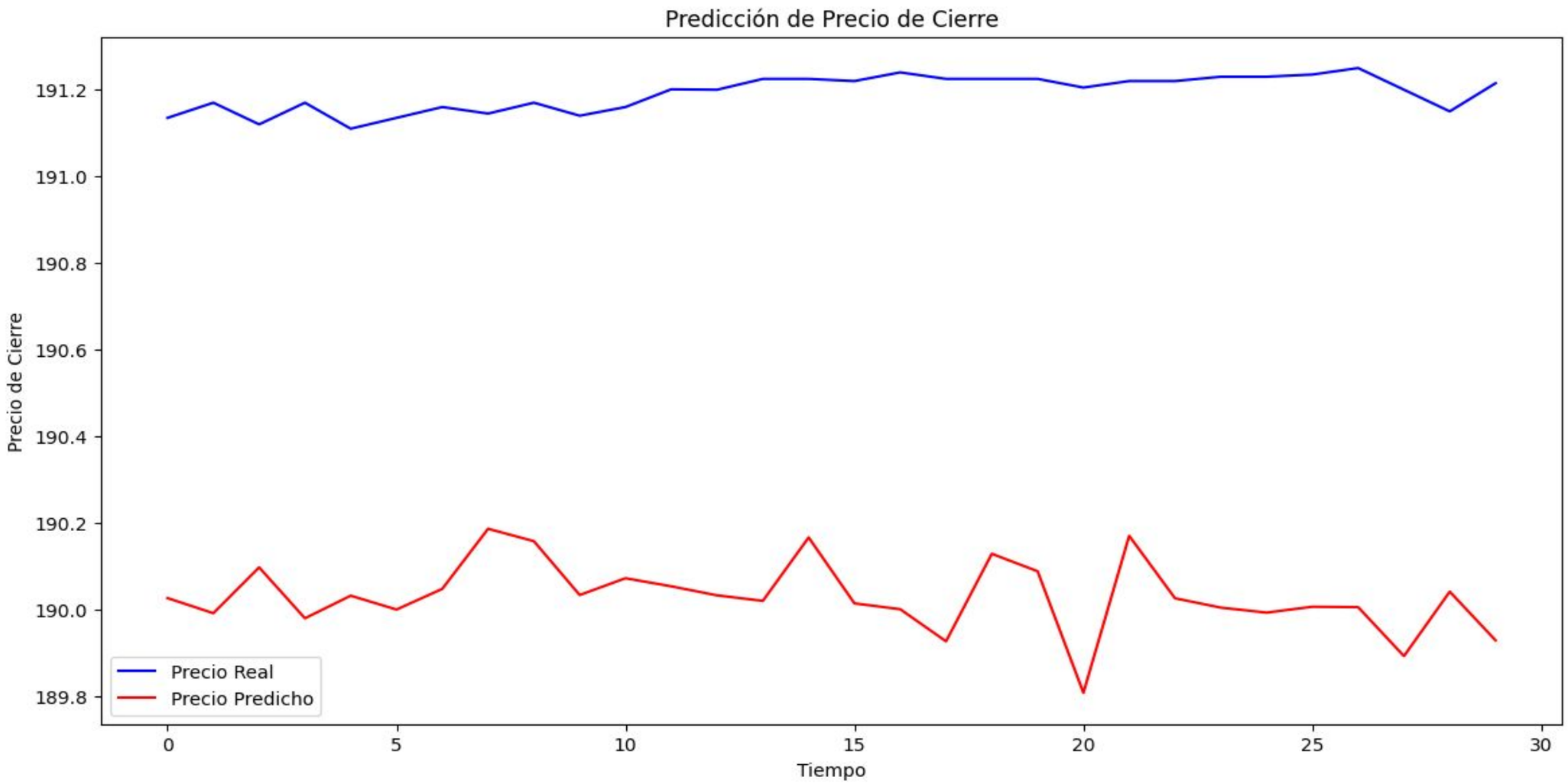
Modelo de minutos



Modelo de minutos

```
model = Sequential()
model.add(LSTM(50, return_sequences=True))
model.add(LSTM(50, return_sequences=False))
model.add(Dense(25))
model.add(Dense(window_size))
```

Modelo de minutos



Modelo de días

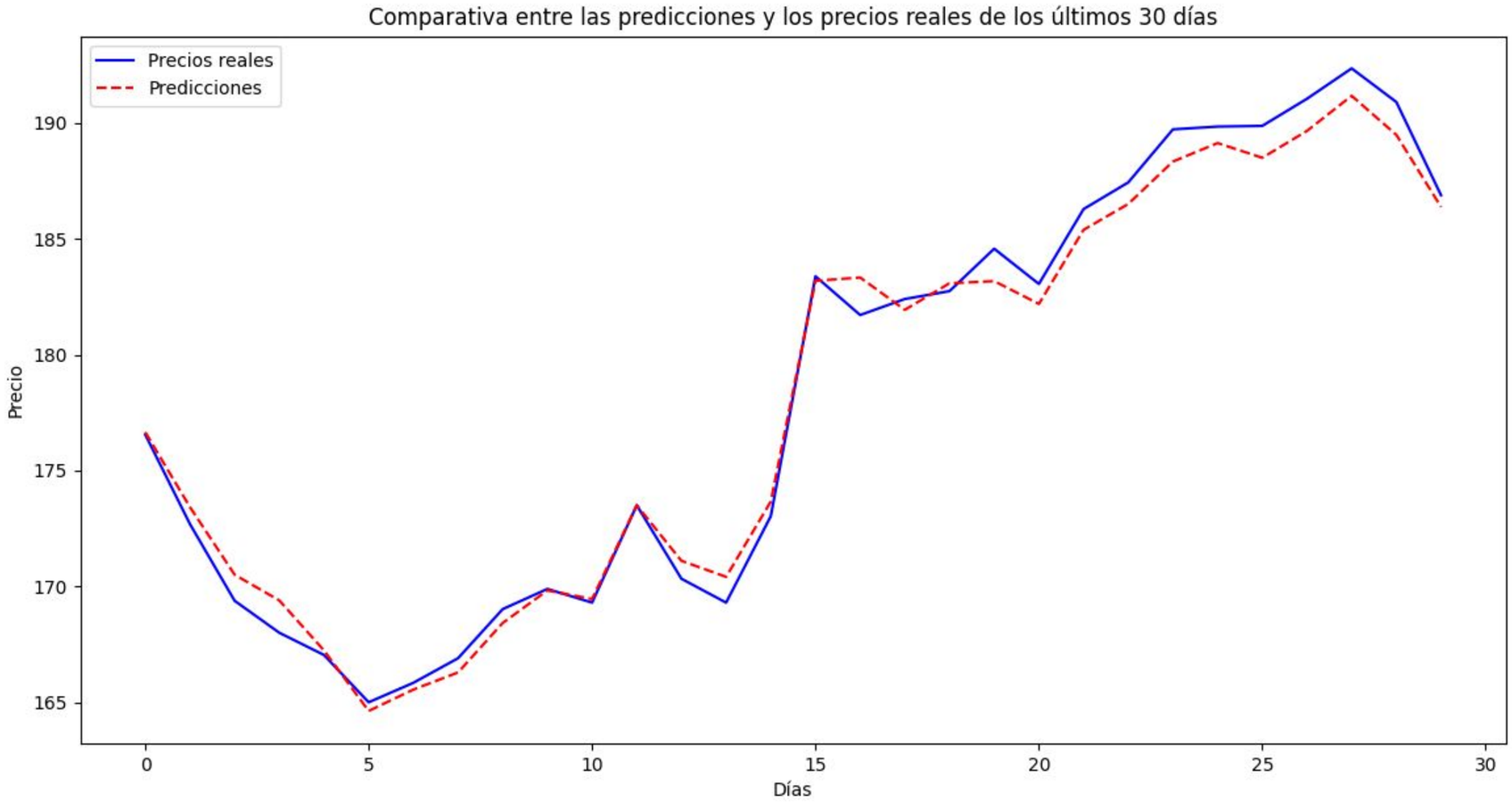
```
ticker = 'AAPL'
stock_data = yf.download(ticker, start="2010-01-01")
stock_data = stock_data[['Open', 'Close', 'High', 'Low', 'Volume']]
```

Modelo de días

```
model = Sequential()
model.add(Dense(64, input_dim=features.shape[1], activation='relu'))
model.add(Dense(32, activation='relu'))
model.add(Dense(1))

model.compile(optimizer=Adam(learning_rate=0.001), loss='mean_squared_error')
model.fit(features, target, epochs=50, batch_size=32, verbose=1)
```

Modelo de días

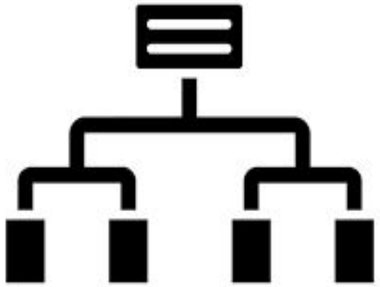


Modelo de días

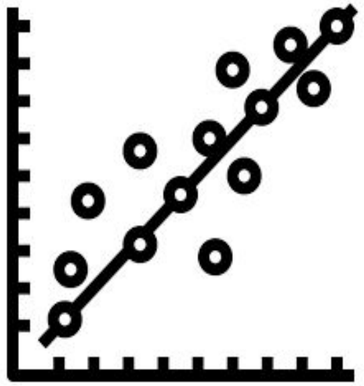
Open	Close	Volume	Date
187.50999450683504	187.42999267578125	52393600.0	NaT
187.91000366210938	189.72000122070312	70400000.0	NaT
190.47000122070312	189.83999633789062	52845200.0	NaT
189.50999450683594	189.8699951171875	41282900.0	NaT
189.3300018310547	191.0399932861328	44361300.0	NaT
191.08999633789062	192.35000610351562	42309400.0	NaT
192.27000427246004	190.89999389648438	34648500.0	NaT
190.97999572753906	186.8800048828125	51005900.0	NaT
188.82000732421875	189.97999572753906	36294600.0	NaT
nan	**192.5377655029297**	nan	2024-05-28 00:00:00

Otros modelos

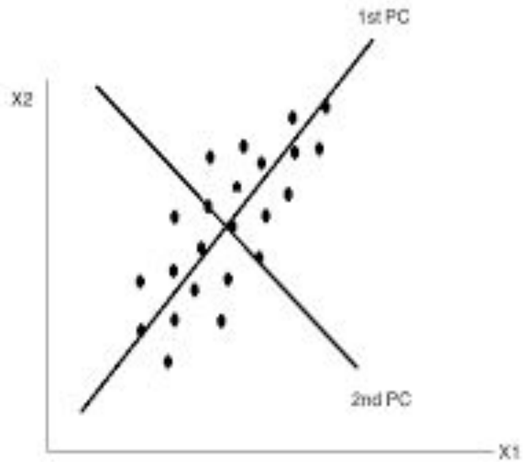
Decison tree



Linear regression

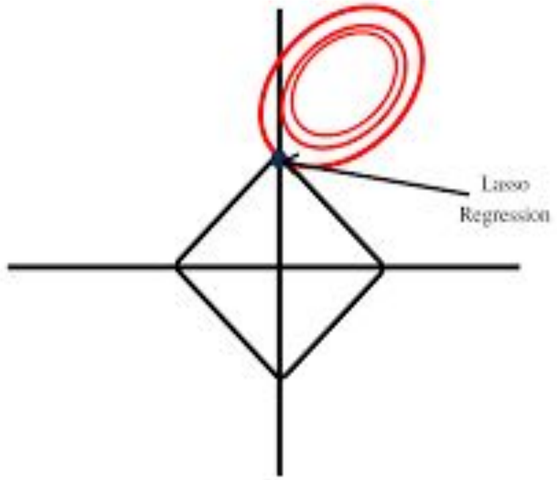


Ridge regression

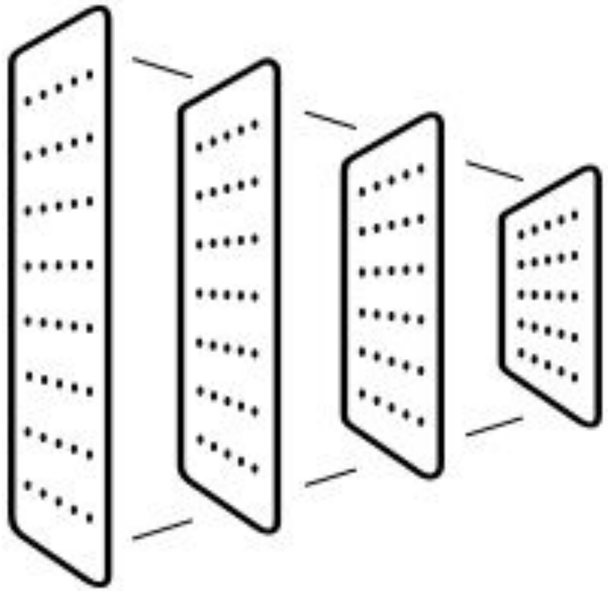


Otros modelos

Lasso regression



CNN



Servidor

Base de datos para Big Data

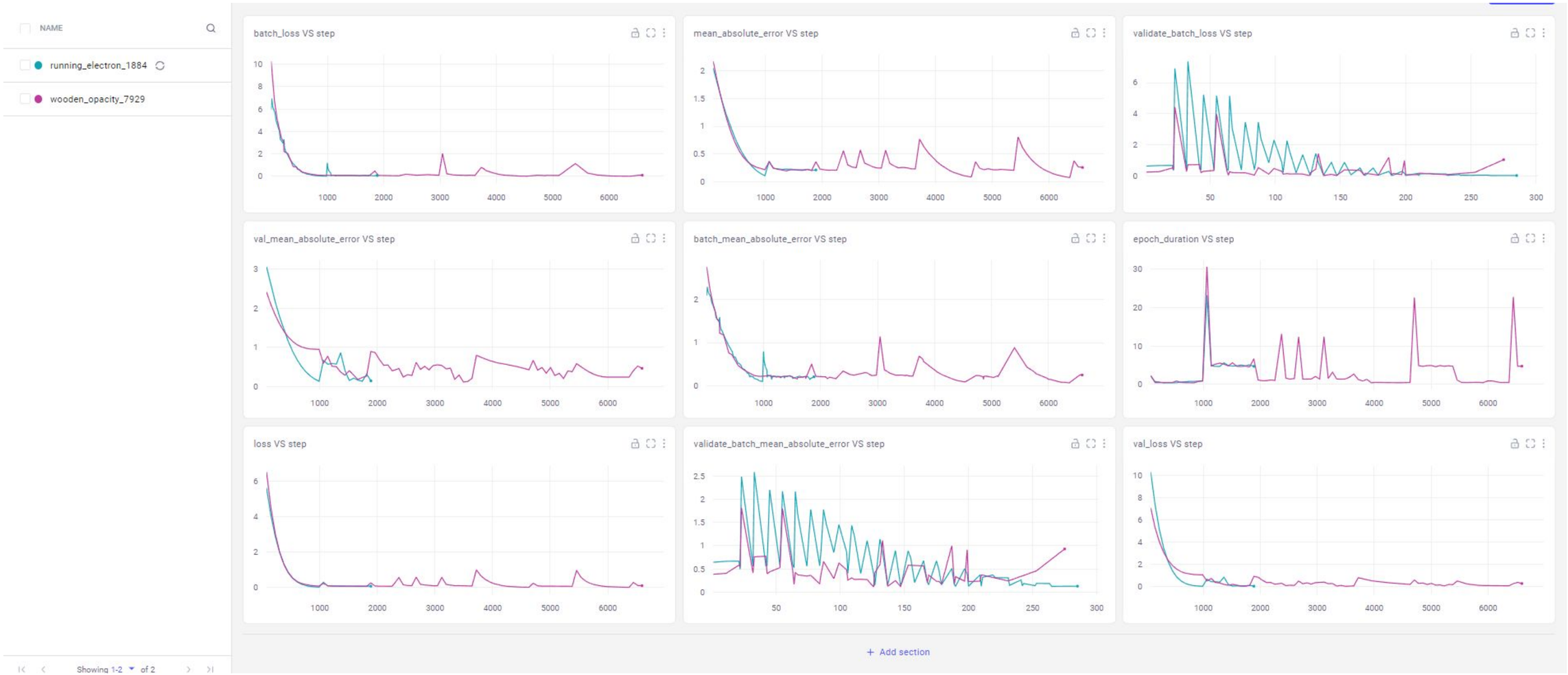
Representación, monitorización y visualización de datos

Filtrado e Inyección de datos

Automatización

.h5

Comet


NAME
running_electron_1884
wooden_opacity_7929
batch_loss VS step
mean_absolute_error VS step
validate_batch_loss VS step
val_mean_absolute_error VS step
batch_mean_absolute_error VS step
epoch_duration VS step
loss VS step
validate_batch_mean_absolute_error VS step
val_loss VS step
Showing 1-2 of 2
+ Add section

Comet

batch_size	50
f	/root/.local/share/jupyt
learning_rate	0.5
steps	100000

- Hyperparameters
- Metrics
- Graph definition
- Output
- System metrics
- Installed packages
- Notes
- Graphics
- Audio
- Text
- Confusion matrix
- Histograms
- Other

confusion-matrix.json

Predicted Category

Actual Category	0	1	2	3	4	5
0	5	0	1	0	0	0
1	0	5	0	0	0	0
2	1	0	4	0	0	0
3	0	0	0	0	0	0
4	2	0	0	1	0	0
5	0	1	0	0	0	0

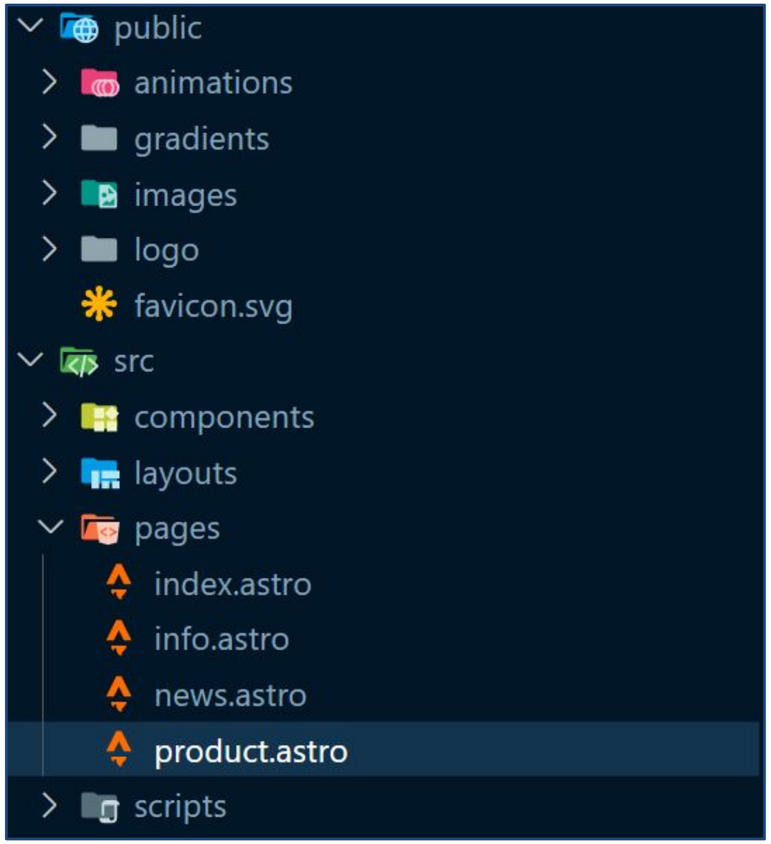
Network Usage

Disk Utilization

F1-score	<function f1_score at 0x7809e7700790>	5/9/24 09:18 PM	<function f1_score at 0x7809e7700790>	5/9/24 09:18 PM	<function f1_score at 0x7809e7700790>
Precision	0.5958333333333334	5/9/24 09:18 PM	0.5958333333333334	5/9/24 09:18 PM	0.5958333333333334
Recall	0.7	5/9/24 09:18 PM	0.7	5/9/24 09:18 PM	0.7

Web

Tailwind CSS



Web

```
const client = new Client({
    node: 'http://200.234.239.99:9200',
    auth: {
        username,
        password
    }
});

async function searchWithTemplate(id: string, index: string) {
    try {
        const response = await client.searchTemplate({
            index,
            body: {
                id,
                params: {}
            }
        });
        return response;
    } catch (error) {
        console.error('Error searching with template:', error);
    }
}
```

Web

```
## Definición del índice 'prediction_mins' con sus propiedades
PUT /prediction_mins
{
  "mappings": {
    "properties": {
      "ides": {
        "type": "integer"
      },
      "fecha_predicha": {
        "type": "keyword"
      },
      "prediccion_close": {
        "type": "float"
      }
    }
  }
}


## Ejemplo de inyección:
POST /prediction_mins/_doc
{
  "ides": 1,
  "fecha_predicha": "2024-05-21",
  "prediccion_close": 8.5
}
```

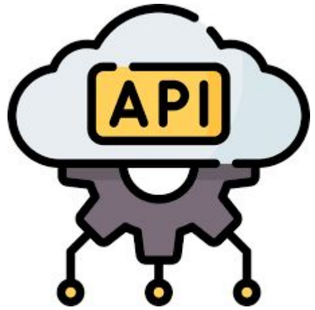
```
## Ver el contenido del índice news_scored
GET /prediction_mins/_search
{
  "query": {
    "match_all": {}
  }
}

## Ver el contenido del índice con un script:
PUT _scripts/get_all_mins
{
  "script": {
    "lang": "mustache",
    "source": {
      "query": {
        "match_all": {}
      },
      "size": 1000
    }
  }
}
```

Planes a futuro

30 → 959

aws



+

Planes a futuro

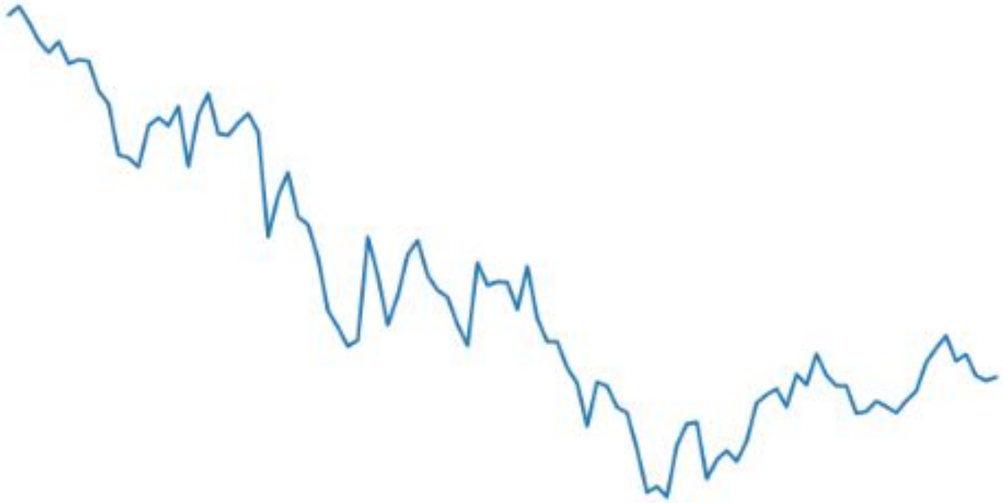
Detección de tendencias con CNN

Planes a futuro

```python
model = Sequential([
    Conv2D(32, (3, 3), activation='relu', input_shape=input_shape),
    MaxPooling2D(2, 2),
    Conv2D(64, (3, 3), activation='relu'),
    MaxPooling2D(2, 2),
    Conv2D(128, (3, 3), activation='relu'),
    MaxPooling2D(2, 2),
    Conv2D(128, (3, 3), activation='relu'),
    MaxPooling2D(2, 2),
    Flatten(),
    Dense(512, activation='relu'),
    Dense(1, activation='sigmoid')
])
```

Alcista

Bajista



Contacto

Ya disponible nuestra web en:

https://lavbot.vercel.app/

¡GRACIAS POR VER LA PRESENTACIÓN!

Puedes encontrarnos en **LinkedIn**

Adrián Martínez

Edvard Khachatryan

Gabriel Mailat

Juan Luján

Vicente Real