In [1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import matplotlib.cbook as cbook
import matplotlib.image as image
from skimage.transform import resize
```

In [2]:
```
#dataset = pd.read_csv('./data/max.csv')
dataset = pd.read_csv('./data/checo.csv')

X = dataset.iloc[:,0:1].values
y = dataset.iloc[:,1].values
```

In [17]:
```
"""from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size =
```

Out[17]:
```
'from sklearn.model_selection import train_test_split\nX_train, X_tes
t, y_train, y_test = train_test_split(X, y, test_size = 0.2, random_s
tate = 0)'
```

In [4]:
```
#Ajustar la regresión lineal con el data set
from sklearn.linear_model import LinearRegression
lin_reg = LinearRegression()
lin_reg.fit(X, y)
```

Out[4]:
```
LinearRegression()
```

In [5]:
```
from sklearn.preprocessing import PolynomialFeatures
```

In [6]:
```
poly_reg = PolynomialFeatures(degree = 4)
X_poly = poly_reg.fit_transform(X)
```

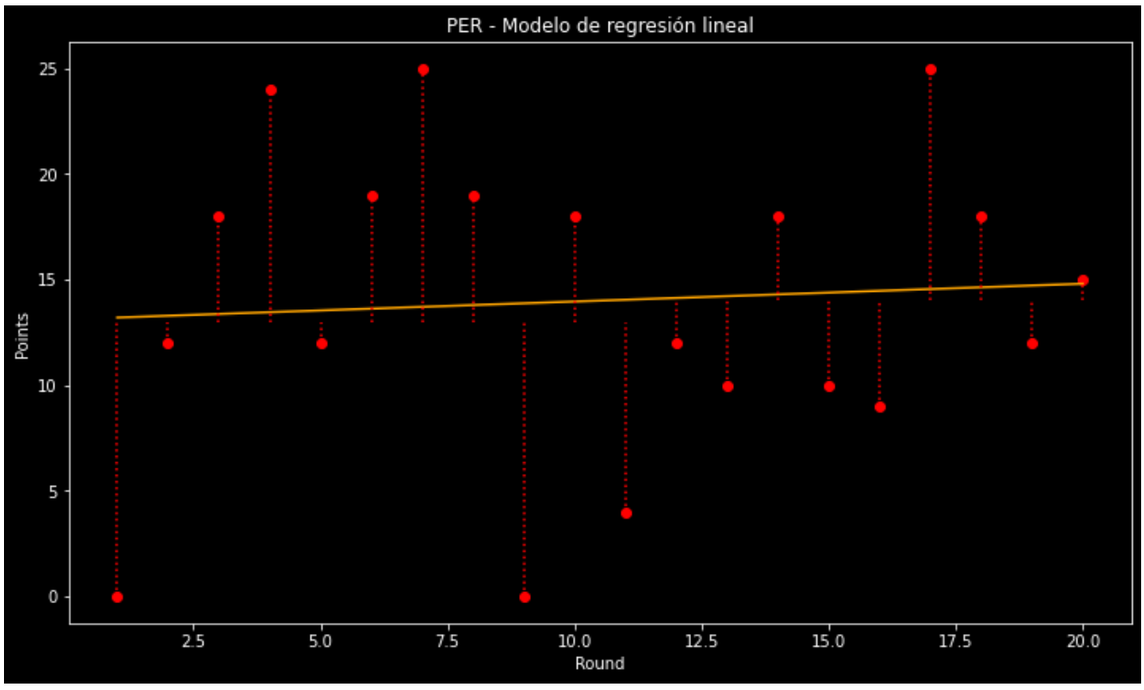
In [7]:
```
lin_reg_2 = LinearRegression()
lin_reg_2.fit(X_poly, y)
```

Out[7]:
```
LinearRegression()
```

In [8]:
```
n = len(X)
n
```

Out[8]:
```
20
```

In [18]:
```
# Visualización
# lineas de error

# grafica
plt.rcParams['figure.figsize'] = [13, 13]

plt.style.use('dark_background')

fig, ax = plt.subplots(sharex=True, sharey=True, figsize=(12, 6.75))


plt.scatter(X, y, color = 'red' )
plt.plot(X, lin_reg.predict(X), color= "orange")

# lineas de error
for i in range(0,n,1):
    y0 = np.min([y[i],int(lin_reg.predict([[i]]))])
    y1 = np.max([y[i],int(lin_reg.predict([[i]]))])
    plt.vlines(X[i],y0,y1, color='red',
               linestyle = 'dotted')

plt.title("PER - Modelo de regresión lineal")
plt.xlabel('Round')
plt.ylabel('Points')


#nombrearchivo = 'per_rg_2022_rol20.png'
#plt.savefig(nombrearchivo)

plt.show()
```

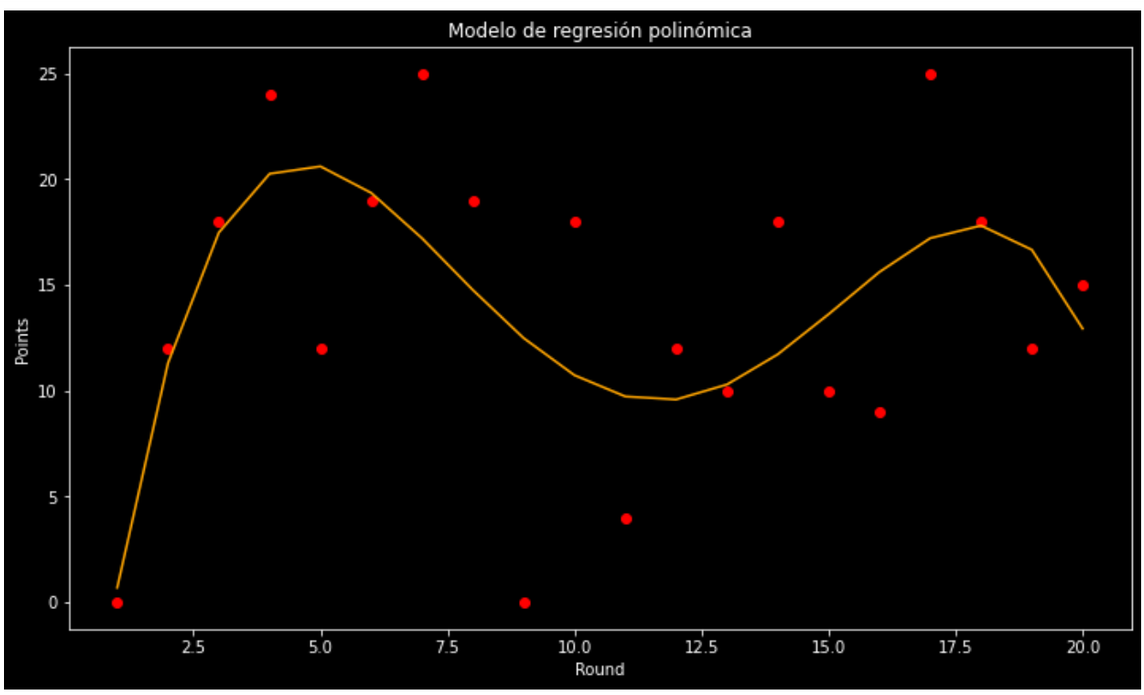


In [12]:
```
lin_reg.predict([[21]])
```

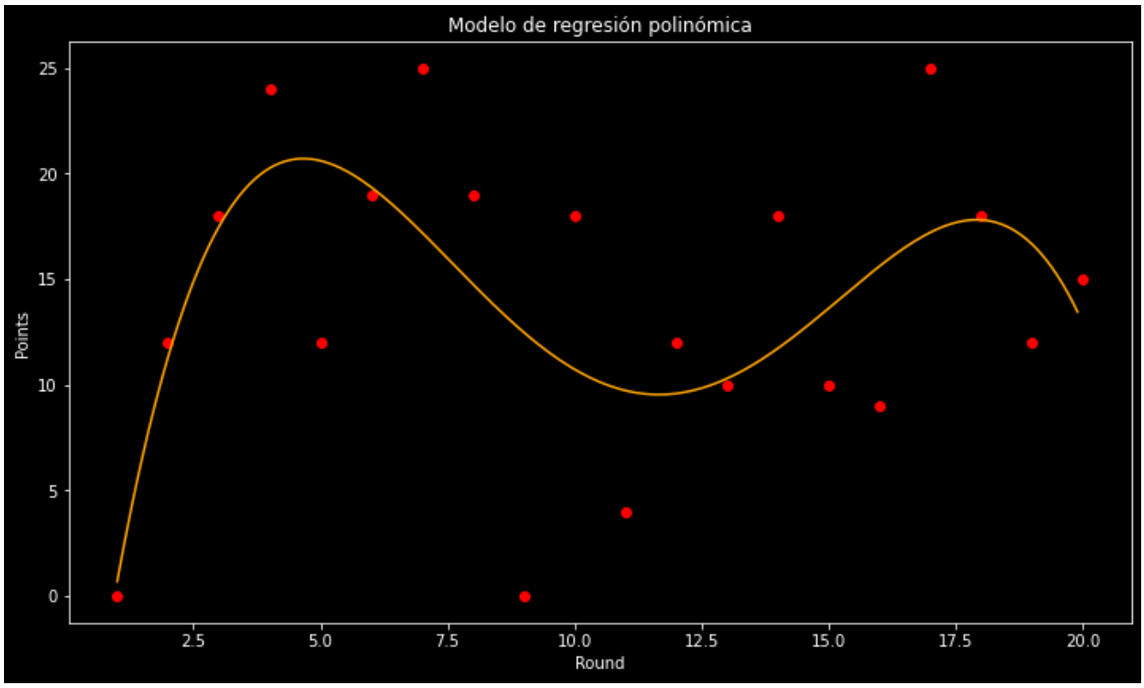
Out[12]:
```
array([14.88421053])
```

In [16]:

```
# Visualización
plt.rcParams['figure.figsize'] = [13, 13]

plt.style.use('dark_background')

fig, ax = plt.subplots(sharex=True, sharey=True, figsize=(12, 6.75))



tm = 'RedBullRacing'
plt.scatter(X, y, color = 'red' )
plt.plot(X, lin_reg_2.predict(X_poly), color= "orange")
plt.title("Modelo de regresión polinómica")
plt.xlabel('Round')
plt.ylabel('Points')

plt.show()
```



In [15]:
```
# Visualización
# grafica
plt.rcParams['figure.figsize'] = [13, 13]

plt.style.use('dark_background')

fig, ax = plt.subplots(sharex=True, sharey=True, figsize=(12, 6.75))



X_grid = np.arange(min(X), max(X), 0.1)
X_grid = X_grid.reshape(len(X_grid), 1)
plt.scatter(X, y, color = 'red' )
plt.plot(X_grid, lin_reg_2.predict(poly_reg.fit_transform(X_grid)), co



plt.title("Modelo de regresión polinómica")
plt.xlabel('Round')
plt.ylabel('Points')


plt.show()
```



In [24]:
```
lin_reg.predict([[20]])
```

Out[24]:
```
array([14.8])
```

In [25]:
```
lin_reg_2.predict(poly_reg.fit_transform([[20]]))
```

Out[25]:
```
array([12.93478261])
```

Type *Markdown* and LaTeX: α^2

In [ ]:
```

```