# EXAMEN ¶

## Importar librerias

In [17]:
```
import pandas as pd
import os
import matplotlib.pyplot as plt
from facebook_scraper import get_posts
import tweepy as tw
from tweepy import OAuthHandler
import numpy as np
import seaborn as sb
%matplotlib inline
from mpl_toolkits.mplot3d import Axes3D
from matplotlib import cm
plt.rcParams['figure.figsize'] = (16, 9)
plt.style.use('ggplot')
from sklearn import linear_model
from sklearn.metrics import mean_squared_error, r2_score
```

## Obtener informacion de las proximas elecciones

In [8]:
```
def contador(post):
    cont=0
    for char in post:
            cont+=1
    return cont
publi = []
for post in get_posts('AlvaroNoboaPonton', pages=2):
        post['Word count'] = len(post['text'])
        publi.append(post)
facebook_posts = pd.DataFrame(publi)
facebook_posts.describe()
```

Out[8]:

| | Word count | comments | likes | shares |
|---|---|---|---|---|
| **count** | 6.000000 | 6.000000 | 6.000000 | 6.0 |
| **mean** | 153.833333 | 3824.666667 | 20201.333333 | 0.0 |
| **std** | 186.400018 | 5742.400671 | 25983.161537 | 0.0 |
| **min** | 21.000000 | 153.000000 | 3647.000000 | 0.0 |
| **25%** | 42.000000 | 575.000000 | 6916.000000 | 0.0 |
| **50%** | 78.000000 | 998.000000 | 9722.500000 | 0.0 |
| **75%** | 174.000000 | 4370.750000 | 17485.000000 | 0.0 |
| **max** | 510.000000 | 14870.000000 | 72063.000000 | 0.0 |

In [18]:
```
posts = []
for post in get_posts('yakuperezoficial', pages=10):
    post['numWord']=contador(post['text'])
    posts.append(post)
for post in get_posts('PaulErnestoCarrascoC', pages=10):
    post['numWord']=contador(post['text'])
    posts.append(post)
fb_posts = pd.DataFrame(posts)
file = open("shares.txt","w")
for like in fb_posts['shares']:
    file.write(str(like)+'\n')
file.close()
fb_posts.describe()
```

Out[18]:

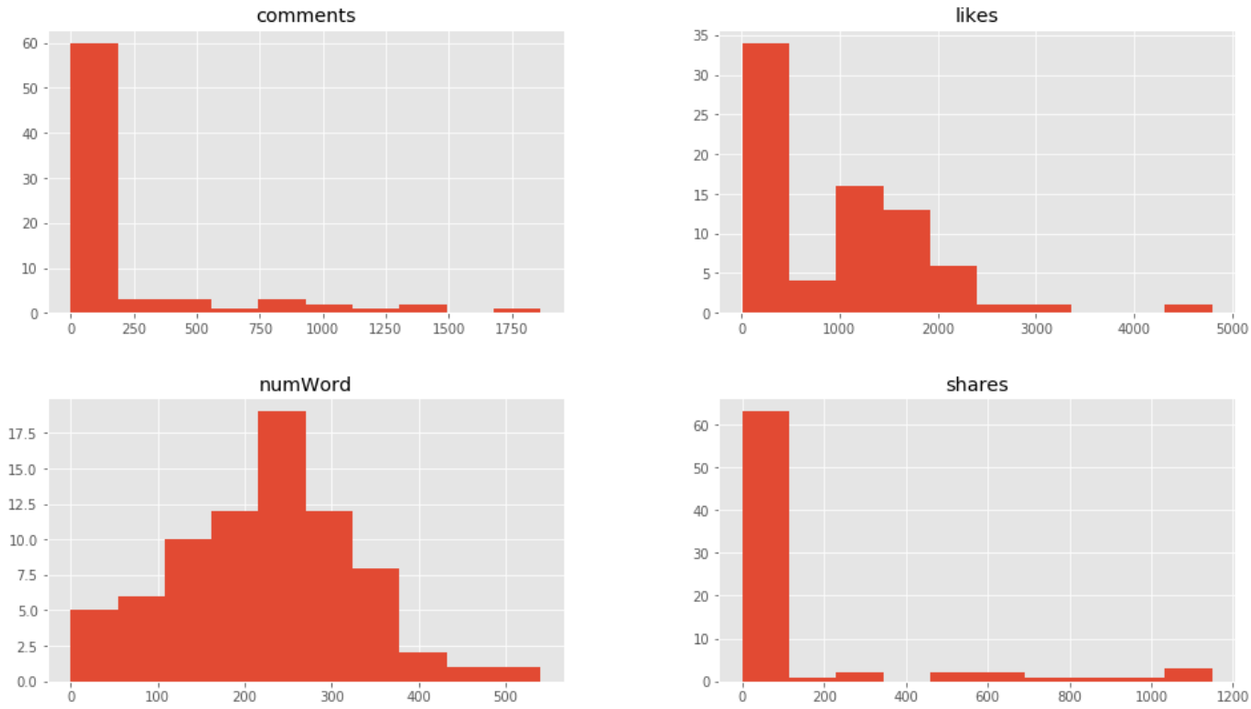
| | comments | likes | numWord | shares |
|---|---|---|---|---|
| **count** | 76.000000 | 76.000000 | 76.000000 | 76.000000 |
| **mean** | 202.421053 | 921.710526 | 221.697368 | 120.921053 |
| **std** | 382.955846 | 942.582634 | 107.814906 | 295.842335 |
| **min** | 0.000000 | 9.000000 | 0.000000 | 0.000000 |
| **25%** | 2.000000 | 19.750000 | 149.250000 | 0.000000 |
| **50%** | 56.000000 | 985.500000 | 228.000000 | 0.000000 |
| **75%** | 121.500000 | 1568.250000 | 283.500000 | 0.000000 |
| **max** | 1863.000000 | 4797.000000 | 540.000000 | 1149.000000 |

In [19]:
```
fb_posts.head()
```

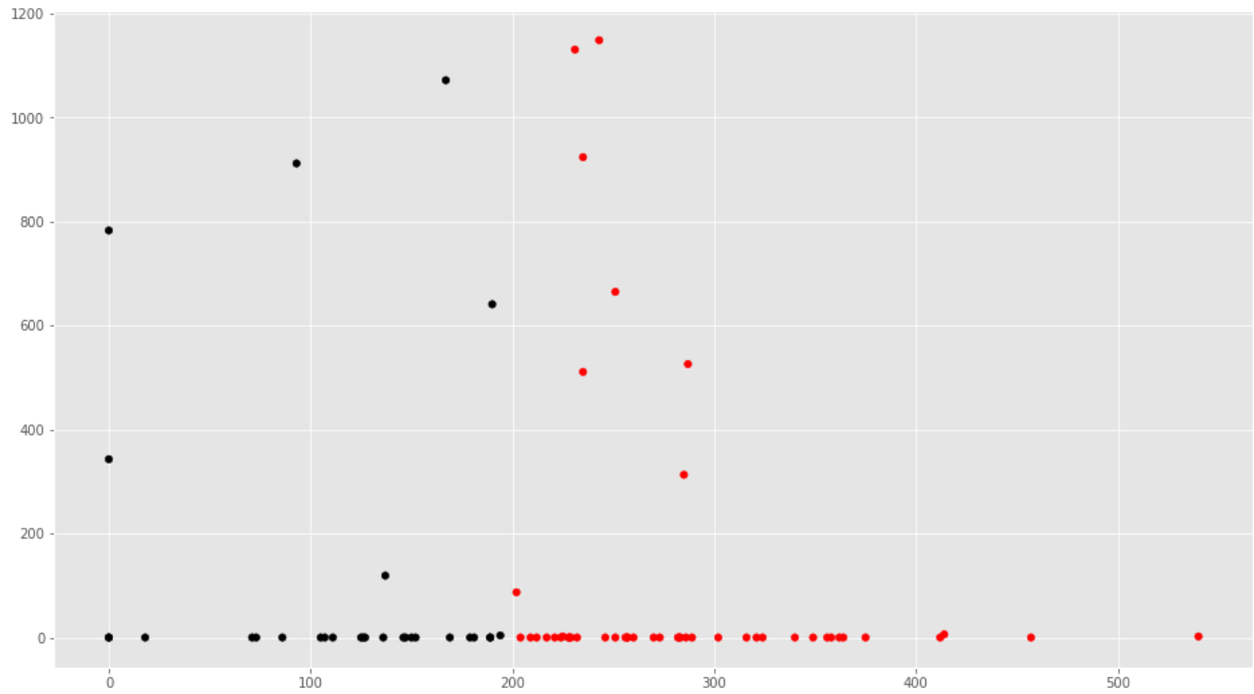
Out[19]:

| | comments | image | images | likes | link | numWord | |
|---|---|---|---|---|---|---|---|
| **0** | 200 | None | [] | 2268 | None | 181 | 332364561 |
| **1** | 56 | https://scontent.fcue3-1.fna.fbcdn.net/v/t1.0-... | [https://scontent.fcue3-1.fna.fbcdn.net/v/t1.0... | 911 | None | 362 | 332534701 |
| **2** | 1408 | None | [] | 1620 | http://www.yakuperez.com/ | 243 | 38564801 |
| **3** | 1327 | None | [] | 1969 | http://www.yakuperez.com/ | 235 | 352746717 |
| **4** | 1863 | None | [] | 1651 | http://www.yakuperez.com/ | 231 | 41601338 |

In [36]:
```
fb_posts.drop(['post_id','post_url', 'time'],1).hist()
plt.show()
```

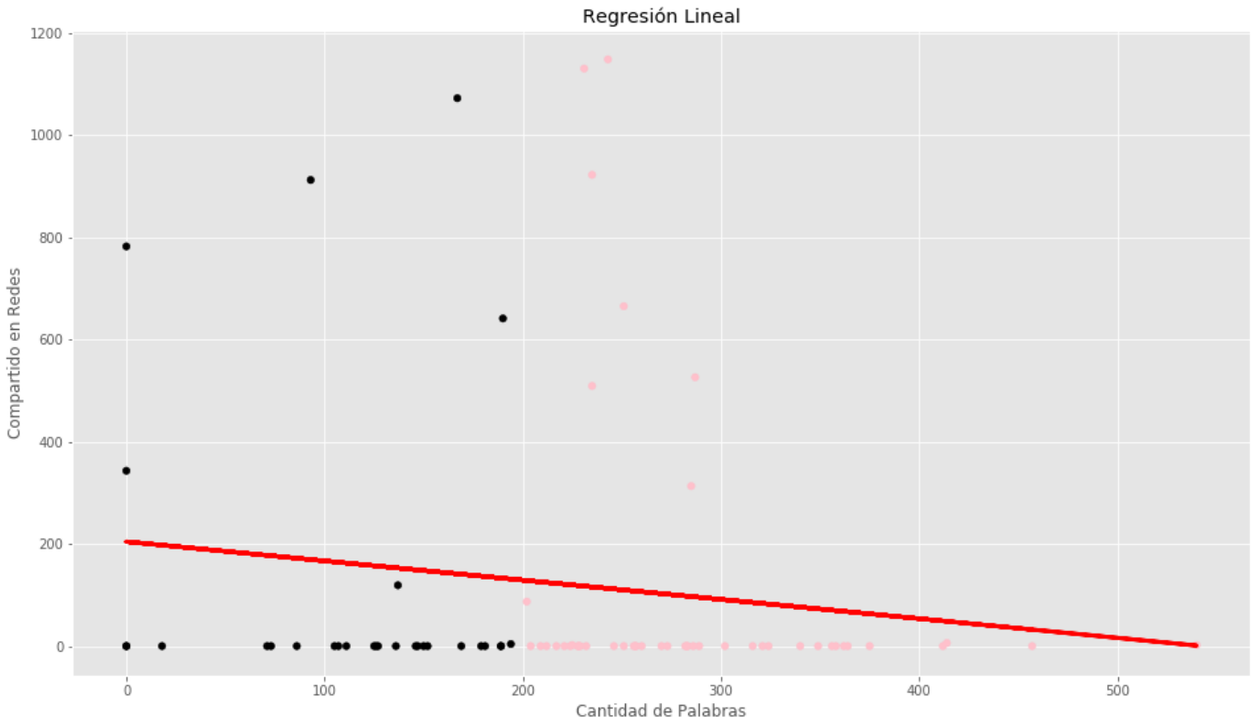


In [37]:
```
#Visualizamos la cantidad de palabras contra likes
colores=['red','black']
tamanios=[30,60]

filtered_data = fb_posts[(fb_posts['numWord'] <= 4000) & (fb_posts['shares'] <= 90000)]

f1 = filtered_data['numWord'].values
f2 = filtered_data['shares'].values

asignar=[]
for index, row in filtered_data.iterrows():
    if(row['numWord']>200):
        asignar.append(colores[0])
    else:
        asignar.append(colores[1])

plt.scatter(f1, f2, c=asignar, s=tamanios[0])
plt.show()
```




# Regresion Lineal

In [16]:
```
dataX =filtered_data[["numWord"]]
X_train = np.array(dataX)
y_train = filtered_data['shares'].values

regr = linear_model.LinearRegression()
regr.fit(X_train, y_train)
y_pred = regr.predict(X_train)

plt.scatter(X_train[:,0], y_train,  c=asignar, s=tamanios[0])
plt.plot(X_train[:,0], y_pred, color='red', linewidth=3)

plt.xlabel('Cantidad de Palabras')
plt.ylabel('Compartido en Redes')
plt.title('Regresión Lineal')

plt.show()
```




In [17]:
```
y_Dosmil = regr.predict([[2000]])
print(int(y_Dosmil))
```

```
-548
```

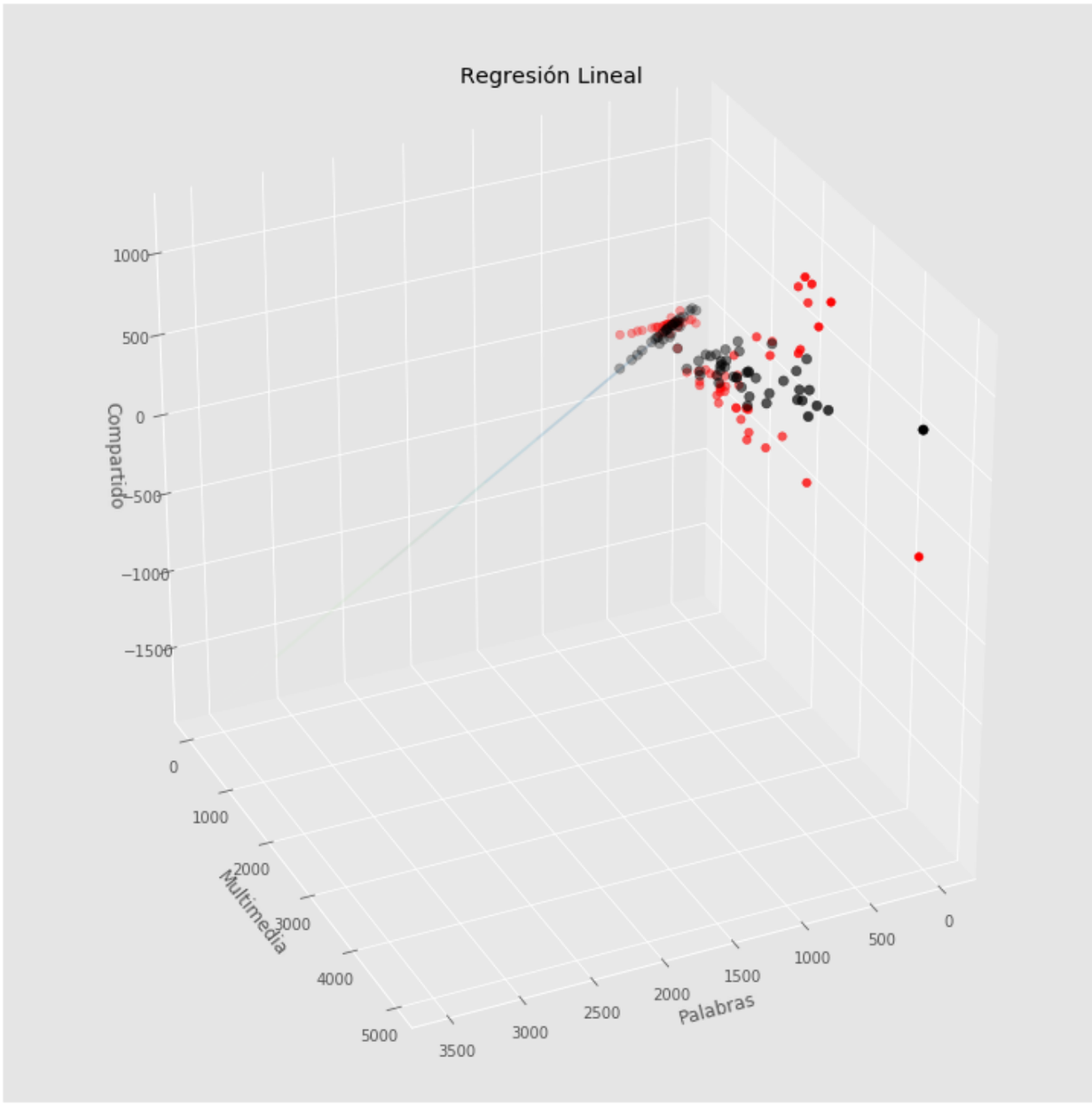
# Regresion multiples variables

In [31]:
```
suma = (filtered_data["likes"] + filtered_data['comments'].fillna(0))

dataX2 =pd.DataFrame()
dataX2["numWord"] = filtered_data["numWord"]
dataX2["suma"] = suma
XY_train = np.array(dataX2)
z_train = filtered_data['shares'].values
```

In [32]:
```
regr2 = linear_model.LinearRegression()
regr2.fit(XY_train, z_train)
z_pred = regr2.predict(XY_train)
print('Coeficientes', regr2.coef_)
print("Error medio" % mean_squared_error(z_train, z_pred))
print('Valor' % r2_score(z_train, z_pred))
```

```
Coeficientes [-0.52716561  0.15146218]
Error medio
Valor
```

In [29]:
```
fig = plt.figure(figsize=(10,10))
ax = Axes3D(fig)
xx, yy = np.meshgrid(np.linspace(0, 3500, num=10), np.linspace(0, 60, num=10))
nuevoX = (regr2.coef_[0] * xx)
nuevoY = (regr2.coef_[1] * yy)
z = (nuevoX + nuevoY + regr2.intercept_)
ax.plot_surface(xx, yy, z, alpha=0.2, cmap='GnBu',)
ax.scatter(XY_train[:, 0], XY_train[:, 1], z_train, c='red',s=30)
ax.scatter(XY_train[:, 0], XY_train[:, 1], z_pred, c='black',s=40)
ax.view_init(elev=30., azim=65)
ax.set_title('Regresión Lineal')
ax.set_xlabel('Palabras')
ax.set_ylabel('Multimedia')
ax.set_zlabel('Compartido')

plt.show()
```




In [21]:
```
z_Dosmil = regr2.predict([[2000, 10+4+6]])
print(int(z_Dosmil))
```

```
-983
```

## Conclusion

Mediante la obtencion de datos de redes sociales se puede obtener la tendencia de las elecciones precidenciales