Módulo 2 Implementación de una técnica de aprendizaje máquina sin el uso de un framework.

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In [91]:
```
import matplotlib.pyplot as plt
import pandas as pd
import numpy as np
colnames=['Celsius', 'Valks']
df = pd.read_csv('Valhalla23.csv', names=colnames, skiprows=1)
```

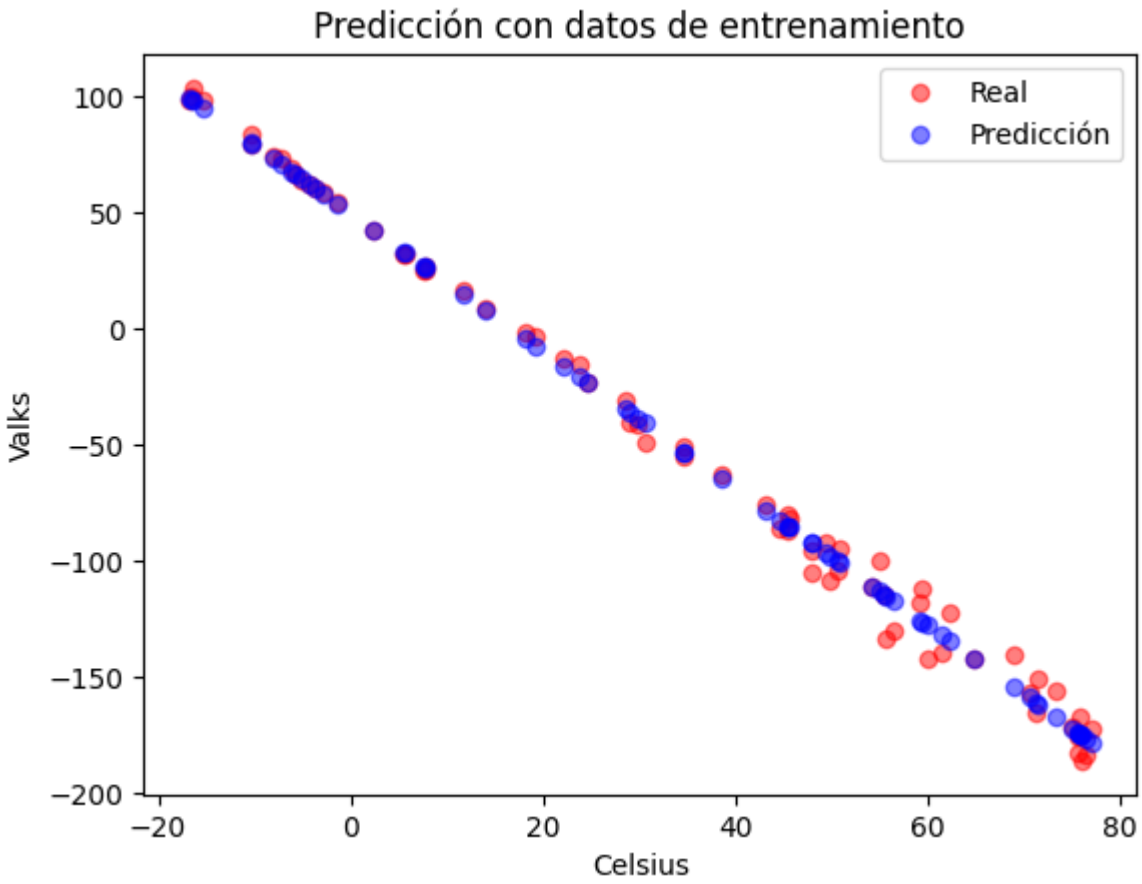
In [92]:
```
#Separar datos de prueba y entrenamiento

test_size = round(0.7*len(df))

df_train = df[0:test_size]
df_test = df[test_size:len(df)]

print(len(df))
print(len(df_train))
print(len(df_test))
```

```
100
70
30
```

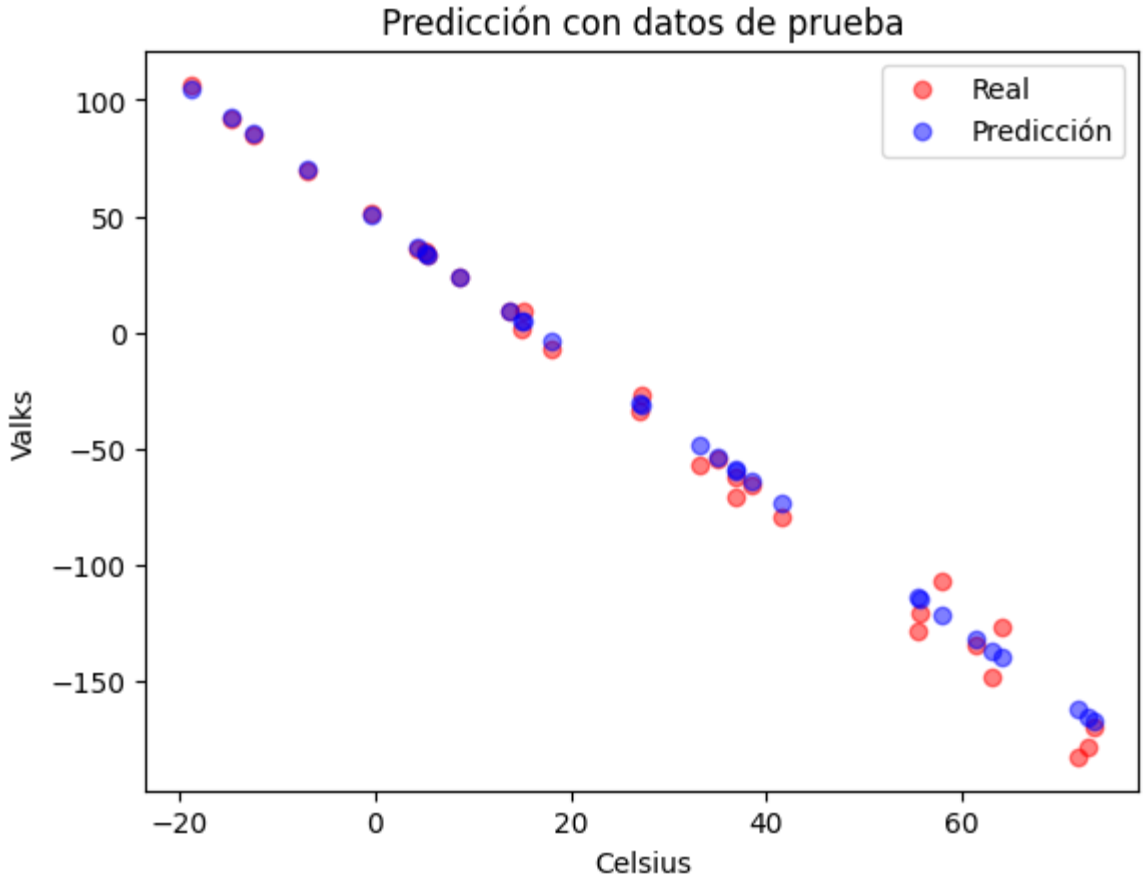
In [93]:
```
# Crear lista con los hiper-parámetros iniciales (thetas)
theta0 = 1
theta1 = 1
# Cargar el valor del learning rate (alpha)
alpha = 1e-4
# Crear función lambda para la función de hipótesis
hyp = lambda m,b,x: m*x + b

# Calcular el total de muestras a partir de los datos (n)
n = len(df_train)

for y in range(100000):
    # Calcular delta
    delta = hyp(theta1, theta0, df_train['Celsius']) - df_train['Valks']

    # Calcular sumatorias
    sum0 = np.sum(delta)
    sum1 = np.sum(delta * df_train['Celsius'])

    promedio0 = sum0 / n
    promedio1 = sum1 / n

    # Actualizar theta0 y theta1
    theta0 = theta0 - alpha * promedio0
    theta1 = theta1 - alpha * promedio1

print(theta0)
print(theta1)
```

```
49.33967282772319
-2.9508142866852873
```

In [94]:
```
plt.plot(df_train['Celsius'],df_train['Valks'] ,'ro', label="Real", alpha=0.5)
plt.plot(df_train['Celsius'],df_train['Celsius']*theta1+theta0, 'bo', label="Predic
plt.title("Predicción con datos de entrenamiento")
plt.xlabel('Celsius')
plt.ylabel('Valks')
plt.legend()
plt.show()
```



In [95]:
```
plt.plot(df_test['Celsius'],df_test['Valks'], 'ro', label="Real" , alpha=0.5)
plt.plot(df_test['Celsius'],df_test['Celsius']*theta1+theta0, 'bo', label="Predicci
plt.title("Predicción con datos de prueba")
plt.xlabel('Celsius')
plt.ylabel('Valks')
plt.legend()
plt.show()
```



In [96]:
```
#Función de costos entrenamiento y prueba

costoTrain = np.sum(((df_train['Celsius']*theta1+theta0) - (df_train['Valks'])) **
costoTest = np.sum(((df_test['Celsius']*theta1+theta0) - (df_test['Valks'])) ** 2)/


print("Costo Train")
print(costoTrain)
print("Costo Test")
print(costoTest)
```

```
Costo Train
41.03348676508766
Costo Test
55.07102328049679
```

In [105…
```
!jupyter nbconvert --to html "/content/drive/MyDrive/ColabNotebooks/Vallhala.ipynb"
```

```
[NbConvertApp] Converting notebook /content/drive/MyDrive/ColabNotebooks/Vallhala.i
pynb to html
[NbConvertApp] Writing 673383 bytes to /content/drive/MyDrive/ColabNotebooks/Vallha
la.html
```