In [56]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.linear_model import LinearRegression
from sklearn.model_selection import train_test_split
from sklearn.metrics import mean_squared_error, mean_absolute_error, m
```

In [79]:
```
df = pd.read_csv('NFLX.csv')
```

In [23]:
```
df.head()
```

Out[23]:

	Date	Open	High	Low	Close	Adj Close	Volume
0	2018-02-05	262.000000	267.899994	250.029999	254.259995	254.259995	11896100
1	2018-02-06	247.699997	266.700012	245.000000	265.720001	265.720001	12595800
2	2018-02-07	266.579987	272.450012	264.329987	264.559998	264.559998	8981500
3	2018-02-08	267.079987	267.619995	250.000000	250.100006	250.100006	9306700
4	2018-02-09	253.850006	255.800003	236.110001	249.470001	249.470001	16906900

In [11]:
```
df.shape
```

Out[11]:
```
(1009, 7)
```

In [14]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1009 entries, 0 to 1008
Data columns (total 7 columns):
 #   Column     Non-Null Count  Dtype  
---  ------     --------------  -----  
 0   Date       1009 non-null   object 
 1   Open       1009 non-null   float64
 2   High       1009 non-null   float64
 3   Low        1009 non-null   float64
 4   Close      1009 non-null   float64
 5   Adj Close  1009 non-null   float64
 6   Volume     1009 non-null   int64  
dtypes: float64(5), int64(1), object(1)
memory usage: 55.3+ KB
```

DATA PREPARTION

In [25]:
```
df.isnull().sum()
```

Out[25]:
```
Date         0
Open         0
High         0
Low          0
Close        0
Adj Close    0
Volume       0
dtype: int64
```

In [21]:
```
df['Date']=pd.to_datetime(df['Date'])
```

In [31]:
```
viz = df.copy()
viz
```

Out[31]:

	Date	Open	High	Low	Close	Adj Close	Volume
0	2018-02-05	262.000000	267.899994	250.029999	254.259995	254.259995	11896100
1	2018-02-06	247.699997	266.700012	245.000000	265.720001	265.720001	12595800
2	2018-02-07	266.579987	272.450012	264.329987	264.559998	264.559998	8981500
3	2018-02-08	267.079987	267.619995	250.000000	250.100006	250.100006	9306700
4	2018-02-09	253.850006	255.800003	236.110001	249.470001	249.470001	16906900
...	...	...	...	...	...	...	...
1004	2022-01-31	401.970001	427.700012	398.200012	427.140015	427.140015	20047500
1005	2022-02-01	432.959991	458.480011	425.540009	457.130005	457.130005	22542300
1006	2022-02-02	448.250000	451.980011	426.480011	429.480011	429.480011	14346000
1007	2022-02-03	421.440002	429.260010	404.279999	405.600006	405.600006	9905200
1008	2022-02-04	407.309998	412.769989	396.640015	410.170013	410.170013	7782400

1009 rows × 7 columns

In [35]:
```
print(df.shape)
print(df.size)
```

```
(1009, 7)
7063
```

In [37]:
```
df.describe().T
```

Out[37]:

	count	mean	std	min	25%	50%	
Open	1009.0	4.190597e+02	1.085375e+02	2.339200e+02	3.314900e+02	3.777700e+02	5.0913
High	1009.0	4.253207e+02	1.092630e+02	2.506500e+02	3.363000e+02	3.830100e+02	5.1563
Low	1009.0	4.123740e+02	1.075559e+02	2.312300e+02	3.260000e+02	3.708800e+02	5.0253
Close	1009.0	4.190007e+02	1.082900e+02	2.338800e+02	3.316200e+02	3.786700e+02	5.0908
Adj Close	1009.0	4.190007e+02	1.082900e+02	2.338800e+02	3.316200e+02	3.786700e+02	5.0908
Volume	1009.0	7.570685e+06	5.465535e+06	1.144000e+06	4.091900e+06	5.934500e+06	9.3224

In [41]:
```
train , test = train_test_split(df,test_size=0.2)
```

In [42]:
```
test_pred  = test.copy()
```

In [43]:
```
train.head()
```

Out[43]:

	Date	Open	High	Low	Close	Adj Close	Volume
918	2021-09-28	589.000000	599.539978	580.159973	583.849976	583.849976	4431100
809	2021-04-23	509.010010	509.700012	500.700012	505.549988	505.549988	7307700
923	2021-10-05	606.940002	640.390015	606.890015	634.809998	634.809998	9534300
147	2018-09-05	360.000000	363.390015	335.829987	341.179993	341.179993	13092800
158	2018-09-20	370.260010	370.260010	363.170013	365.359985	365.359985	6768100

In [45]:
```
test.head()
```

Out[45]:

	Date	Open	High	Low	Close	Adj Close	Volume
955	2021-11-18	691.609985	691.739990	679.739990	682.020020	682.020020	2012900
802	2021-04-14	554.869995	554.869995	538.530029	540.020020	540.020020	3740300
659	2020-09-17	475.160004	478.399994	463.269989	470.200012	470.200012	5379300
588	2020-06-08	416.000000	420.799988	406.500000	419.489990	419.489990	5851500
630	2020-08-06	504.109985	510.820007	498.700012	509.079987	509.079987	3725900

In [46]:
```
x_train = train[['Open','High','Low','Volume']].values
x_test = test[['Open','High','Low','Volume']].values
```

In [48]:
```
y_train = train['Close']
y_test = test['Close']
```

LINEAR REGRESSION

In [51]:
```
model = LinearRegression()
model.fit(x_train,y_train)
```

Out[51]:
```
LinearRegression()
```
In a Jupyter environment, please rerun this cell to show the HTML representation or trust the notebook.
On GitHub, the HTML representation is unable to render, please try loading this page with nbviewer.org.

In [52]:
```
y_pred = model.predict(x_test)
```

In [53]:
```
result = model.predict([[262.000000, 267.899994, 250.029999, 11896100]
print(result)
```

```
[257.63878817]
```

EVALUATION OF THE MODEL

In [57]:
```
print("MSE",round(mean_squared_error(y_test,y_pred), 3))
print("RMSE",round(np.sqrt(mean_squared_error(y_test,y_pred)), 3))
print("MAE",round(mean_absolute_error(y_test,y_pred), 3))
print("MAPE",round(mean_absolute_percentage_error(y_test,y_pred), 3))
print("R2 Score : ", round(r2_score(y_test,y_pred), 3))
```

```
MSE 20.043
RMSE 4.477
MAE 3.001
MAPE 0.008
R2 Score :  0.998
```

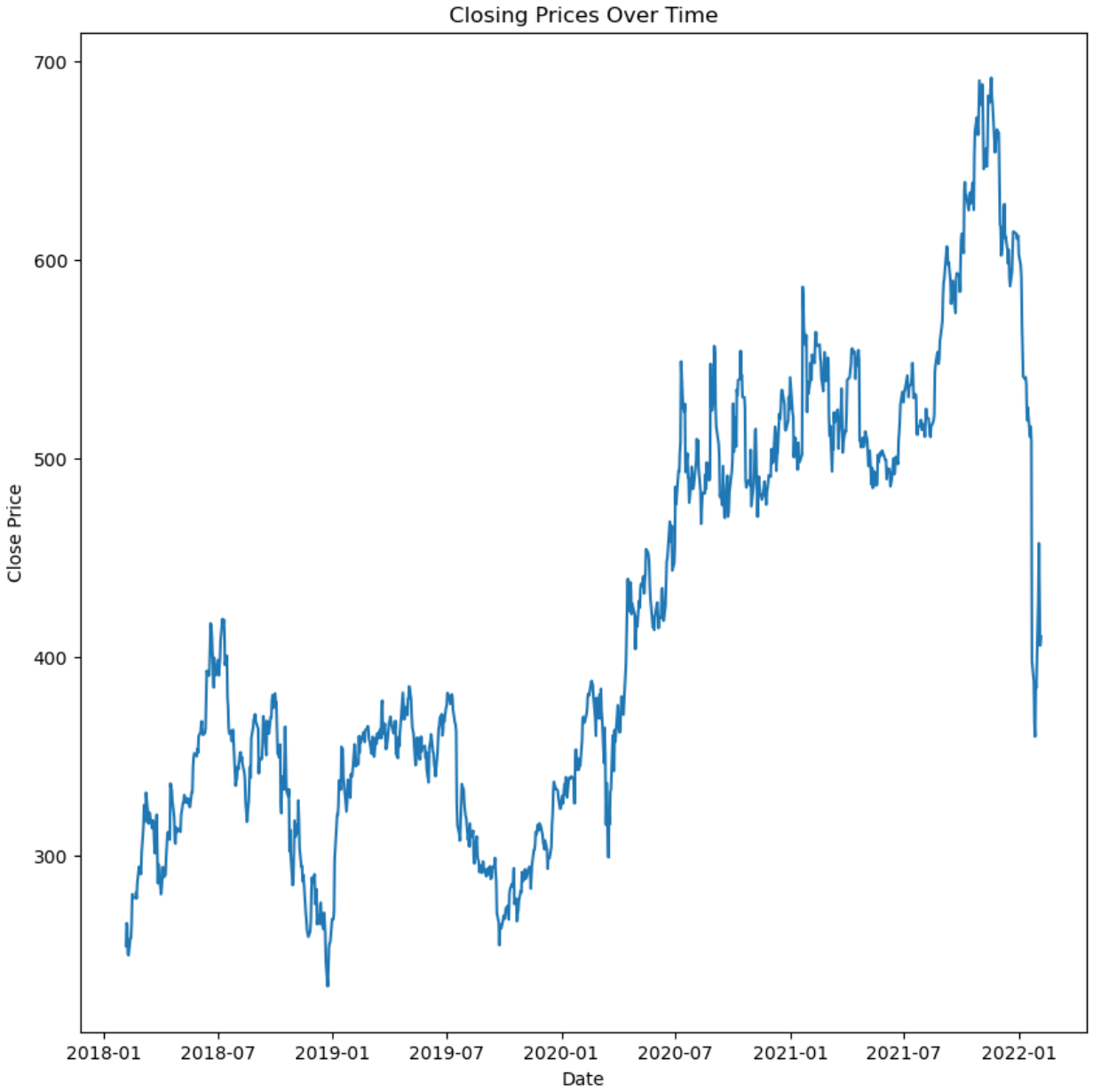
In [62]:
```
data = pd.DataFrame(viz[['Date','Close']])
data=data.reset_index()
data.drop('index',axis=1)
data.set_index('Date',inplace=True)
data = data.asfreq('D')
data
```

Out[62]:

Date	index	Close
2018-02-05	0.0	254.259995
2018-02-06	1.0	265.720001
2018-02-07	2.0	264.559998
2018-02-08	3.0	250.100006
2018-02-09	4.0	249.470001
...	...	...
2022-01-31	1004.0	427.140015
2022-02-01	1005.0	457.130005
2022-02-02	1006.0	429.480011
2022-02-03	1007.0	405.600006
2022-02-04	1008.0	410.170013

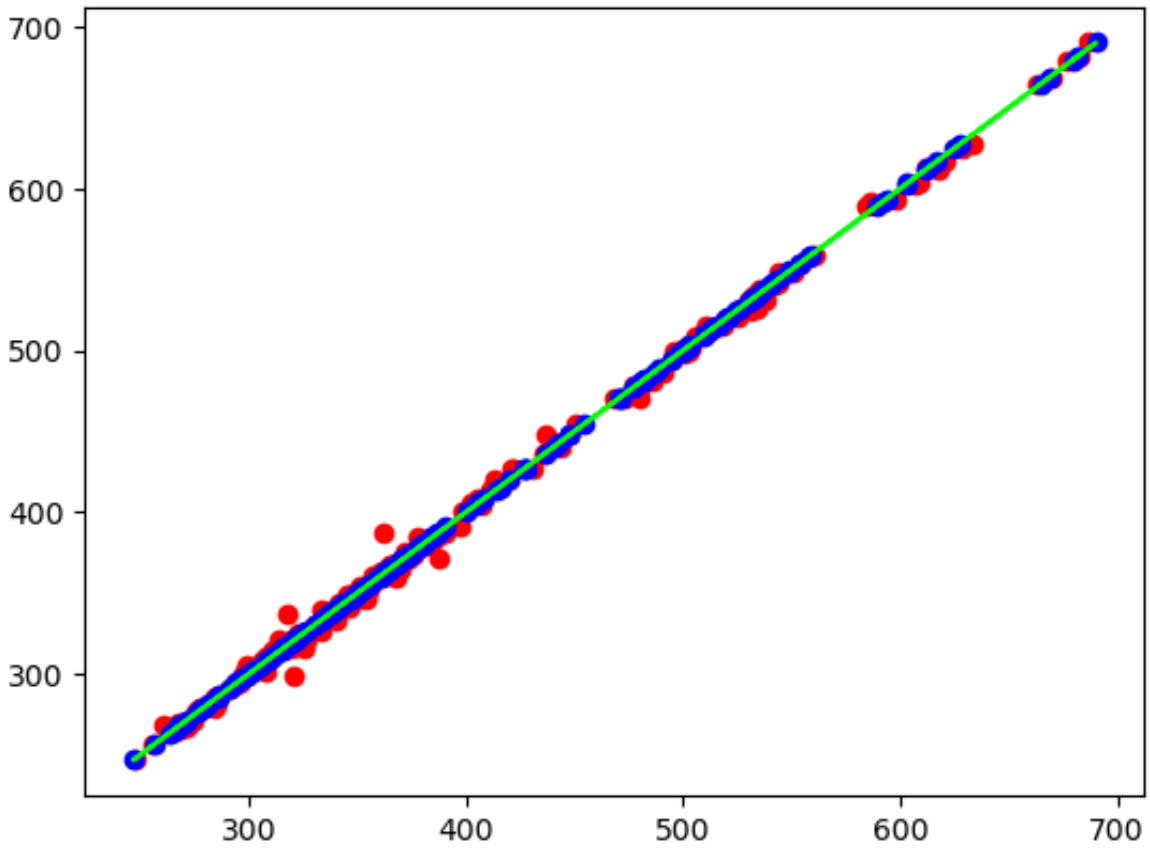
1461 rows × 2 columns

In [72]:
```
plt.figure(figsize=(10, 10))  # Adjust the width and height as needed
plt.plot(viz['Date'], viz['Close'])# Additional plot customization or
plt.title('Closing Prices Over Time')
plt.xlabel('Date')
plt.ylabel('Close Price')
plt.show()
```



In [73]:
```
plt.scatter(y_pred, y_test, color='red', marker='o')
plt.scatter(y_test, y_test, color='blue')
plt.plot(y_test, y_test, color='lime')
```

Out[73]: [<matplotlib.lines.Line2D at 0x1569dda90>]



In [76]:
```
test_pred['Close_Predicition'] = y_pred
test_pred
```

Out[76]:

	Date	Open	High	Low	Close	Adj Close	Volume	Close_Predi
955	2021-11-18	691.609985	691.739990	679.739990	682.020020	682.020020	2012900	682.17
802	2021-04-14	554.869995	554.869995	538.530029	540.020020	540.020020	3740300	541.77
659	2020-09-17	475.160004	478.399994	463.269989	470.200012	470.200012	5379300	468.38
588	2020-06-08	416.000000	420.799988	406.500000	419.489990	419.489990	5851500	412.45
630	2020-08-06	504.109985	510.820007	498.700012	509.079987	509.079987	3725900	505.34
...	...	...	...	...	...	...	...	
936	2021-10-22	651.809998	665.460022	651.809998	664.780029	664.780029	6186000	663.25
522	2020-03-04	377.769989	384.010010	370.510010	383.790009	383.790009	5487300	377.19
418	2019-10-03	267.779999	268.839996	257.010010	268.149994	268.149994	8951000	260.27
525	2020-03-09	343.859985	357.470001	341.720001	346.489990	346.489990	7405500	353.55
952	2021-11-15	681.239990	685.260010	671.489990	679.330017	679.330017	2872200	676.74

202 rows × 8 columns

In [78]:
```
test_pred[['Close', 'Close_Predicition']].describe().T
```

Out[78]:

	count	mean	std	min	25%	50%	75
Close	202.0	408.111731	105.737683	246.389999	322.577499	371.014999	499.4724
Close_Predicition	202.0	408.484416	105.948616	247.115761	324.333297	370.587091	500.2401

In [ ]:
```
```