In [1]:
```
import pandas as pd
import pickle
import warnings
warnings.filterwarnings("ignore")
```

In [2]:
```
a=pd.read_csv("C:\\Users\\reshma_koduri\\OneDrive\\Documents\\archive.zip")
a
```

Out[2]:

| | Unnamed: 0 | Unnamed: 0.1 | brand | name | price | spec_rating | processor | CPU | Ram | Ra |
|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 0 | 0 | HP | Victus 15-fb0157AX Gaming Laptop | 49900 | 73.000000 | 5th Gen AMD Ryzen 5 5600H | Hexa Core, 12 Threads | 8GB | |
| **1** | 1 | 1 | HP | 15s-fq5007TU Laptop | 39900 | 60.000000 | 12th Gen Intel Core i3 1215U | Hexa Core (2P + 4E), 8 Threads | 8GB | |
| **2** | 2 | 2 | Acer | One 14 Z8-415 Laptop | 26990 | 69.323529 | 11th Gen Intel Core i3 1115G4 | Dual Core, 4 Threads | 8GB | |
| **3** | 3 | 3 | Lenovo | Yoga Slim 6 14IAP8 82WU0095IN Laptop | 59729 | 66.000000 | 12th Gen Intel Core i5 1240P | 12 Cores (4P + 8E), 16 Threads | 16GB | I |
| **4** | 4 | 4 | Apple | MacBook Air 2020 MGND3HN Laptop | 69990 | 69.323529 | Apple M1 | Octa Core (4P + 4E) | 8GB | |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **888** | 926 | 1015 | Asus | Vivobook 15X 2023 K3504VAB-NJ321WS Laptop | 44990 | 69.323529 | 13th Gen Intel Core i3 1315U | Hexa Core (2P + 4E), 8 Threads | 8GB | |
| **889** | 927 | 1016 | Asus | TUF A15 FA577RM-HQ032WS Laptop | 110000 | 71.000000 | 6th Gen AMD Ryzen 7 6800H | Octa Core, 16 Threads | 16GB | |
| **890** | 928 | 1017 | Asus | ROG Zephyrus G14 2023 GA402XV-N2034WS Gaming L... | 189990 | 89.000000 | 7th Gen AMD Ryzen 9 7940HS | Octa Core, 16 Threads | 32GB | |
| **891** | 929 | 1018 | Asus | TUF Gaming F15 2023 FX507VU-LP083WS Gaming Laptop | 129990 | 73.000000 | 13th Gen Intel Core i7 13700H | 14 Cores (6P + 8E), 20 Threads | 16GB | |

| | Unnamed: 0 | Unnamed: 0.1 | brand | name | price | spec_rating | processor | CPU | Ram | Ra |
|---|---|---|---|---|---|---|---|---|---|---|
| **892** | 930 | 1019 | Asus | TUF Gaming A15 2023 FA577XU-LP041WS Gaming Laptop | 131990 | 84.000000 | 7th Gen AMD Ryzen 9 7940HS | Octa Core, 16 Threads | 16GB | |

893 rows × 18 columns

In [3]:
```
a.head(5)
```

Out[3]:

| | Unnamed: 0 | Unnamed: 0.1 | brand | name | price | spec_rating | processor | CPU | Ram | Ram_t |
|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 0 | 0 | HP | Victus 15-fb0157AX Gaming Laptop | 49900 | 73.000000 | 5th Gen AMD Ryzen 5 5600H | Hexa Core, 12 Threads | 8GB | DI |
| **1** | 1 | 1 | HP | 15s-fq5007TU Laptop | 39900 | 60.000000 | 12th Gen Intel Core i3 1215U | Hexa Core (2P + 4E), 8 Threads | 8GB | DI |
| **2** | 2 | 2 | Acer | One 14 Z8-415 Laptop | 26990 | 69.323529 | 11th Gen Intel Core i3 1115G4 | Dual Core, 4 Threads | 8GB | DI |
| **3** | 3 | 3 | Lenovo | Yoga Slim 6 14IAP8 82WU0095IN Laptop | 59729 | 66.000000 | 12th Gen Intel Core i5 1240P | 12 Cores (4P + 8E), 16 Threads | 16GB | LPDI |
| **4** | 4 | 4 | Apple | MacBook Air 2020 MGND3HN Laptop | 69990 | 69.323529 | Apple M1 | Octa Core (4P + 4E) | 8GB | DI |

In [4]:
```
a.tail(5)
```

Out[4]:

| | Unnamed: 0 | Unnamed: 0.1 | brand | name | price | spec_rating | processor | CPU | Ram | Ram_ |
|---|---|---|---|---|---|---|---|---|---|---|
| **888** | 926 | 1015 | Asus | Vivobook 15X 2023 K3504VAB-NJ321WS Laptop | 44990 | 69.323529 | 13th Gen Intel Core i3 1315U | Hexa Core (2P + 4E), 8 Threads | 8GB | D |
| **889** | 927 | 1016 | Asus | TUF A15 FA577RM-HQ032WS Laptop | 110000 | 71.000000 | 6th Gen AMD Ryzen 7 6800H | Octa Core, 16 Threads | 16GB | |

| | Unnamed: 0 | Unnamed: 0.1 | brand | name | price | spec_rating | processor | CPU | Ram | Ram_ |
|---|---|---|---|---|---|---|---|---|---|---|
| **890** | 928 | 1017 | Asus | ROG Zephyrus G14 2023 GA402XV-N2034WS Gaming L... | 189990 | 89.000000 | 7th Gen AMD Ryzen 9 7940HS | Octa Core, 16 Threads | 32GB | D |
| **891** | 929 | 1018 | Asus | TUF Gaming F15 2023 FX507VU-LP083WS Gaming Laptop | 129990 | 73.000000 | 13th Gen Intel Core i7 13700H | 14 Cores (6P + 8E), 20 Threads | 16GB | D |
| **892** | 930 | 1019 | Asus | TUF Gaming A15 2023 FA577XU-LP041WS Gaming Laptop | 131990 | 84.000000 | 7th Gen AMD Ryzen 9 7940HS | Octa Core, 16 Threads | 16GB | D |

In [5]:
```
list(a)
```

Out[5]:
```
['Unnamed: 0',
 'Unnamed: 0.1',
 'brand',
 'name',
 'price',
 'spec_rating',
 'processor',
 'CPU',
 'Ram',
 'Ram_type',
 'ROM',
 'ROM_type',
 'GPU',
 'display_size',
 'resolution_width',
 'resolution_height',
 'OS',
 'warranty']
```

In [6]:
```
a.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 893 entries, 0 to 892
Data columns (total 18 columns):
 #   Column             Non-Null Count  Dtype
---  ------             --------------  -----
 0   Unnamed: 0         893 non-null    int64
 1   Unnamed: 0.1       893 non-null    int64
 2   brand              893 non-null    object
 3   name               893 non-null    object
 4   price              893 non-null    int64
 5   spec_rating        893 non-null    float64
 6   processor          893 non-null    object
```

```
 7   CPU                893 non-null    object
 8   Ram                893 non-null    object
 9   Ram_type           893 non-null    object
 10  ROM                893 non-null    object
 11  ROM_type           893 non-null    object
 12  GPU                893 non-null    object
 13  display_size       893 non-null    float64
 14  resolution_width   893 non-null    float64
 15  resolution_height  893 non-null    float64
 16  OS                 893 non-null    object
 17  warranty           893 non-null    int64
dtypes: float64(4), int64(4), object(10)
memory usage: 125.7+ KB
```

In [7]:
```
a.describe()
```

Out[7]:

| | Unnamed: 0 | Unnamed: 0.1 | price | spec_rating | display_size | resolution_width | resolution_ |
|---|---|---|---|---|---|---|---|
| **count** | 893.000000 | 893.000000 | 893.000000 | 893.000000 | 893.000000 | 893.000000 | 893. |
| **mean** | 467.135498 | 521.382979 | 79907.409854 | 69.379026 | 15.173751 | 2035.393057 | 1218. |
| **std** | 270.209769 | 299.916605 | 60880.043823 | 5.541555 | 0.939095 | 426.076009 | 326. |
| **min** | 0.000000 | 0.000000 | 9999.000000 | 60.000000 | 11.600000 | 1080.000000 | 768. |
| **25%** | 235.000000 | 265.000000 | 44500.000000 | 66.000000 | 14.000000 | 1920.000000 | 1080. |
| **50%** | 467.000000 | 531.000000 | 61990.000000 | 69.323529 | 15.600000 | 1920.000000 | 1080. |
| **75%** | 702.000000 | 784.000000 | 90990.000000 | 71.000000 | 15.600000 | 1920.000000 | 1200. |
| **max** | 930.000000 | 1019.000000 | 450039.000000 | 89.000000 | 18.000000 | 3840.000000 | 3456. |

In [8]:
```
a.groupby("price").count()
```

Out[8]:

| price | Unnamed: 0 | Unnamed: 0.1 | brand | name | spec_rating | processor | CPU | Ram | Ram_type | ROM | I |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **9999** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| **10990** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| **12990** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| **13990** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| **14490** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **415000** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| **419990** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| **420000** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| **429990** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| **450039** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |

464 rows × 17 columns

In [9]:
```
b=a.drop(['display_size','resolution_width','resolution_height','spec_rating'],axis=
b
```

Out[9]:

| | Unnamed: 0 | Unnamed: 0.1 | brand | name | price | processor | CPU | Ram | Ram_type | RO |
|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 0 | 0 | HP | Victus 15-fb0157AX Gaming Laptop | 49900 | 5th Gen AMD Ryzen 5 5600H | Hexa Core, 12 Threads | 8GB | DDR4 | 512( |
| **1** | 1 | 1 | HP | 15s-fq5007TU Laptop | 39900 | 12th Gen Intel Core i3 1215U | Hexa Core (2P + 4E), 8 Threads | 8GB | DDR4 | 512( |
| **2** | 2 | 2 | Acer | One 14 Z8-415 Laptop | 26990 | 11th Gen Intel Core i3 1115G4 | Dual Core, 4 Threads | 8GB | DDR4 | 512( |
| **3** | 3 | 3 | Lenovo | Yoga Slim 6 14IAP8 82WU0095IN Laptop | 59729 | 12th Gen Intel Core i5 1240P | 12 Cores (4P + 8E), 16 Threads | 16GB | LPDDR5 | 512( |
| **4** | 4 | 4 | Apple | MacBook Air 2020 MGND3HN Laptop | 69990 | Apple M1 | Octa Core (4P + 4E) | 8GB | DDR4 | 256( |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| **888** | 926 | 1015 | Asus | Vivobook 15X 2023 K3504VAB-NJ321WS Laptop | 44990 | 13th Gen Intel Core i3 1315U | Hexa Core (2P + 4E), 8 Threads | 8GB | DDR4 | 512( |
| **889** | 927 | 1016 | Asus | TUF A15 FA577RM-HQ032WS Laptop | 110000 | 6th Gen AMD Ryzen 7 6800H | Octa Core, 16 Threads | 16GB | DDR | 1T |
| **890** | 928 | 1017 | Asus | ROG Zephyrus G14 2023 GA402XV-N2034WS Gaming L... | 189990 | 7th Gen AMD Ryzen 9 7940HS | Octa Core, 16 Threads | 32GB | DDR5 | 1T |
| **891** | 929 | 1018 | Asus | TUF Gaming F15 2023 FX507VU-LP083WS Gaming Laptop | 129990 | 13th Gen Intel Core i7 13700H | 14 Cores (6P + 8E), 20 Threads | 16GB | DDR4 | 512( |
| **892** | 930 | 1019 | Asus | TUF Gaming A15 2023 FA577XU-LP041WS | 131990 | 7th Gen AMD Ryzen 9 7940HS | Octa Core, 16 Threads | 16GB | DDR4 | 1T |

| | Unnamed: 0 | Unnamed: 0.1 | brand | name | price | processor | CPU | Ram | Ram_type | RO |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Gaming Laptop | | | | | | |

893 rows × 14 columns

In [10]:
```
c=pd.get_dummies(b,dtype=int)
c
```

Out[10]:

| | Unnamed: 0 | Unnamed: 0.1 | price | warranty | brand_AXL | brand_Acer | brand_Apple | brand_Asus | br |
|---|---|---|---|---|---|---|---|---|---|
| **0** | 0 | 0 | 49900 | 1 | 0 | 0 | 0 | 0 | |
| **1** | 1 | 1 | 39900 | 1 | 0 | 0 | 0 | 0 | |
| **2** | 2 | 2 | 26990 | 1 | 0 | 1 | 0 | 0 | |
| **3** | 3 | 3 | 59729 | 1 | 0 | 0 | 0 | 0 | |
| **4** | 4 | 4 | 69990 | 1 | 0 | 0 | 1 | 0 | |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | |
| **888** | 926 | 1015 | 44990 | 1 | 0 | 0 | 0 | 1 | |
| **889** | 927 | 1016 | 110000 | 1 | 0 | 0 | 0 | 1 | |
| **890** | 928 | 1017 | 189990 | 1 | 0 | 0 | 0 | 1 | |
| **891** | 929 | 1018 | 129990 | 1 | 0 | 0 | 0 | 1 | |
| **892** | 930 | 1019 | 131990 | 1 | 0 | 0 | 0 | 1 | |

893 rows × 1238 columns

In [11]:
```
y=c['price']
```

In [12]:
```
x=c.drop(['price'],axis=1)
```

In [13]:
```
from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.33,random_state=55)
```

In [14]:
```
from sklearn.linear_model import LinearRegression
reg=LinearRegression()
reg.fit(x_train,y_train)
```

Out[14]:
```
LinearRegression()
```

In [15]:
```
ypred=reg.predict(x_test)
ypred
```

Out[15]:
```
array([ 28132.00598808, 110292.78535286,  90834.24715621, 208929.24340991,
        51787.19210377,  24132.79400868, 202241.51972906, 111266.82518015,
        54178.63096428,  46323.44665505,  56288.58898272,  66202.04196873,
         3066.86482515, 165197.25671488,  61198.62900546,  98019.73227747,
        39901.8696003 ,  53861.33546167,  69179.43656734, 142312.57967178,
        -1082.79170485,  70848.37251907, 112110.02074327,  52925.32345885,
        50031.95703246,  53517.84272618,  84125.94614661,  59112.47734245,
        43712.67050279, 137886.02607223,  17404.92515154,  49715.68782386,
        70121.37514786,  81073.91712058,  52394.60606303,  65535.74852672,
        54054.44951777,  67280.91694053, 124997.02576278,  34150.44361406,
        87077.37961557,  64070.84821082, 123042.50382713,  86974.58241405,
        52763.34309068, 260459.02857622,  68459.41267198,  59173.47948846,
        41218.82383275,  34937.16821978,  48932.97664152,  87883.13825814,
        43853.55441921,  53374.6768221 ,  28668.35142316,  55516.90306811,
        75847.37878028, 124562.8800278 ,  59080.62536777,  66939.98645773,
        75353.54012359,  47096.41583122,  28554.36314068,  77415.74714013,
       172422.1143808 ,  14303.91855783,  94794.11351621,  85959.68928383,
        52893.31858749,  44985.61624093,  10273.45819188,  40618.75252649,
        83114.52113453,  19600.71588911,  79497.16095512,  72987.04143631,
       237781.70582374,  43873.25578464, 343934.87297662,  65960.27309083,
        60736.21436804,  85694.96524254,  31103.13893843,  44540.42726717,
        48336.45750524,  56314.55596484,  28472.12587733,  36457.8048238 ,
        63108.40654248, 293861.26880784, 121459.38166542,  45962.36483497,
        40090.16334734,  85689.4534275 ,  73764.84292612,  67081.54850995,
        40864.8773914 , 143953.98296551,  50067.1489263 ,  41894.68776821,
        49797.73663128,  42247.15958147, 196317.1831246 ,  39424.94801009,
       101347.00334553,  45999.1334568 , 260910.62597445,  76302.95539177,
       117602.58927196,  66345.54983699,  73001.18799567,  58164.22972429,
        41164.20831017,  74600.60848368,  87432.91061002, 152444.90422117,
        80946.10555016,  92962.37494628, 108984.68672901,  81307.56288625,
        66412.92320009,  56352.46147466,  49976.62761513,  56141.42460189,
        99492.64424418,  36665.55565245, 111656.47653427, 101126.32391898,
        97928.77268503,  76209.29606024,  40293.22160235,  28549.07364347,
       159430.1810741 ,  38297.60320317,  41480.80150595,  88490.34467643,
       103189.67929249,  44721.28385474,  80700.54129271,  60483.54038935,
        47357.09865763, 130856.36017646,  32914.6595472 , 150020.70713139,
        80635.45891963, 283234.117992  ,  77287.9426144 ,  58237.62921917,
        40468.80744528,  30807.62666749, 189287.33477421, 137373.69291986,
        55913.93698884,  59264.50675703,  75672.79175782,  64540.55556984,
        37687.63503832,  40496.30114554,  61581.13650806, 128609.98418775,
        39842.6867437 ,  39007.48875492,  43012.23863178,  26374.28333539,
        56513.88643577,  46657.96725083,  65053.25955189,  78738.71066227,
       101643.53886729,  97327.23118364,  58562.51252863,  92138.37936862,
        61146.32062739,  25569.91904842,  79949.92836007,  43222.52012606,
       134248.53866079,  86185.71747835, 222456.57540857,  56443.30335792,
        64645.12023864,  55935.13321761,  32355.07666906, 197402.46416748,
       147219.72113207,  16486.71951524,  70370.99255915, 110543.44889706,
        39769.32546465,  74269.11769288,  67782.35668783,  74701.54406413,
        90414.07458287,  31837.96957666,  90146.77061391, 133250.24933139,
        10904.14732691,  62045.6173818 ,  41069.34160105,  37059.91178059,
        48808.50465076,  74557.67940014,  45044.11769986, 202289.77838706,
       136481.19361016,  68903.90375904,  45958.35413492,  53691.43832757,
       276132.54482197, 180009.29806122,  35168.23885576, 101645.04396193,
        50954.17770129,  49478.16616432, 130813.98093707,  22753.94903588,
        47024.2475479 , 114800.66959605,  70960.52873277, 116726.40075589,
        73179.96356473, 116034.39584361,  78674.85136918,  91767.13252594,
        59788.68267626, 101311.58675821,  57753.70702151, 115774.72018021,
       103181.06678031,  33038.25865801,  39480.39081545,  84749.34390235,
        74737.67069511,  35075.65923565,  55873.31554727,   -780.02395034,
        41688.3692299 ,  67857.66785261,  34582.21588873,  73464.16314608,
        61182.74605727,  44685.56956333,  50933.99629889,  45051.37065528,
        92891.2294081 ,  80451.85953639, 191677.68565659,  72454.55235197,
        96521.99703476,  45554.73312118,  37980.05960795,  80360.93258818,
        54288.0960399 ,  61777.84671081, 147789.10947701,  41084.78247088,
```

```
148103.34231419,  83561.41671168,  32261.37133033,  65085.25749226,
122074.78611998,  39713.41827835, 118237.28964595,  62745.5709075 ,
 40724.50460297,  53786.45821639,  23623.62784374,  38511.53268761,
 43850.23146258,  57689.33939898,  55388.53317275,  11037.05012185,
107736.22698251,  39967.96418589,  59027.516862  , 128519.87292693,
 56487.27170534,  96833.04764575,  41884.64600975,  41451.85362119,
 41570.61485584,  98464.77572239,  65263.20120784,  74321.09461157,
 54931.77814071,  28556.24893098,  41749.69263359,  65863.93243478,
102843.13685173,  40964.56862779,  65444.65286807, 115124.36959219,
159776.01415013,  59122.66721916, 112805.14497998])
```

In [16]:
```
from sklearn.metrics import r2_score
r2_score(ypred,y_test)
```

Out[16]:
```
0.6745230741872765
```

In [17]:
```
from sklearn.metrics import mean_squared_error
mean_squared_error(y_test,ypred)
```

Out[17]:
```
838379094.2015575
```

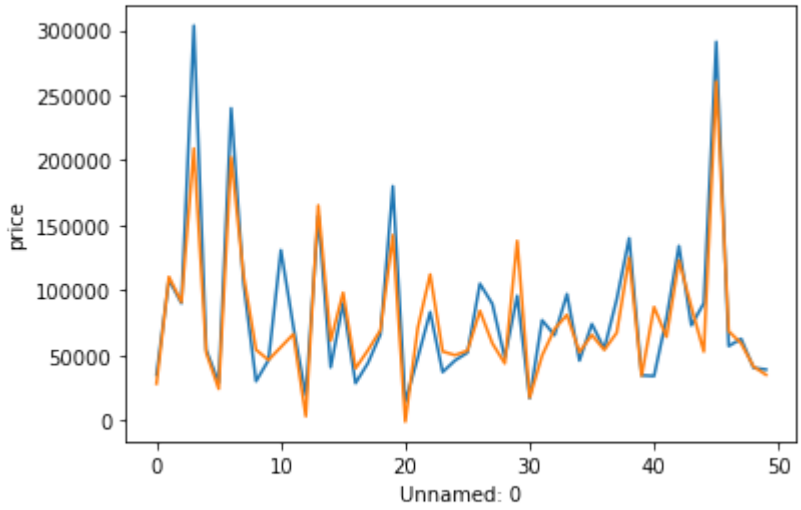
In [18]:
```
results=pd.DataFrame(columns=['price','Predicted'])
results['price']=y_test
results["Predicted"]=ypred
results=results.reset_index()
results['Unnamed: 0']=results.index
results.head(5)
```

Out[18]:

| | index | price | Predicted | Unnamed: 0 |
|---|---|---|---|---|
| **0** | 611 | 34999 | 28132.005988 | 0 |
| **1** | 668 | 107990 | 110292.785353 | 1 |
| **2** | 245 | 89990 | 90834.247156 | 2 |
| **3** | 821 | 303490 | 208929.243410 | 3 |
| **4** | 604 | 53980 | 51787.192104 | 4 |

In [19]:
```
import seaborn as sns
import matplotlib.pyplot as plt
sns.lineplot(x='Unnamed: 0',y='price',data=results.head(50))
sns.lineplot(x='Unnamed: 0',y='Predicted',data=results.head(50))
plt.plot()
```

Out[19]:
```
[]
```




In [20]:
```
cor=c.corr()
cor
```

Out[20]:

| | Unnamed: 0 | Unnamed: 0.1 | price | warranty | brand_AXL | brand_Acer | brand_Apple | bra |
|---|---|---|---|---|---|---|---|---|
| **Unnamed: 0** | 1.000000 | 0.999665 | 0.162473 | 0.157482 | 0.071466 | -0.049608 | -0.066338 | -0 |
| **Unnamed: 0.1** | 0.999665 | 1.000000 | 0.162619 | 0.158614 | 0.069722 | -0.049247 | -0.065033 | -0 |
| **price** | 0.162473 | 0.162619 | 1.000000 | 0.117101 | -0.050938 | -0.112569 | 0.209386 | -0 |
| **warranty** | 0.157482 | 0.158614 | 0.117101 | 1.000000 | -0.011528 | -0.078402 | -0.084532 | -0 |
| **brand_AXL** | 0.071466 | 0.069722 | -0.050938 | -0.011528 | 1.000000 | -0.015267 | -0.006399 | -0 |
| **...** | ... | ... | ... | ... | ... | ... | ... | |
| **OS_Windows 10 OS** | 0.012044 | 0.013284 | -0.029673 | -0.025893 | -0.005042 | -0.034291 | -0.014374 | -0 |
| **OS_Windows 10 OS** | 0.012544 | 0.016962 | -0.034228 | 0.054543 | -0.008524 | -0.035963 | -0.024301 | -0 |
| **OS_Windows 11 OS** | 0.094991 | 0.095620 | 0.041161 | 0.128195 | -0.006193 | -0.042118 | -0.017655 | 0 |
| **OS_Windows 11 OS** | -0.058015 | -0.062330 | 0.016752 | -0.012201 | 0.017850 | 0.051639 | -0.358511 | 0 |
| **OS_Windows OS** | 0.021454 | 0.023397 | -0.026647 | -0.024550 | -0.004780 | 0.044297 | -0.013629 | 0 |

1238 rows × 1238 columns

In [ ]:
```
import seaborn as sb
sb.heatmap(cor,vmax=0,vmin=-2,annot=True,linewidth=-5,cmap="bwr")
```

In [ ]:
```

```