In [108]:
```
import pandas as pd
```

In [109]:
```
data=pd.read_csv("/home/placement/Downloads/fiat500.csv")
```

In [110]:
```
data.describe()
```

Out[110]:

| | ID | engine_power | age_in_days | km | previous_owners | lat | lon | price |
|---|---|---|---|---|---|---|---|---|
| **count** | 1538.000000 | 1538.000000 | 1538.000000 | 1538.000000 | 1538.000000 | 1538.000000 | 1538.000000 | 1538.000000 |
| **mean** | 769.500000 | 51.904421 | 1650.980494 | 53396.011704 | 1.123537 | 43.541361 | 11.563428 | 8576.003901 |
| **std** | 444.126671 | 3.988023 | 1289.522278 | 40046.830723 | 0.416423 | 2.133518 | 2.328190 | 1939.958641 |
| **min** | 1.000000 | 51.000000 | 366.000000 | 1232.000000 | 1.000000 | 36.855839 | 7.245400 | 2500.000000 |
| **25%** | 385.250000 | 51.000000 | 670.000000 | 20006.250000 | 1.000000 | 41.802990 | 9.505090 | 7122.500000 |
| **50%** | 769.500000 | 51.000000 | 1035.000000 | 39031.000000 | 1.000000 | 44.394096 | 11.869260 | 9000.000000 |
| **75%** | 1153.750000 | 51.000000 | 2616.000000 | 79667.750000 | 1.000000 | 45.467960 | 12.769040 | 10000.000000 |
| **max** | 1538.000000 | 77.000000 | 4658.000000 | 235000.000000 | 4.000000 | 46.795612 | 18.365520 | 11100.000000 |

In [111]:
```
data1=data.loc[(data.km<=50000)]
```

In [112]:
```
data1
```

| | ID | model | engine_power | age_in_days | km | previous_owners | lat | lon | price |
|---|---|---|---|---|---|---|---|---|---|
| **0** | 1 | lounge | 51 | 882 | 25000 | 1 | 44.907242 | 8.61156 | 8900 |
| **1** | 2 | pop | 51 | 1186 | 32500 | 1 | 45.666359 | 12.24189 | 8800 |
| **6** | 7 | lounge | 51 | 731 | 11600 | 1 | 44.907242 | 8.61156 | 10750 |
| **7** | 8 | lounge | 51 | 1521 | 49076 | 1 | 41.903221 | 12.49565 | 9190 |
| **10** | 11 | pop | 51 | 790 | 43286 | 1 | 40.871429 | 14.43896 | 8950 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **1525** | 1526 | lounge | 51 | 790 | 41870 | 1 | 45.707249 | 11.47760 | 9500 |
| **1526** | 1527 | lounge | 51 | 1705 | 23600 | 1 | 38.122070 | 13.36112 | 9300 |
| **1527** | 1528 | pop | 51 | 517 | 3000 | 1 | 40.748241 | 14.52835 | 9999 |
| **1529** | 1530 | lounge | 51 | 731 | 22551 | 1 | 38.122070 | 13.36112 | 9900 |
| **1530** | 1531 | lounge | 51 | 670 | 29000 | 1 | 45.764648 | 8.99450 | 10800 |

907 rows × 9 columns

In [101]:
```
data2=data.groupby(['model']).count()
```

In [102]:
```
data2
```

Out[102]:

| model | ID | engine_power | age_in_days | km | previous_owners | lat | lon | price |
|---|---|---|---|---|---|---|---|---|
| **lounge** | 1094 | 1094 | 1094 | 1094 | 1094 | 1094 | 1094 | 1094 |
| **pop** | 358 | 358 | 358 | 358 | 358 | 358 | 358 | 358 |
| **sport** | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 |

In [103]:
```
data2=data1.rename(columns={'model_name':'model'})
```

In [104]:
```
list(data2)
```

Out[104]:
```
['ID',
 'model',
 'engine_power',
 'age_in_days',
 'km',
 'previous_owners',
 'lat',
 'lon',
 'price']
```

In [105]:
```
data2
```

Out[105]:

| | ID | model | engine_power | age_in_days | km | previous_owners | lat | lon | price |
|---|---|---|---|---|---|---|---|---|---|
| **0** | 1 | lounge | 51 | 882 | 25000 | 1 | 44.907242 | 8.61156 | 8900 |
| **1** | 2 | pop | 51 | 1186 | 32500 | 1 | 45.666359 | 12.24189 | 8800 |
| **6** | 7 | lounge | 51 | 731 | 11600 | 1 | 44.907242 | 8.61156 | 10750 |
| **7** | 8 | lounge | 51 | 1521 | 49076 | 1 | 41.903221 | 12.49565 | 9190 |
| **10** | 11 | pop | 51 | 790 | 43286 | 1 | 40.871429 | 14.43896 | 8950 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **1525** | 1526 | lounge | 51 | 790 | 41870 | 1 | 45.707249 | 11.47760 | 9500 |
| **1526** | 1527 | lounge | 51 | 1705 | 23600 | 1 | 38.122070 | 13.36112 | 9300 |
| **1527** | 1528 | pop | 51 | 517 | 3000 | 1 | 40.748241 | 14.52835 | 9999 |
| **1529** | 1530 | lounge | 51 | 731 | 22551 | 1 | 38.122070 | 13.36112 | 9900 |
| **1530** | 1531 | lounge | 51 | 670 | 29000 | 1 | 45.764648 | 8.99450 | 10800 |

907 rows × 9 columns

In [115]:
```
data2['model']=data['model'].map({'lounge':1,'pop':2,'sport':3})
```

In [116]:
```
data2
```

Out[116]:

| | ID | model | engine_power | age_in_days | km | previous_owners | lat | lon | price |
|---|---|---|---|---|---|---|---|---|---|
| **0** | 1 | 1 | 51 | 882 | 25000 | 1 | 44.907242 | 8.61156 | 8900 |
| **1** | 2 | 2 | 51 | 1186 | 32500 | 1 | 45.666359 | 12.24189 | 8800 |
| **6** | 7 | 1 | 51 | 731 | 11600 | 1 | 44.907242 | 8.61156 | 10750 |
| **7** | 8 | 1 | 51 | 1521 | 49076 | 1 | 41.903221 | 12.49565 | 9190 |
| **10** | 11 | 2 | 51 | 790 | 43286 | 1 | 40.871429 | 14.43896 | 8950 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **1525** | 1526 | 1 | 51 | 790 | 41870 | 1 | 45.707249 | 11.47760 | 9500 |
| **1526** | 1527 | 1 | 51 | 1705 | 23600 | 1 | 38.122070 | 13.36112 | 9300 |
| **1527** | 1528 | 2 | 51 | 517 | 3000 | 1 | 40.748241 | 14.52835 | 9999 |
| **1529** | 1530 | 1 | 51 | 731 | 22551 | 1 | 38.122070 | 13.36112 | 9900 |
| **1530** | 1531 | 1 | 51 | 670 | 29000 | 1 | 45.764648 | 8.99450 | 10800 |

907 rows × 9 columns

In [122]:
```
cor=data.corr()
cor
```

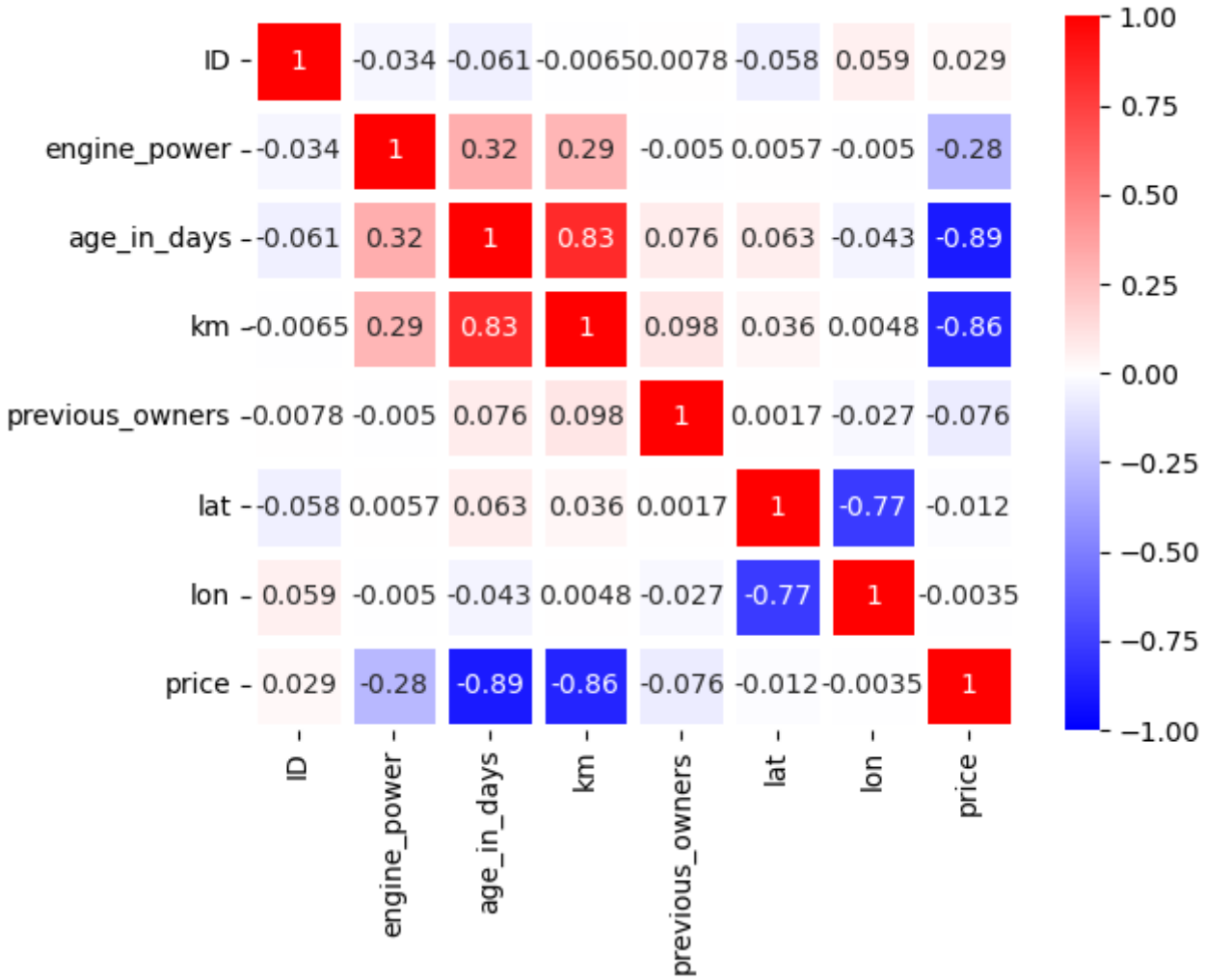
```
/tmp/ipykernel_7448/4173678507.py:1: FutureWarning: The default value of numeric_only in DataFrame.corr is deprecated. In a future version, it will default to False. Select only valid columns or specify the value of numeric_only to silence this warning.
  cor=data.corr()
```

Out[122]:

| | ID | engine_power | age_in_days | km | previous_owners | lat | lon | price |
|---|---|---|---|---|---|---|---|---|
| **ID** | 1.000000 | -0.034059 | -0.060753 | -0.006537 | 0.007803 | -0.058207 | 0.058941 | 0.028516 |
| **engine_power** | -0.034059 | 1.000000 | 0.319190 | 0.285495 | -0.005030 | 0.005721 | -0.005032 | -0.277235 |
| **age_in_days** | -0.060753 | 0.319190 | 1.000000 | 0.833890 | 0.075775 | 0.062982 | -0.042667 | -0.893328 |
| **km** | -0.006537 | 0.285495 | 0.833890 | 1.000000 | 0.097539 | 0.035519 | 0.004839 | -0.859373 |
| **previous_owners** | 0.007803 | -0.005030 | 0.075775 | 0.097539 | 1.000000 | 0.001697 | -0.026836 | -0.076274 |
| **lat** | -0.058207 | 0.005721 | 0.062982 | 0.035519 | 0.001697 | 1.000000 | -0.766646 | -0.011733 |
| **lon** | 0.058941 | -0.005032 | -0.042667 | 0.004839 | -0.026836 | -0.766646 | 1.000000 | -0.003541 |
| **price** | 0.028516 | -0.277235 | -0.893328 | -0.859373 | -0.076274 | -0.011733 | -0.003541 | 1.000000 |

In [123]:
```
import seaborn as p
p.heatmap(cor,vmax=1,vmin=-1,annot=True,linewidth=5,cmap='bwr')
```

Out[123]: <Axes: >



In [ ]: