ИУ5-22М Бабин Артём РК1

Вариант: 1

Номер задачи №1: 1

Номер задачи №2: 21

Доп. задание: для произвольной колонки данных построить гистограмму

Задача №1.

Для набора данных проведите кодирование одного (произвольного) категориального признака с использованием метода "count (frequency) encoding".

```
!pip install category_encoders
from category_encoders.count import CountEncoder as ce_CountEncoder

import pandas as pd
```

```
Requirement already satisfied: category_encoders in /usr/local/lib/python3.10/dist-packages (2.6.3)
Requirement already satisfied: numpy>=1.14.0 in /usr/local/lib/python3.10/dist-packages (from category_encoders) (1.25.2)
Requirement already satisfied: scikit-learn>=0.20.0 in /usr/local/lib/python3.10/dist-packages (from category_encoders) (1.2.2)
Requirement already satisfied: scipy>=1.0.0 in /usr/local/lib/python3.10/dist-packages (from category_encoders) (1.11.4)
Requirement already satisfied: statsmodels>=0.9.0 in /usr/local/lib/python3.10/dist-packages (from category_encoders) (0.14.1)
Requirement already satisfied: pandas>=1.0.5 in /usr/local/lib/python3.10/dist-packages (from category_encoders) (1.5.3)
Requirement already satisfied: patsy>=0.5.1 in /usr/local/lib/python3.10/dist-packages (from category_encoders) (0.5.6)
Requirement already satisfied: python-dateutil>=2.8.1 in /usr/local/lib/python3.10/dist-packages (from pandas>=1.0.5->category_encoders) (2.8
Requirement already satisfied: pytz>=2020.1 in /usr/local/lib/python3.10/dist-packages (from pandas>=1.0.5->category_encoders) (2023.4)
Requirement already satisfied: six in /usr/local/lib/python3.10/dist-packages (from patsy>=0.5.1->category_encoders) (1.16.0)
Requirement already satisfied: joblib>=1.1.1 in /usr/local/lib/python3.10/dist-packages (from scikit-learn>=0.20.0->category_encoders) (1.3.2
Requirement already satisfied: threadpoolctl>=2.0.0 in /usr/local/lib/python3.10/dist-packages (from scikit-learn>=0.20.0->category_encoders
Requirement already satisfied: packaging>=21.3 in /usr/local/lib/python3.10/dist-packages (from statsmodels>=0.9.0->category_encoders) (23.2
```

```
data = pd.read_csv('laptop_price.csv', encoding='windows-1251')
data.head()
```

	laptop_ID	Company	Product	TypeName	Inches	ScreenResolution	Cpu	Ram	Memory	Gpu	OpSys	Weight	Price_euros
0	1	Apple	MacBook Pro	Ultrabook	13.3	IPS Panel Retina Display 2560x1600	Intel Core i5 2.3GHz	8GB	128GB SSD	Intel Iris Plus Graphics 640	macOS	1.37kg	1339.69
1	2	Apple	Macbook Air	Ultrabook	13.3	1440x900	Intel Core i5 1.8GHz	8GB	128GB Flash Storage	Intel HD Graphics 6000	macOS	1.34kg	898.94
							Intel Core			Intel HD			

```
data['Company'].value_counts()
```

```
Dell         297
Lenovo       297
HP           274
Asus         158
Acer         103
MSI           54
Toshiba       48
Apple         21
Samsung        9
Razer          7
Mediacom       7
Microsoft      6
Xiaomi         4
Vero           4
Chuwi          3
Google         3
Fujitsu        3
LG             3
Huawei         2
Name: Company, dtype: int64
```

```
ce_CountEncoder1 = ce_CountEncoder(normalize=True)
data_COUNT_ENC = ce_CountEncoder1.fit_transform(data['Company'])
data_COUNT_ENC
```

	Company
0	0.016117
1	0.016117
2	0.210284
3	0.016117
4	0.016117
...	...
1298	0.227936
1299	0.227936
1300	0.227936
1301	0.210284
1302	0.121259

1303 rows × 1 columns

Задача №21.

Для набора данных проведите масштабирование данных для одного (произвольного) числового признака с использованием масштабирования по медиане.

+ доп. задание: для произвольной колонки данных построить гистограмму

```
from sklearn.preprocessing import RobustScaler
```

```
data.head()
```

	laptop_ID	Company	Product	TypeName	Inches	ScreenResolution	Cpu	Ram	Memory	Gpu	OpSys	Weight	Price_euros
0	1	Apple	MacBook Pro	Ultrabook	13.3	IPS Panel Retina Display 2560x1600	Intel Core i5 2.3GHz	8GB	128GB SSD	Intel Iris Plus Graphics 640	macOS	1.37kg	1339.69
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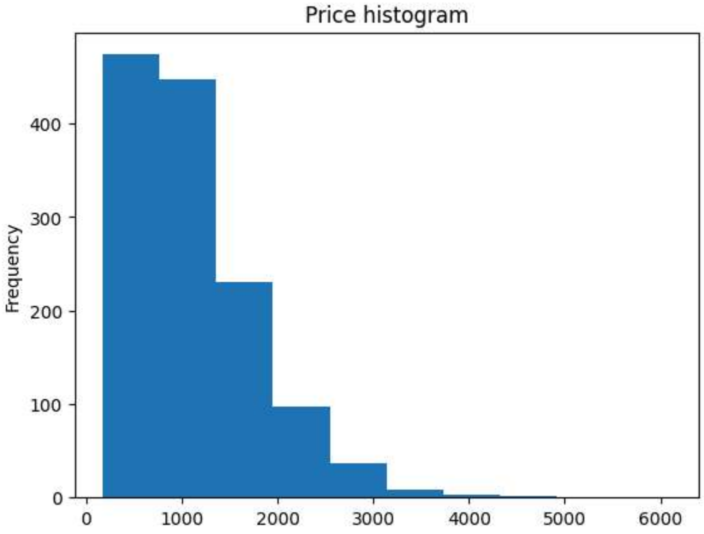
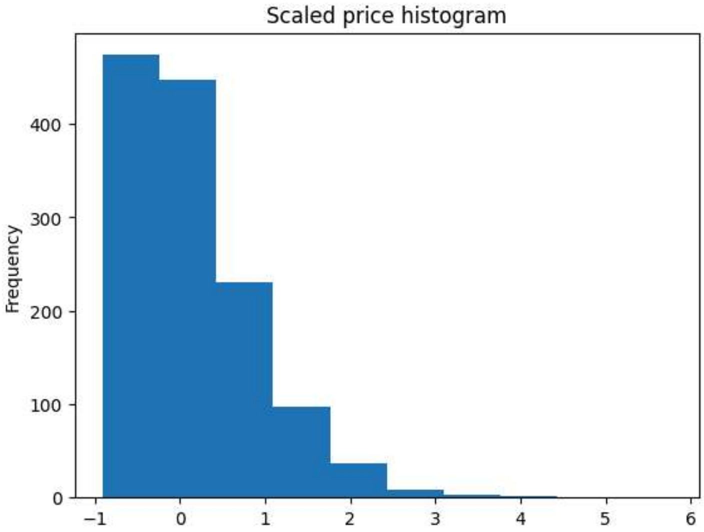
							Intel Core			Intel HD			

```
data['Price_euros'].plot.hist(title='Price histogram');
```



```
scaler = RobustScaler()
scaled_data = pd.Series(scaler.fit_transform(data[['Price_euros']]).reshape(1, -1)[0])
scaled_data.plot.hist(title='Scaled price histogram');
```



```
data['Price_euros'].median()
```

```
977.0
```

```
scaled_data.median()
```

```
0.0
```