РК №1 Зудин А.М. ИУ5-25М Вариант №7

In [9]:

```
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
from sklearn.impute import SimpleImputer
from sklearn.impute import MissingIndicator
%matplotlib inline
```

In [13]:

```
data = pd.read_csv('/content/uk_universities.csv')
print(data)
```

University of Cambridge	PLIII	c (data)							
University of Cambridge		University r	name	Region	Founded	vear \			
University of St Andrews Scotland 1096	0			-					
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Imperial College London				-					
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University of East London									
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128	126	University of East Lor	ndon	London		1992			
129	127	University of Bedfordsh	nire	East of England		2006			
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3
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   Estimated_cost_of_living_per_year_(in_pounds) Latitude Longitude \
0
                                          12000
                                                 52.2054
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                   Website
0
             www.cam.ac.uk
1
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2
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3
             www.ic.ac.uk
4
          www.lboro.ac.uk/
. .
126
             www.uel.ac.uk
127
            www.beds.ac.uk
128
            www.ucs.ac.uk/
129
        www.glyndwr.ac.uk/
130 www.ravensbourne.ac.uk
```

Задача №7

[131 rows x 21 columns]

In [14]:

```
data.isnull().sum()
```

Out[14]:

University_name	0	
Region	0	
Founded_year	0	
Motto	17	
UK_rank	0	
World_rank	0	
CWUR_score	47	
Minimum_IELTS_score	0	
<pre>UG_average_fees_(in_pounds)</pre>	0	
PG_average_fees_(in_pounds)	0	
International_students	0	
Student_satisfaction	0	
Student_enrollment	0	
Academic_staff	0	
Control_type	0	
Academic_Calender	26	
Campus_setting	18	
<pre>Estimated_cost_of_living_per_year_(in_pounds)</pre>		
Latitude	0	
Longitude	0	

```
Website dtype: int64
```

In [15]:

```
data["Minimum_IELTS_score"] = SimpleImputer(strategy = "median").fit_transform(data[["Minimum_IELTS_score"]])
display(data[["Minimum_IELTS_score"]].isnull().sum())
```

0

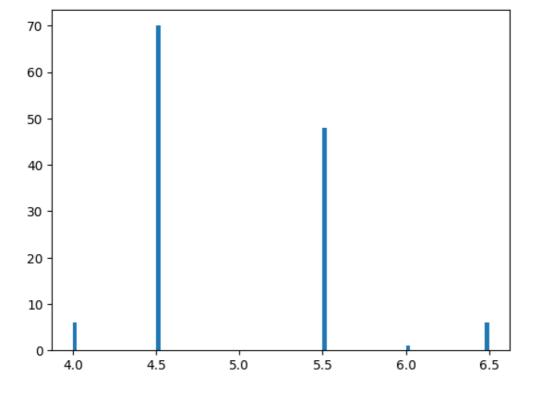
Minimum_IELTS_score dtype: int64

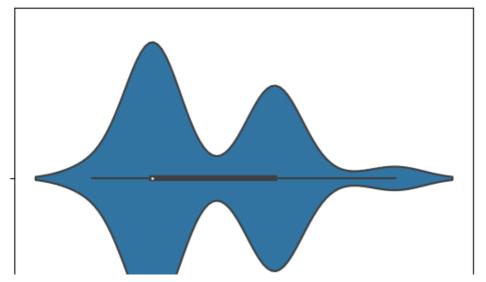
Выполнена импьютация медианным значением столбца **Minimum_IELTS_score.** Число нулевых значений стало **0.**

Задача №27

In [16]:

```
import matplotlib.pyplot as plt
import seaborn as sns
plt.hist(data[["Minimum_IELTS_score"]], 100)
plt.show()
sns.violinplot(x=data["Minimum_IELTS_score"]);
```





```
3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 Minimum_IELTS_score
```

In [19]:

```
# вычисление 5% и 95% квантилей для столбца 'A'
q05 = data['Minimum_IELTS_score'].quantile(0.05)
q95 = data['Minimum_IELTS_score'].quantile(0.95)
print('\n5% квантиль: ', q05)
print('95% квантиль: ', q95)
```

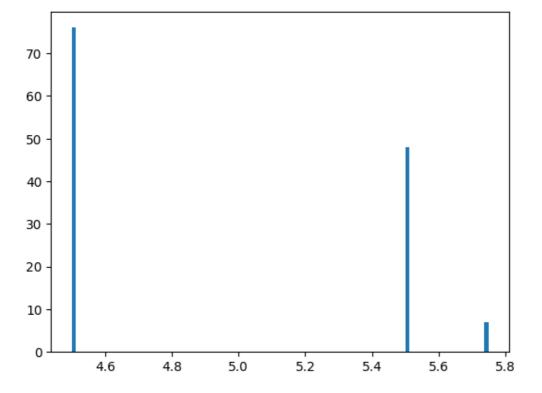
5% квантиль: 4.5 95% квантиль: 5.75

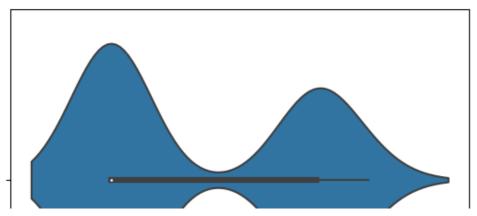
In [21]:

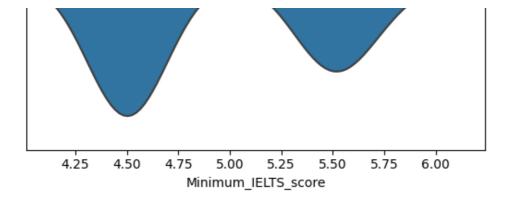
```
data.loc[data['Minimum_IELTS_score'] < q05, 'Minimum_IELTS_score'] = q05
data.loc[data['Minimum_IELTS_score'] > q95, 'Minimum_IELTS_score'] = q95
```

In [22]:

```
import matplotlib.pyplot as plt
import seaborn as sns
plt.hist(data[["Minimum_IELTS_score"]], 100)
plt.show()
sns.violinplot(x=data["Minimum_IELTS_score"]);
```







Доп Задание

In [26]:

sns.pairplot(data, hue='Founded_year')

Out[26]:

<seaborn.axisgrid.PairGrid at 0x7f8f8bc10dc0>

