

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

```
from google.colab import files
onlineedu=files.upload()
```

 ONLINE E... REVIEW.csv

- **ONLINE EDUCATION SYSTEM REVIEW.csv**(text/csv) - 109274 bytes, last modified: 9/2/2023 - 100% done
Saving ONLINE EDUCATION SYSTEM REVIEW.csv to ONLINE EDUCATION SYSTEM REVIEW.csv

```
df=pd.read_csv('/content/ONLINE EDUCATION SYSTEM REVIEW.csv')
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1033 entries, 0 to 1032
Data columns (total 23 columns):
#   Column                                     Non-Null Count  Dtype
---  -
0   Gender                                     1033 non-null   object
1   Home Location                             1033 non-null   object
2   Level of Education                       1033 non-null   object
3   Age(Years)                               1033 non-null   int64
4   Number of Subjects                       1033 non-null   int64
5   Device type used to attend classes       1033 non-null   object
6   Economic status                           1033 non-null   object
7   Family size                              1033 non-null   int64
8   Internet facility in your locality        1033 non-null   int64
9   Are you involved in any sports?           1033 non-null   object
10  Do elderly people monitor you?            1033 non-null   object
11  Study time (Hours)                        1033 non-null   int64
12  Sleep time (Hours)                       1033 non-null   int64
13  Time spent on social media (Hours)        1033 non-null   int64
14  Interested in Gaming?                     1033 non-null   object
15  Have separate room for studying?          1033 non-null   object
16  Engaged in group studies?                 1033 non-null   object
17  Average marks scored before pandemic in traditional classroom 1033 non-null   object
18  Your interaction in online mode           1033 non-null   int64
19  Clearing doubts with faculties in online mode 1033 non-null   int64
20  Interested in?                            1033 non-null   object
21  Performance in online                     1033 non-null   int64
22  Your level of satisfaction in Online Education 1033 non-null   object
dtypes: int64(10), object(13)
memory usage: 185.7+ KB
```

```
df.describe()
```



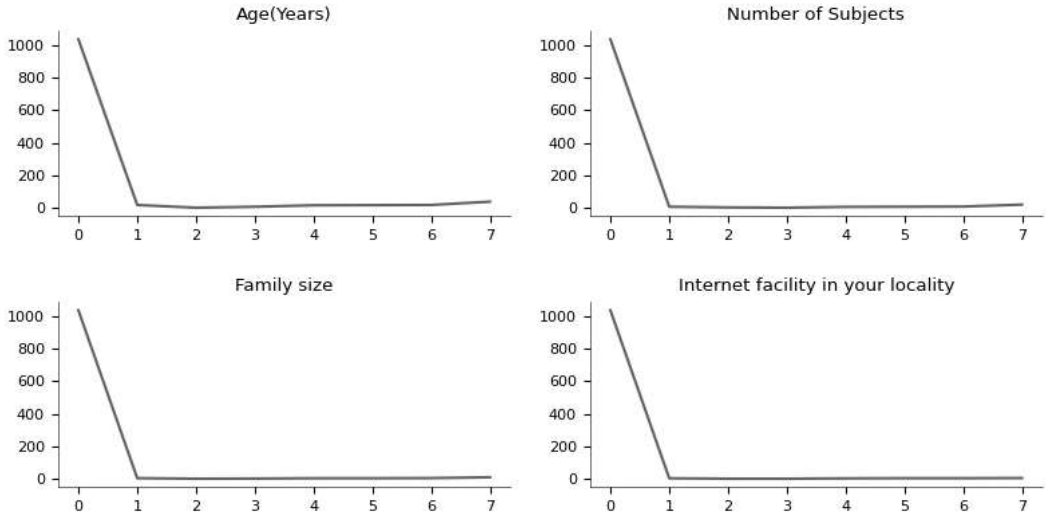
index	Age(Years)	Number of Subjects	Family size	Internet facility in your locality	Study time (Hours)	Sleep time (Hours)	Time spent on s
count	1033.0	1033.0	1033.0	1033.0	1033.0	1033.0	
mean	19.79864472410455	7.034849951597289	4.413359148112295	3.5866408518877058	4.3252662149080345	6.947725072604066	
std	3.199157789879737	2.81033967879607	1.2367497897308386	1.026063280871488	2.1342333717446884	1.3240387598253989	
min	9.0	1.0	2.0	1.0	1.0	1.0	
25%	18.0	6.0	4.0	3.0	3.0	6.0	
50%	19.0	7.0	4.0	4.0	4.0	7.0	
75%	20.0	8.0	5.0	4.0	6.0	8.0	
max	40.0	20.0	10.0	5.0	10.0	10.0	

Show 25 per page

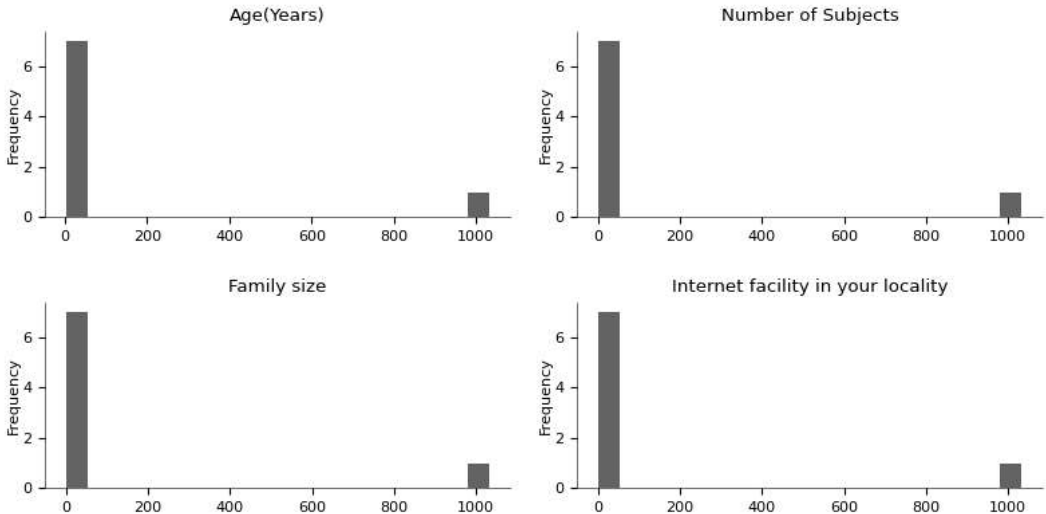


Like what you see? Visit the [data table notebook](#) to learn more about interactive tables.

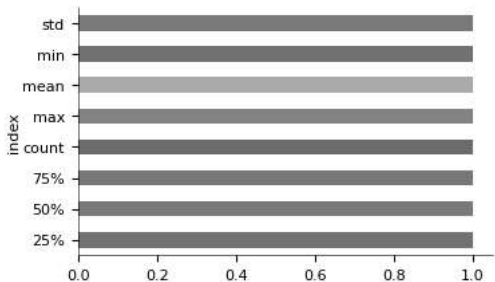
Values



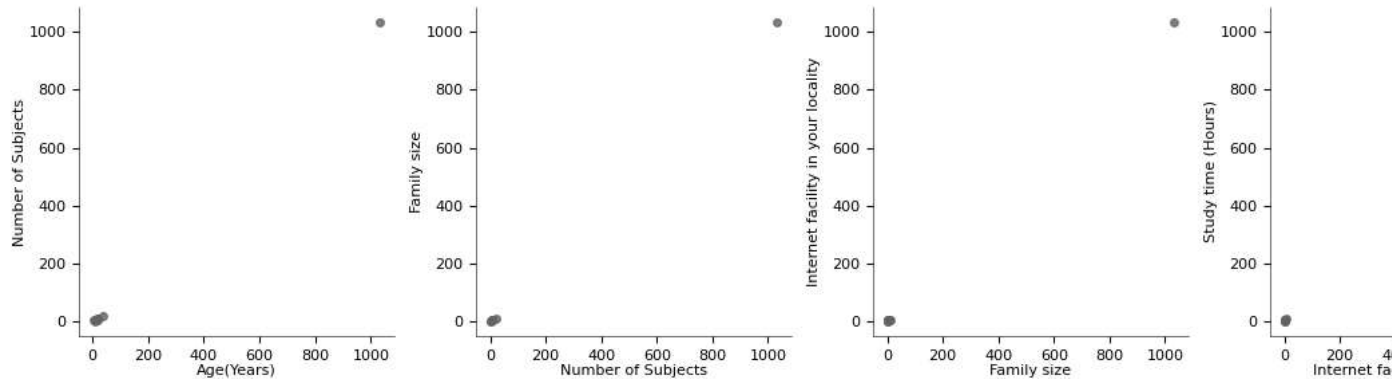
Distributions



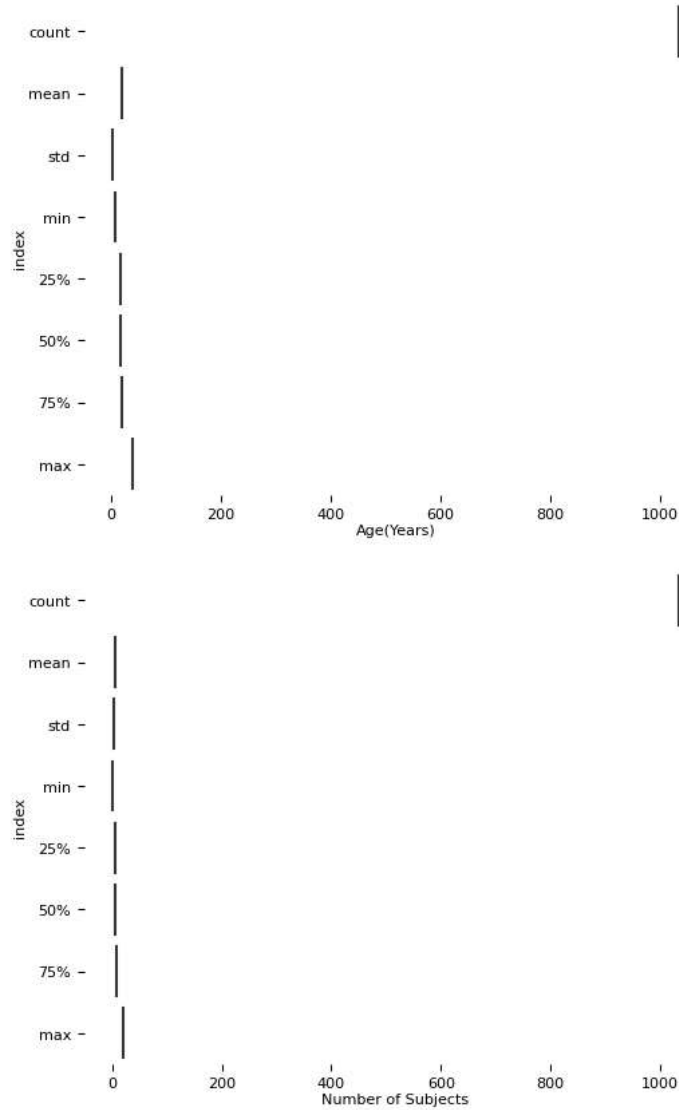
Categorical distributions



2-d distributions



Faceted distributions



df.head()

Economic status	Family size	Internet facility in your locality	Are you involved in any sports?	...	Time spent on social media (Hours)	Interested in Gaming?	Have separate room for studying?	Engaged in group studies?	Average marks scored before pandemic in traditional classroom	Your interaction in online mode	Clearing doubts with faculties in online mode	Interested in?	Performance in online mode
Middle Class	4	5	No	...	1	No	No	No	91-100	1	1	Practical	
Middle Class	4	1	Yes	...	1	Yes	Yes	No	91-100	1	1	Theory	
Middle Class	5	2	No	...	1	No	Yes	No	71-80	1	1	Both	

```
df.columns
```

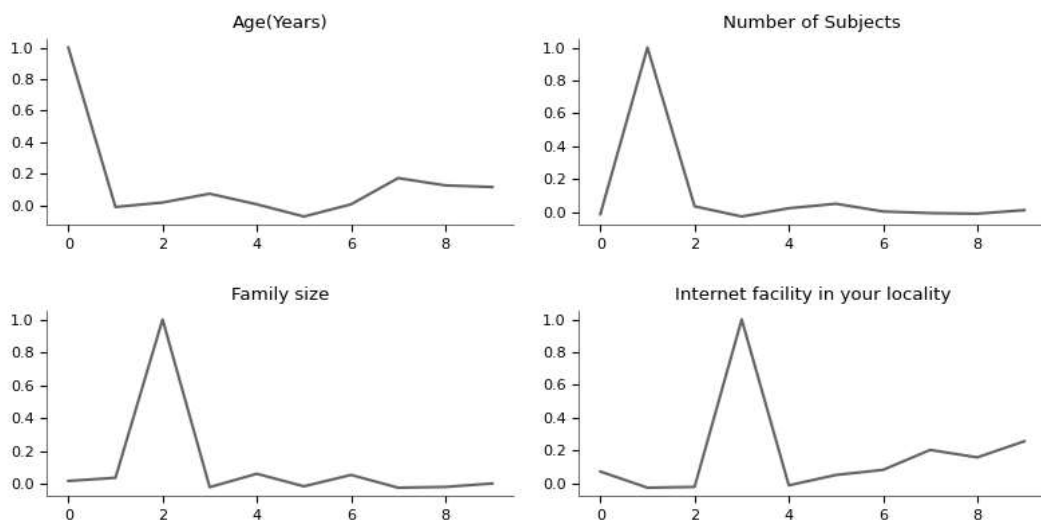
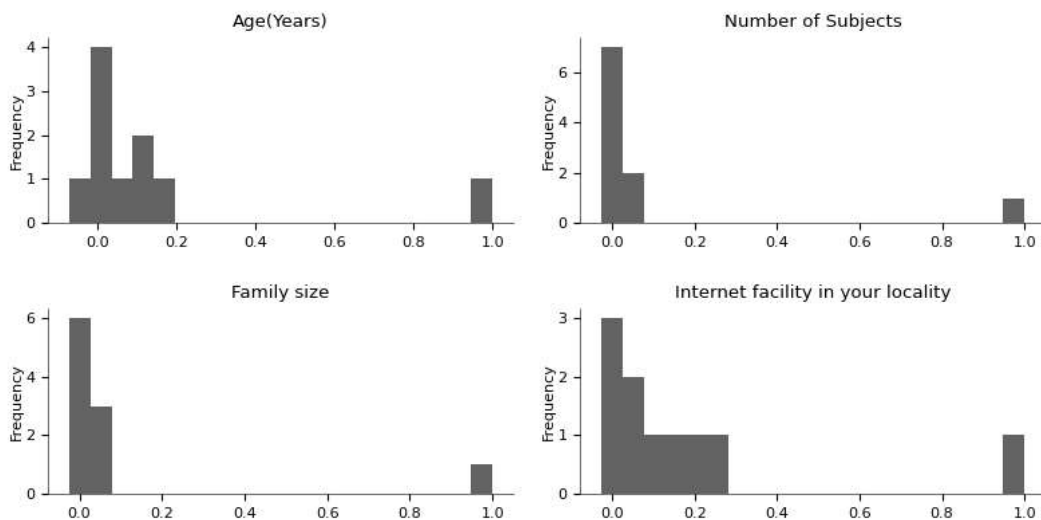
```
Index(['Gender', 'Home Location', 'Level of Education', 'Age(Years)',
      'Number of Subjects', 'Device type used to attend classes',
      'Economic status', 'Family size', 'Internet facility in your locality',
      'Are you involved in any sports?', 'Do elderly people monitor you?',
      'Study time (Hours)', 'Sleep time (Hours)',
      'Time spent on social media (Hours)', 'Interested in Gaming?',
      'Have separate room for studying?', 'Engaged in group studies?',
      'Average marks scored before pandemic in traditional classroom',
      'Your interaction in online mode',
      'Clearing doubts with faculties in online mode', 'Interested in?',
      'Performance in online',
      'Your level of satisfaction in Online Education'],
      dtype='object')
```

```
df_corr=df.corr()
```

```
<ipython-input-11-0f22499c1612>:1: FutureWarning: The default value of numeric_only in DataFrame.corr is deprecated. In a future version
df_corr=df.corr()
```

```
df_corr
```

ty	Study time (Hours)	Sleep time (Hours)	Time spent on social media (Hours)	Your interaction in online mode	Clearing doubts with faculties in online i
58	0.0053440398223340985	-0.0720310291575344	0.005455033295528685	0.1719434036900047	0.1255589457173
23	0.024280122214187398	0.05153079642453428	0.004833436710890334	-0.005143855697040578	-0.0085947250284
14	0.06061406591446306	-0.015787046639340097	0.053511845021232636	-0.024268006947047047	-0.01946055781156
.0	-0.01155402175937396	0.05183845468881237	0.08277184038519482	0.20439113204024734	0.15899045605
36	1.0	-0.0443845192878086	-0.125986475131252	0.14885897607773824	0.175169231694
37	-0.0443845192878086	1.0	0.14458716356129672	0.03259790200628905	0.0434019313008
32	-0.125986475131252	0.14458716356129672	1.0	-0.08397222948496348	-0.101846558584
34	0.14885897607773824	0.03259790200628905	-0.08397222948496348	1.0	0.723215607953
38	0.1751692316943342	0.04340193130085691	-0.10184655858449355	0.7232156079535872	
76	0.13434355992122704	0.06502047599634686	-0.08656808334566966	0.5575066546581204	0.561090883365

Show per pageLike what you see? Visit the [data table notebook](#) to learn more about interactive tables.**Values****Distributions****2-d distributions**

import seaborn as sns

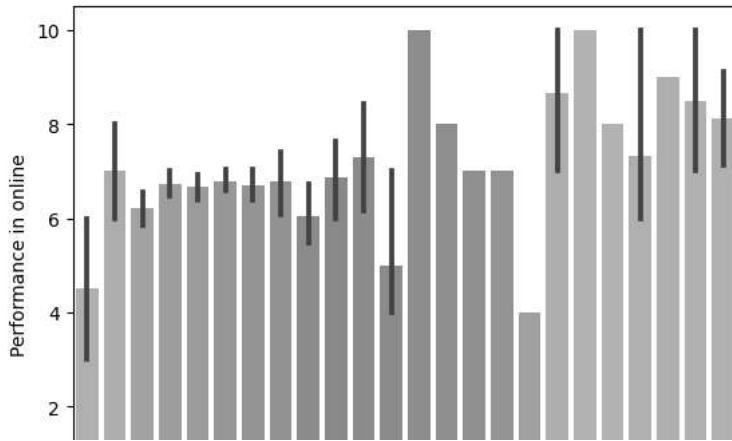
```
sns.pairplot(df)
```

```
<seaborn.axisgrid.PairGrid at 0x781d6b556050>
```



```
sns.barplot(data=df, x='Age(Years)', y='Performance in online', estimator='mean')
```

<Axes: xlabel='Age(Years)', ylabel='Performance in online'>



df.isnull()

	Gender	Home Location	Level of Education	Age(Years)	Number of Subjects	Device type used to attend classes	Economic status	Family size	Internet facility in your locality	Are you involved in any sports?	...	Time spent on social media (Hours)	Interested in Gaming?	Have separate room for studying?
0	False	False	False	False	False	False	False	False	False	False	...	False	False	False
1	False	False	False	False	False	False	False	False	False	False	...	False	False	False
2	False	False	False	False	False	False	False	False	False	False	...	False	False	False
3	False	False	False	False	False	False	False	False	False	False	...	False	False	False
4	False	False	False	False	False	False	False	False	False	False	...	False	False	False
...
1028	False	False	False	False	False	False	False	False	False	False	...	False	False	False
1029	False	False	False	False	False	False	False	False	False	False	...	False	False	False
1030	False	False	False	False	False	False	False	False	False	False	...	False	False	False
1031	False	False	False	False	False	False	False	False	False	False	...	False	False	False
1032	False	False	False	False	False	False	False	False	False	False	...	False	False	False

1033 rows x 23 columns

df.isnull().sum()

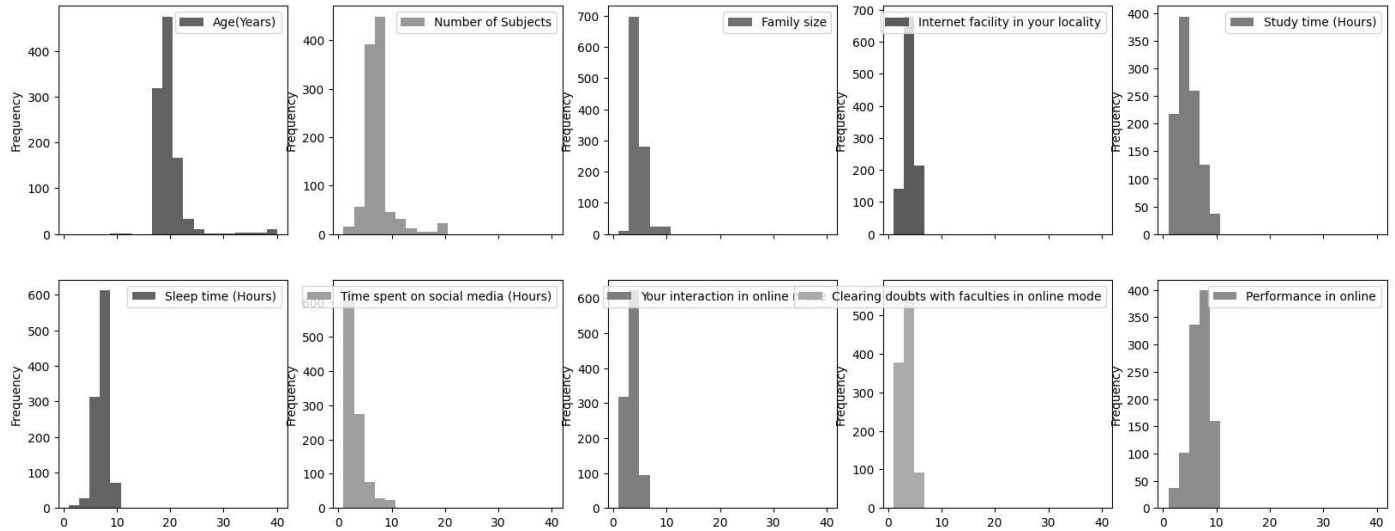
```

Gender                                0
Home Location                        0
Level of Education                   0
Age(Years)                          0
Number of Subjects                  0
Device type used to attend classes  0
Economic status                     0
Family size                         0
Internet facility in your locality  0
Are you involved in any sports?     0
Do elderly people monitor you?      0
Study time (Hours)                  0
Sleep time (Hours)                  0
Time spent on social media (Hours)  0
Interested in Gaming?                0
Have separate room for studying?    0
Engaged in group studies?            0
Average marks scored before pandemic in traditional classroom  0
Your interaction in online mode      0
Clearing doubts with faculties in online mode  0
Interested in?                      0
Performance in online               0
Your level of satisfaction in Online Education  0
dtype: int64

```

```
df.plot.hist(subplots=True, layout=(5,5), figsize=(20,20), bins=20)
```

```
array([[<Axes: ylabel='Frequency'>, <Axes: ylabel='Frequency'>,
       <Axes: ylabel='Frequency'>, <Axes: ylabel='Frequency'>,
       <Axes: ylabel='Frequency'>],
      [<Axes: ylabel='Frequency'>, <Axes: ylabel='Frequency'>,
       <Axes: ylabel='Frequency'>, <Axes: ylabel='Frequency'>,
       <Axes: ylabel='Frequency'>],
      [<Axes: ylabel='Frequency'>, <Axes: ylabel='Frequency'>,
       <Axes: ylabel='Frequency'>, <Axes: ylabel='Frequency'>,
       <Axes: ylabel='Frequency'>],
      [<Axes: ylabel='Frequency'>, <Axes: ylabel='Frequency'>,
       <Axes: ylabel='Frequency'>, <Axes: ylabel='Frequency'>,
       <Axes: ylabel='Frequency'>],
      [<Axes: ylabel='Frequency'>, <Axes: ylabel='Frequency'>,
       <Axes: ylabel='Frequency'>, <Axes: ylabel='Frequency'>,
       <Axes: ylabel='Frequency'>]], dtype=object)
```



```
sns.heatmap(df_corr)
```