```
import pandas as pd
import seaborn as sns
```

```
df=pd.read_csv('insurance.csv')
```

```
df
```

	age	sex	bmi	children	smoker	region	charges
0	19	female	27.900	0	yes	southwest	16884.92400
1	18	male	33.770	1	no	southeast	1725.55230
2	28	male	33.000	3	no	southeast	4449.46200
3	33	male	22.705	0	no	northwest	21984.47061
4	32	male	28.880	0	no	northwest	3866.85520
...	...	...	...	...	...	...	...
1333	50	male	30.970	3	no	northwest	10600.54830
1334	18	female	31.920	0	no	northeast	2205.98080
1335	18	female	36.850	0	no	southeast	1629.83350
1336	21	female	25.800	0	no	southwest	2007.94500
1337	61	female	29.070	0	yes	northwest	29141.36030

1338 rows × 7 columns

```
df.head()
```

	age	sex	bmi	children	smoker	region	charges
0	19	female	27.900	0	yes	southwest	16884.92400
1	18	male	33.770	1	no	southeast	1725.55230
2	28	male	33.000	3	no	southeast	4449.46200
3	33	male	22.705	0	no	northwest	21984.47061
4	32	male	28.880	0	no	northwest	3866.85520

```
df.tail()
```

	age	sex	bmi	children	smoker	region	charges
1333	50	male	30.97	3	no	northwest	10600.5483
1334	18	female	31.92	0	no	northeast	2205.9808
1335	18	female	36.85	0	no	southeast	1629.8335
1336	21	female	25.80	0	no	southwest	2007.9450
1337	61	female	29.07	0	yes	northwest	29141.3603

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1338 entries, 0 to 1337
Data columns (total 7 columns):
 #   Column    Non-Null Count  Dtype  
---  ------    --------------  -----  
 0   age       1338 non-null   int64  
 1   sex       1338 non-null   object 
 2   bmi       1338 non-null   float64
 3   children  1338 non-null   int64  
 4   smoker    1338 non-null   object 
 5   region    1338 non-null   object 
 6   charges   1338 non-null   float64
dtypes: float64(2), int64(2), object(3)
memory usage: 73.3+ KB
```

```
df.shape
```

```
(1338, 7)
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1338 entries, 0 to 1337
Data columns (total 7 columns):
 #   Column    Non-Null Count  Dtype
---  ------    --------------  -----
 0   age       1338 non-null   int64
 1   sex       1338 non-null   object
 2   bmi       1338 non-null   float64
 3   children  1338 non-null   int64
 4   smoker    1338 non-null   object
 5   region    1338 non-null   object
 6   charges   1338 non-null   float64
dtypes: float64(2), int64(2), object(3)
memory usage: 73.3+ KB
```

```
df.describe()
```

	age	bmi	children	charges
count	1338.000000	1338.000000	1338.000000	1338.000000
mean	39.207025	30.663397	1.094918	13270.422265
std	14.049960	6.098187	1.205493	12110.011237
min	18.000000	15.960000	0.000000	1121.873900
25%	27.000000	26.296250	0.000000	4740.287150
50%	39.000000	30.400000	1.000000	9382.033000
75%	51.000000	34.693750	2.000000	16639.912515
max	64.000000	53.130000	5.000000	63770.428010

```
df['age'].mean()
```

```
np.float64(39.20702541106129)
```

```
df['age'].mode()
```

	age
0	18

dtype: int64

```
df.isnull().sum()
```

	0
age	0
sex	0
bmi	0
children	0
smoker	0
region	0
charges	0

dtype: int64

```
df.nunique(

)
```

	0
age	47
sex	2
bmi	548
children	6
smoker	2
region	4
charges	1337

dtype: int64

```
df['age'].value_counts()
```

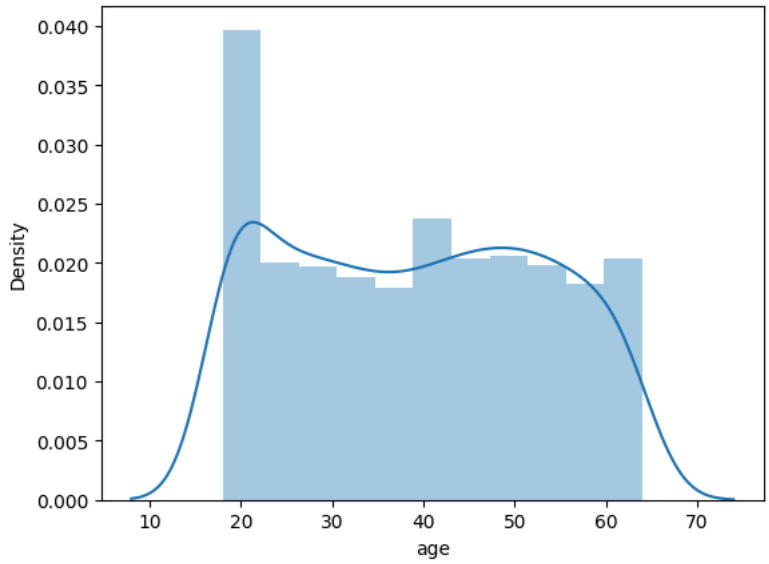
```
df['sex'].value_counts()
```

sex	count
male	676
female	662

dtype: int64

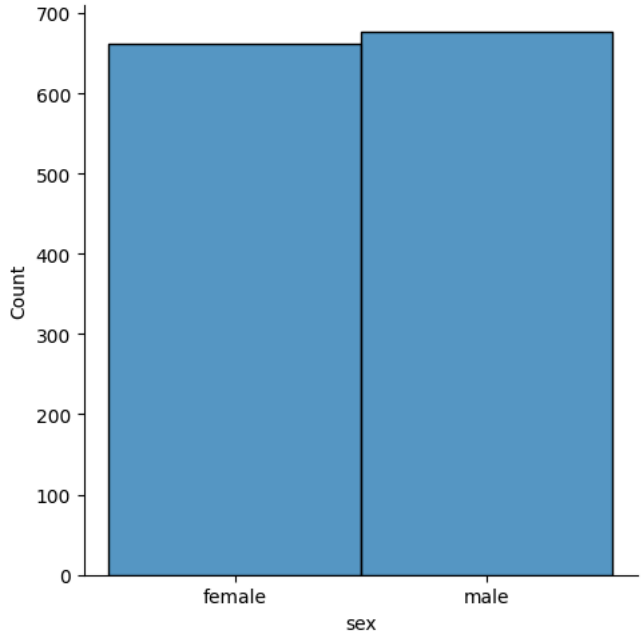
```
sns.distplot(df['age'])
```

```
/tmp/ipython-input-3234920688.py:1: UserWarning:

`distplot` is a deprecated function and will be removed in seaborn v0.14.0.

Please adapt your code to use either `displot` (a figure-level function with
similar flexibility) or `histplot` (an axes-level function for histograms).

For a guide to updating your code to use the new functions, please see
https://gist.github.com/mwaskom/de44147ed2974457ad6372750bbe5751

  sns.distplot(df['age'])
<Axes: xlabel='age', ylabel='Density'>
```



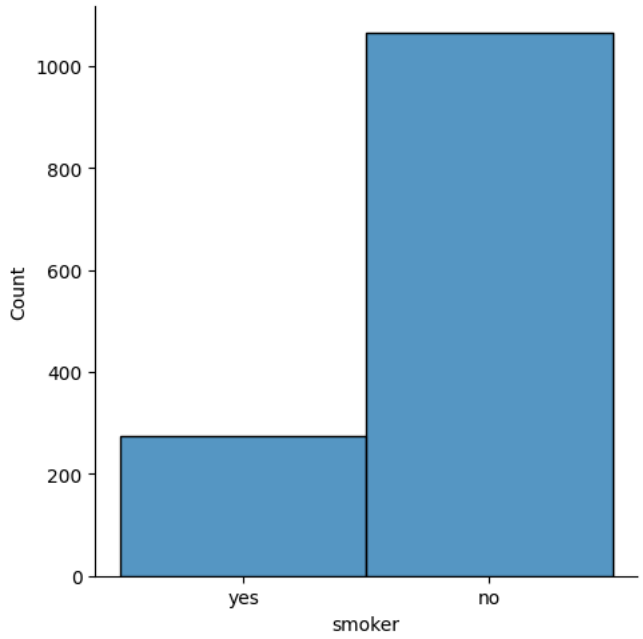

```
sns.displot(df['sex'])
```

```
<seaborn.axisgrid.FacetGrid at 0x7bf6e3c273b0>
```



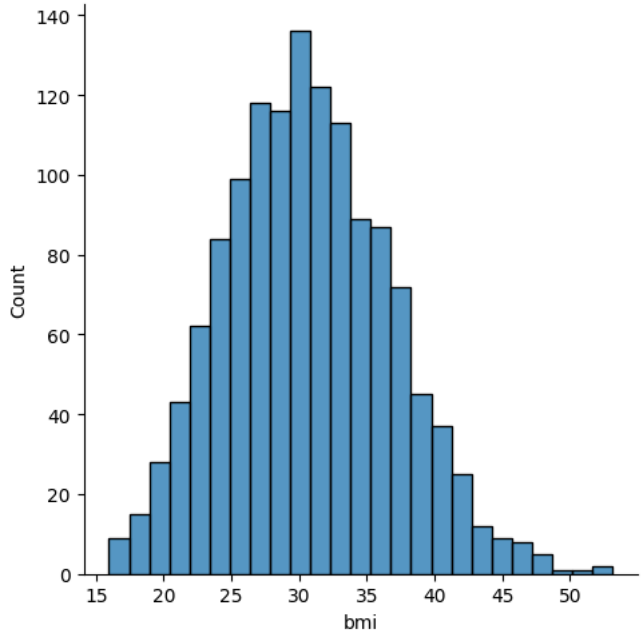
```
sns.displot(df['smoker'])
```

```
<seaborn.axisgrid.FacetGrid at 0x7bf6e222c470>
```



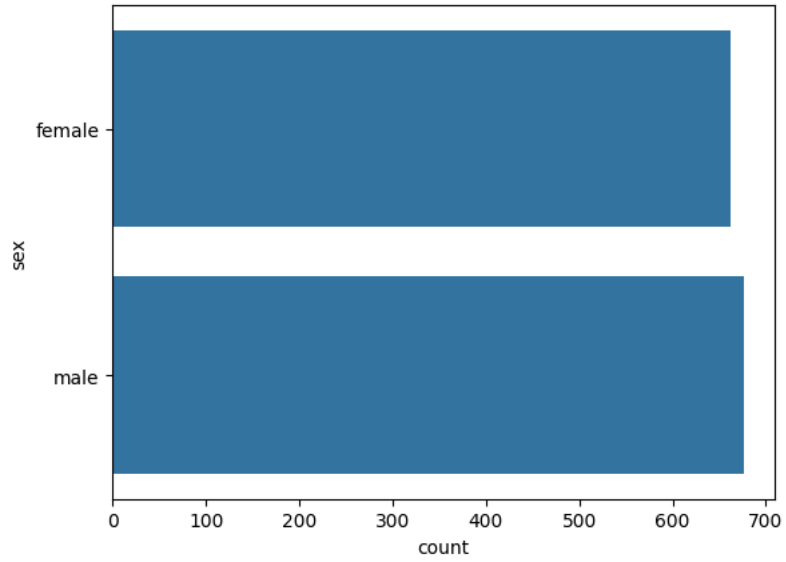

```
sns.displot(df['bmi'])
```

```
<seaborn.axisgrid.FacetGrid at 0x7bf6e4502690>
```



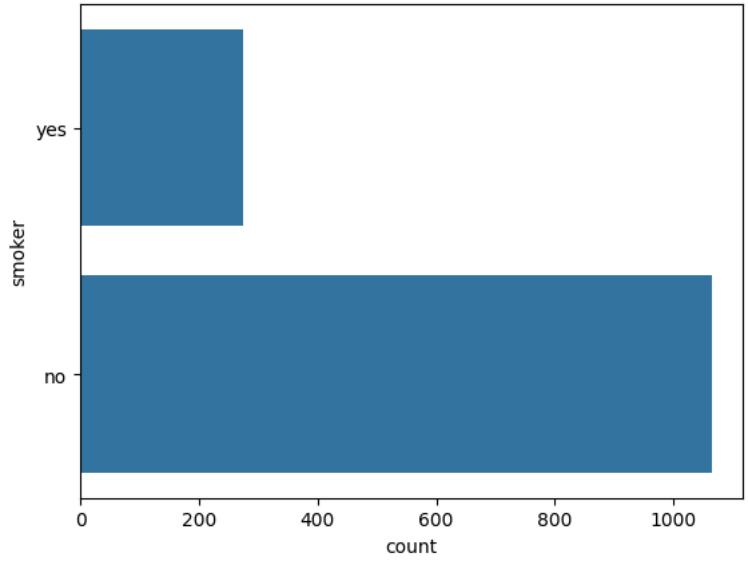

```
sns.countplot(df['sex'])
```

```
<Axes: xlabel='count', ylabel='sex'>
```



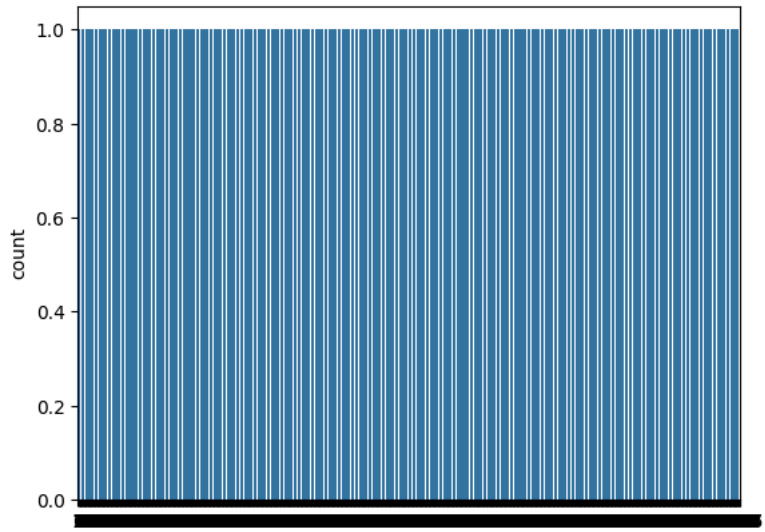

```
sns.countplot(df['smoker'])
```

```
<Axes: xlabel='count', ylabel='smoker'>
```



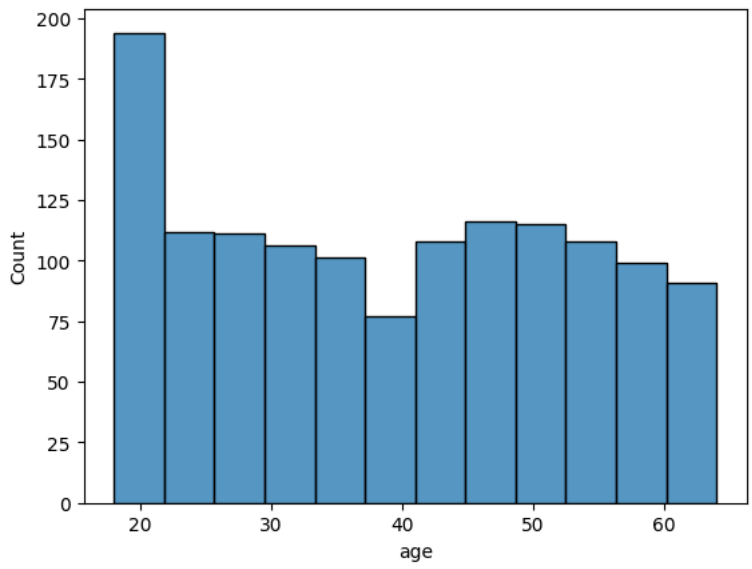

```
sns.countplot(df['bmi'])
```

```
<Axes: ylabel='count'>
```



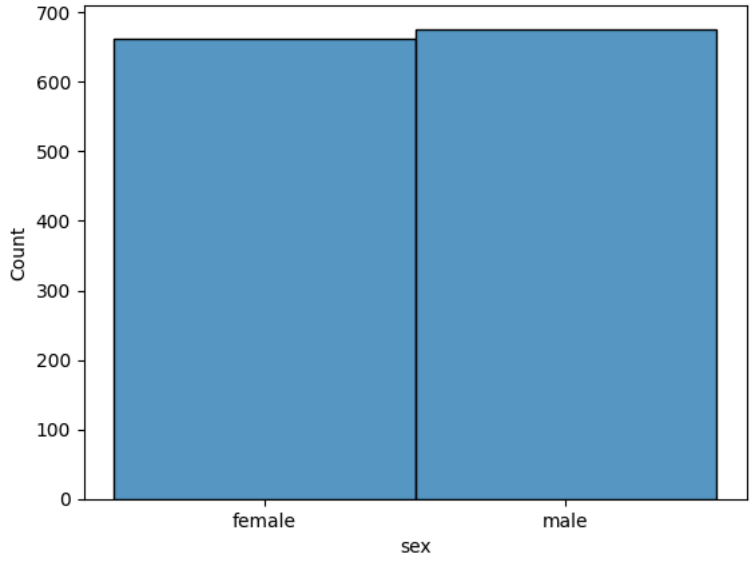

```
sns.histplot(df['age'])
```

```
<Axes: xlabel='age', ylabel='Count'>
```



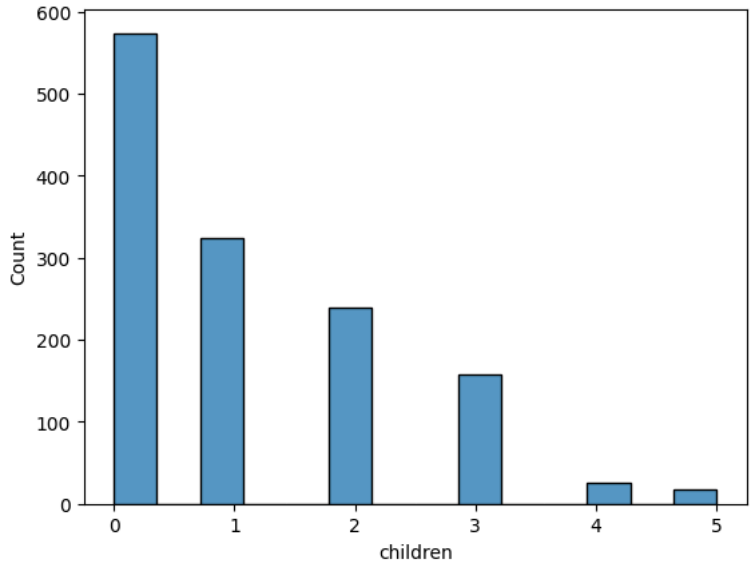

```
sns.histplot(df['sex'])
```

```
<Axes: xlabel='sex', ylabel='Count'>
```



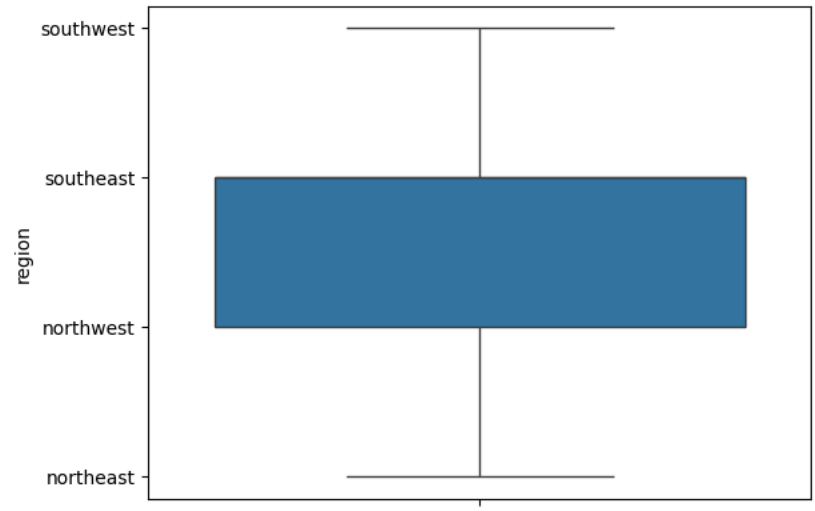

```
sns.histplot(df['children'])
```

```
<Axes: xlabel='children', ylabel='Count'>
```



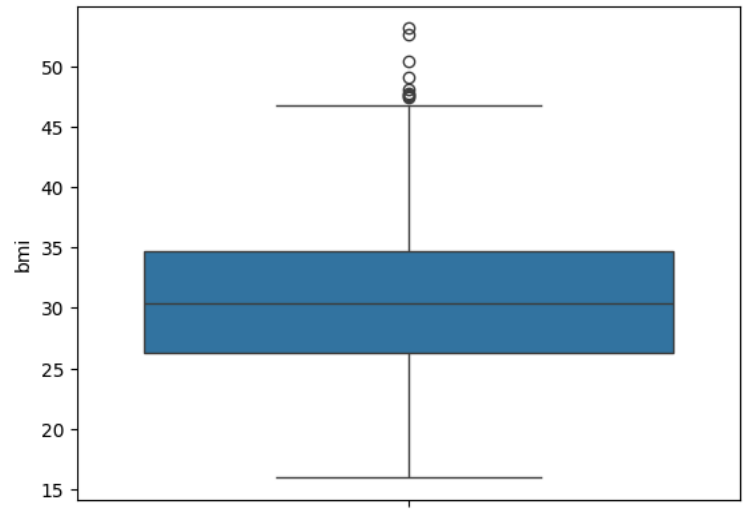

```
sns.boxplot(df['region'])
```

```
<Axes: ylabel='region'>
```




```
sns.boxplot(df['bmi'])
```

```
<Axes: ylabel='bmi'>
```




```
from sklearn.preprocessing import LabelEncoder
le=LabelEncoder()
df['sex']=le.fit_transform(df['sex'])
df['smoker']=le.fit_transform(df['smoker'])
df['bmi']=le.fit_transform(df['bmi'])
```

```
from sklearn.preprocessing import LabelEncoder
le=LabelEncoder()
a=["sex","smoker","region"]
for i in a:
    df[i]=le.fit_transform(df[i])
```

```
sns.pairplot(df, hue="charges")
```