ai-phase4

November 1, 2023

[3]:
```
# importing the required python libraries
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
import plotly.express as px
%matplotlib inline
```

[4]:
```
import pandas as pd
df=pd.read_csv("D:\calis\diabetes.csv")
df.head()
```

[4]:

	Pregnancies	Glucose	BloodPressure	SkinThickness	Insulin	BMI	DiabetesPedigreeFunction	Age	Outcome
0	6	148	72	35	0	33.6	0.627	50	1
1	1	85	66	29	0	26.6	0.351	31	0
2	8	183	64	0	0	23.3	0.672	32	1
3	1	89	66	23	94	28.1	0.167	21	0
4	0	137	40	35	168	43.1	2.288	33	1

[6]:
```
pr=df[['Pregnancies','Pregnancies','BMI','Age','Insulin']]
pr.head(4)
```

[6]:

	Pregnancies	Pregnancies	BMI	Age	Insulin
0	6	6	33.6	50	0
1	1	1	26.6	31	0
2	8	8	23.3	32	0
3	1	1	28.1	21	94

[19]:
```
df.groupby("Pregnancies").size()
```

[19]:
```
Pregnancies
0      111
1      135
2      103
3       75
4       68
5       57
6       50
7       45
8       38
9       28
10      24
11      11
12       9
13      10
14       2
15       1
17       1
dtype: int64
```

[7]:
```
pr.groupby('Age').size()
```

[7]:
```
Age
21    63
22    72
23    38
24    46
25    48
26    33
27    32
28    35
29    29
30    21
31    24
32    16
33    17
34    14
35    10
36    16
37    19
38    16
39    12
40    13
41    22
42    18
43    13
44     8
```

```
45    15
46    13
47     6
48     5
49     5
50     8
51     8
52     8
53     5
54     6
55     4
56     3
57     5
58     7
59     3
60     5
61     2
62     4
63     4
64     1
65     3
66     4
67     3
68     1
69     2
70     1
72     1
81     1
dtype: int64
```

[8]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 768 entries, 0 to 767
Data columns (total 9 columns):
 #   Column                    Non-Null Count  Dtype
---  ------                    --------------  -----
 0   Pregnancies               768 non-null    int64
 1   Glucose                   768 non-null    int64
 2   BloodPressure             768 non-null    int64
 3   SkinThickness             768 non-null    int64
 4   Insulin                   768 non-null    int64
 5   BMI                       768 non-null    float64
 6   DiabetesPedigreeFunction  768 non-null    float64
 7   Age                       768 non-null    int64
 8   Outcome                   768 non-null    int64
dtypes: float64(2), int64(7)
```

```
memory usage: 54.1 KB
```

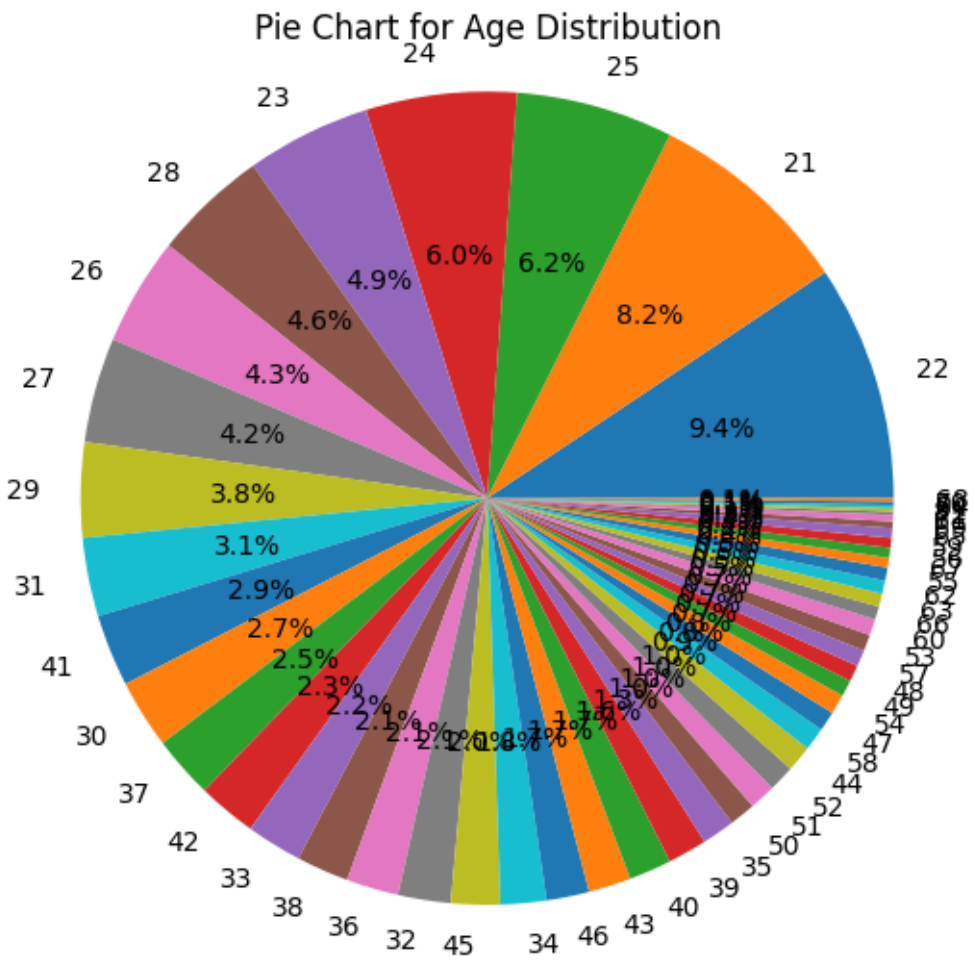
[11]:
```
pr.isnull()
```

[11]:

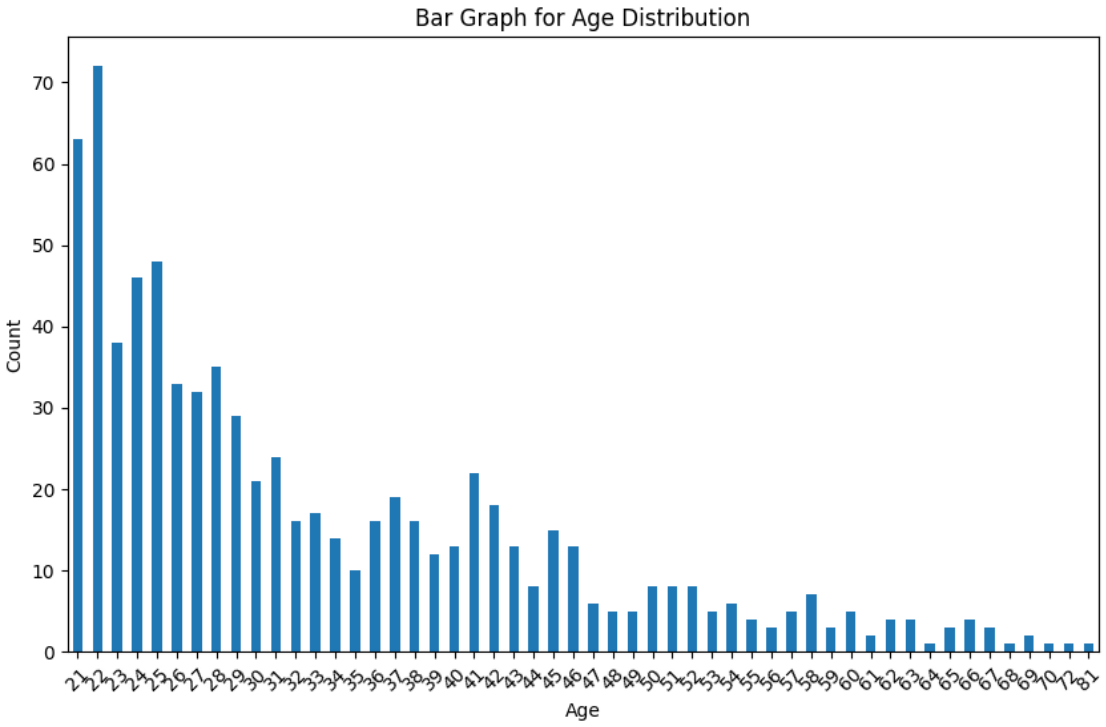
	Pregnancies	Pregnancies	BMI	Age	Insulin
0	False	False	False	False	False
1	False	False	False	False	False
2	False	False	False	False	False
3	False	False	False	False	False
4	False	False	False	False	False
..	…	…	…	…	
763	False	False	False	False	False
764	False	False	False	False	False
765	False	False	False	False	False
766	False	False	False	False	False
767	False	False	False	False	False

[768 rows x 5 columns]

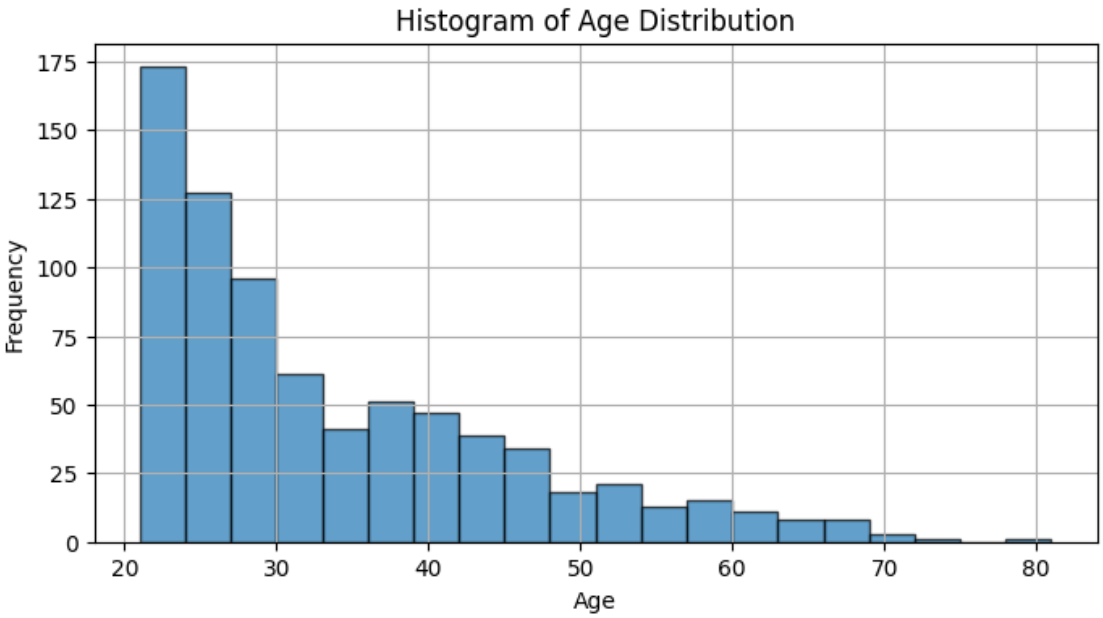
[15]:
```
# Create a pie chart for the "Age" column
age_counts = df['Age'].value_counts()
labels = age_counts.index
sizes = age_counts.values

plt.figure(figsize=(6,6))
plt.pie(sizes, labels=labels, autopct='%1.1f%%')
plt.title("Pie Chart for Age Distribution")
plt.axis('equal')  # Equal aspect ratio ensures that the pie chart is circular.

plt.show()
```



[17]:
```
# Create a bar graph for the "Age" column
age_counts = df['Age'].value_counts().sort_index()

plt.figure(figsize=(10, 6))
age_counts.plot(kind='bar')
plt.title("Bar Graph for Age Distribution")
plt.xlabel("Age")
plt.ylabel("Count")
plt.xticks(rotation=45)

plt.show()
```



[21]:
```
# Create a histogram for the "Age" column
plt.figure(figsize=(8, 4))
plt.hist(df['Age'], bins=20, edgecolor='k', alpha=0.7)
plt.title("Histogram of Age Distribution")
plt.xlabel("Age")
plt.ylabel("Frequency")
plt.grid(True)

plt.show()
```


Histogram of Age Distribution
Frequency
Age
0
25
50
75
100
125
150
175
20
30
40
50
60
70
80