IBM NAANMUDHALVAN

PHASE 3

DOMAIN – ELECTRICITY PRICE PREDICTION

INTRODUCTION:

Electricity is a*basic human need* and definitely one of the most important factors of societal progress. In recent decades however, electricity has entered the market as a tradeable commodity and the power industry of many countries has been **deregulated**. In Spain, the Electric Power Act 54/1997 exposed all of the stakeholders to **high amounts of uncertainty** as the price of electricity is determined by countless factors and also, due to the fact that electricity cannot be stored in large quantities efficiently . With the emergence of this new market, the need for reliable forecasting methods at all scales (hourly, daily, long-term, etc.) has also emerged and has become a large area of research.

DATASET:

Electricity price prediction

ABOUT:

- Loading a dataset
- Preprocessing dataset
  - Data cleaning
  - Data transformation
  - Data reduction

PROGRAM:

LOAD THE DATASET:

```
import pandas as pd

a=pd.read_csv('Electricity.csv')
```

```
a
```
38014 rows × 18 columns

```
a.head(5)
```

```
a.tail(5)
```

```
a.isnull()
```

```
a.shape
```
(38014, 18)

```
a.info()
```
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 38014 entries, 0 to 38013
Data columns (total 18 columns):
 #   Column                 Non-Null Count  Dtype 
---  ------                 --------------  ----- 
 0   DateTime               38014 non-null  object
 1   Holiday                38014 non-null  object
 2   HolidayFlag            38014 non-null  int64 
 3   DayOfWeek              38014 non-null  int64 
 4   WeekOfYear             38014 non-null  int64 
 5   Day                    38014 non-null  int64 
 6   Month                  38014 non-null  int64 
 7   Year                   38014 non-null  int64 
 8   PeriodOfDay            38014 non-null  int64 
 9   ForecastWindProduction  38014 non-null  object
 10  SystemLoadEA           38014 non-null  object
 11  SMPEA                  38014 non-null  object
 12  ORKTemperature         38014 non-null  object
 13  ORKWindspeed           38014 non-null  object
 14  CO2Intensity           38014 non-null  object
 15  ActualWindProduction   38014 non-null  object
 16  SystemLoadEP2          38014 non-null  object
 17  SMPEP2                 38014 non-null  object
dtypes: int64(7), object(11)
memory usage: 5.2+ MB
```

```
a.nunique()
```

```
DateTime                 38014
Holiday                  15
HolidayFlag              2
DayOfWeek                7
WeekOfYear               52
Day                      31
Month                    12
Year                     3
```

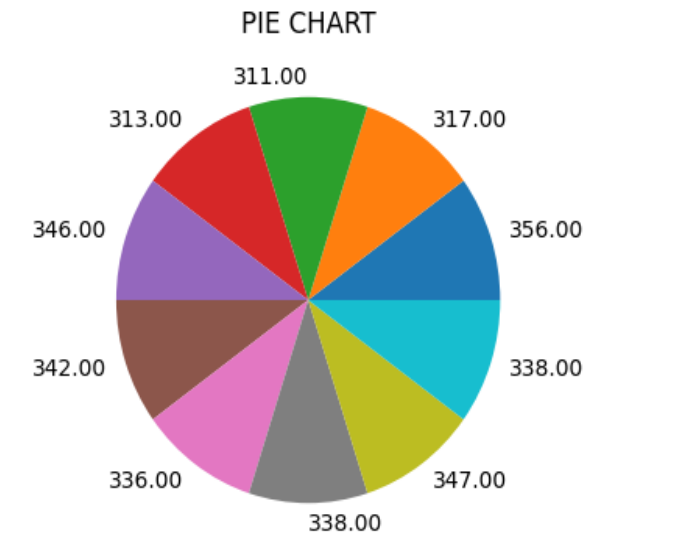
```
PeriodOfDay                 48
ForecastWindProduction   29312
SystemLoadEA             36166
SMPEA                     8661
ORKTemperature              32
ORKWindspeed                53
CO2Intensity             25115
ActualWindProduction      2940
SystemLoadEP2            36171
SMPEP2                    9277
dtype: int64
```

```
a.isnull().sum()
```

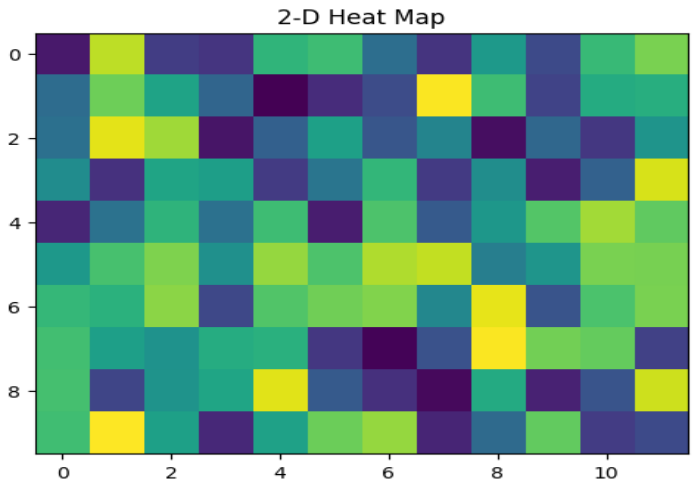
```
DateTime             0

Holiday              0

HolidayFlag          0

DayOfWeek            0

WeekOfYear           0

Day                  0

Month                0

Year                 0

PeriodOfDay          0

ForecastWindProduction 0

SystemLoadEA         0

SMPEA                0

ORKTemperature       0

ORKWindspeed         0

CO2Intensity         0

ActualWindProduction   0

SystemLoadEP2        0

SMPEP2               0

dtype: int64
```

```
a.duplicated().any()
```
False

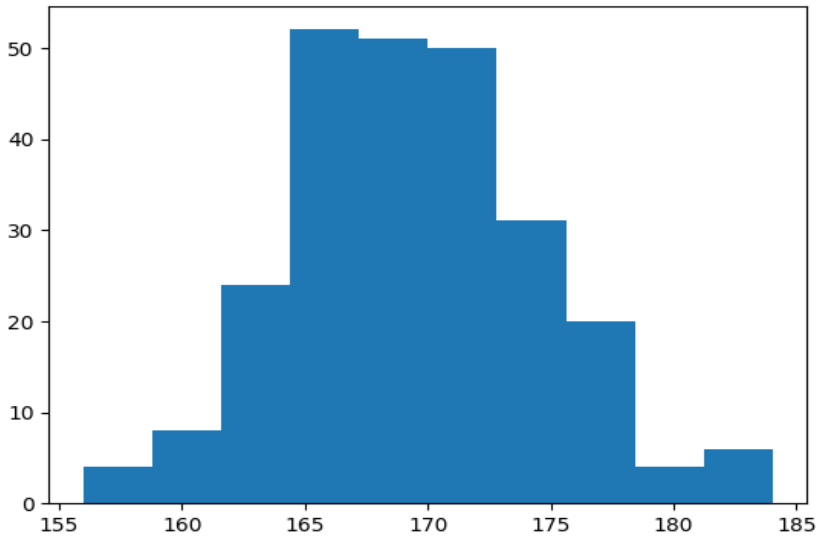
```
df=a['Year'].head(10)
df1=a['ActualWindProduction'].head(10)
fig = plt.figure(figsize =(4,4))
plt.pie(df, labels= df1)
plt.title("PIE CHART")
plt.show()
```




```
import numpy as np
import matplotlib.pyplot as plt
a = np.random.random(( 10, 12 ))
plt.imshow( a )
plt.title( "2-D Heat Map" )
plt.show()
```




```
import matplotlib.pyplot as plt
import numpy as np
x = np.random.normal(170, 5, 250)
plt.hist(x)
plt.show()
```



CONCLUSION:

The dataset has been preprocessed and visualized successfully in the given dataset.

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