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In [23]: #program 1
def linear_search(arr, x):
    for i in range(len(arr)):
        if arr[i] == x:
            return i
    return -1

arr = [3, 5, 1, 9, 2, 7]
x = eval(input("Enter the number"))
index = linear_search(arr, x)
if index != -1:
    print(f"({x}) is found at index {index} in {arr}")
else:
    print(f"({x}) is not found in {arr}")

Enter the number8
8 is not found in [3, 5, 1, 9, 2, 7]
```

```
In [24]: #program 2
import bisect
def insert(list,n):
    bisect.insort(list,n)
    return list
list=[1,2,4,5]
n=eval(input("Enter="))
print(insert(list,n))

Enter=3
[1, 2, 3, 4, 5]
```

```
In [75]: class Person:
    def __init__(self, name, age):
        self.name = name
        self.age = age

    def display(self):
        print("Name", self.name)
        print("Age", self.age)

class Employee(Person):
    def __init__(self, name, age, salary):
        super().__init__(name, age)
        self.salary = salary

    def display(self):
        super().display()
        print("Salary:", self.salary)

class Manager(Employee):
    def __init__(self, name, age, salary, bonus):
        super().__init__(name, age, salary)
        self.bonus = bonus

    def display(self):
        super().display()
        print("Bonus", self.bonus)

person = Person("John", 30)
person.display()

employee = Employee("Jane", 25, 50000)
employee.display()

manager = Manager("Bob", 35, 75000, 10000)
manager.display()

# This program defines three classes: Person, Employee, and Manager. The Person class has two
# attributes: name and age, and a method display that prints the name and age of the person.
# The Employee class inherits from the Person class and adds a salary attribute and a modified
# display method that also prints the salary. The Manager class inherits from the Employee class
# and adds a bonus attribute and a modified display method that also prints the bonus.

# The program creates an instance of each class and calls the display method to print the attributes
# of each object.

# I hope that helps! Let me know if you have any other questions.
```

```
In [22]: #program 4
import pandas as pd
import numpy as np

# Importing the dataset
df = pd.read_csv("C:\Users\lenovo\Desktop\AD_Java\PYTHON LAB\PYTHON LAB\Toyota.csv")

# Cleaning the data
df = df.dropna() # Drop any rows with missing values
df = df.drop_duplicates() # Drop any duplicate rows

# Data frame manipulation using Numpy
# Convert a column to a Numpy array
my_array = np.array(df["Age"])

# Find the mean of a column using Numpy
my_mean = np.mean(df["Age"])

# Add a new column with values calculated using Numpy
df["Age"] = np.square(df["Age"])

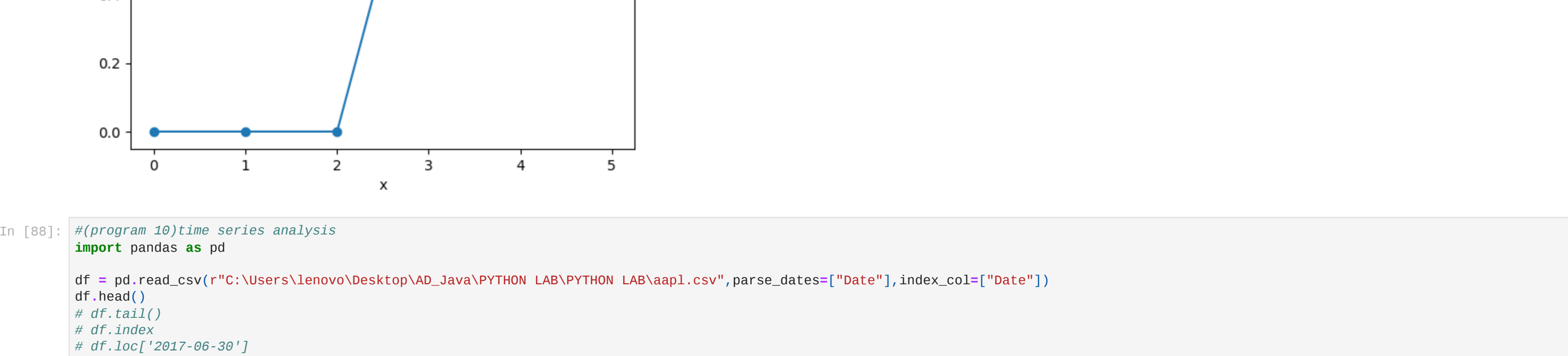
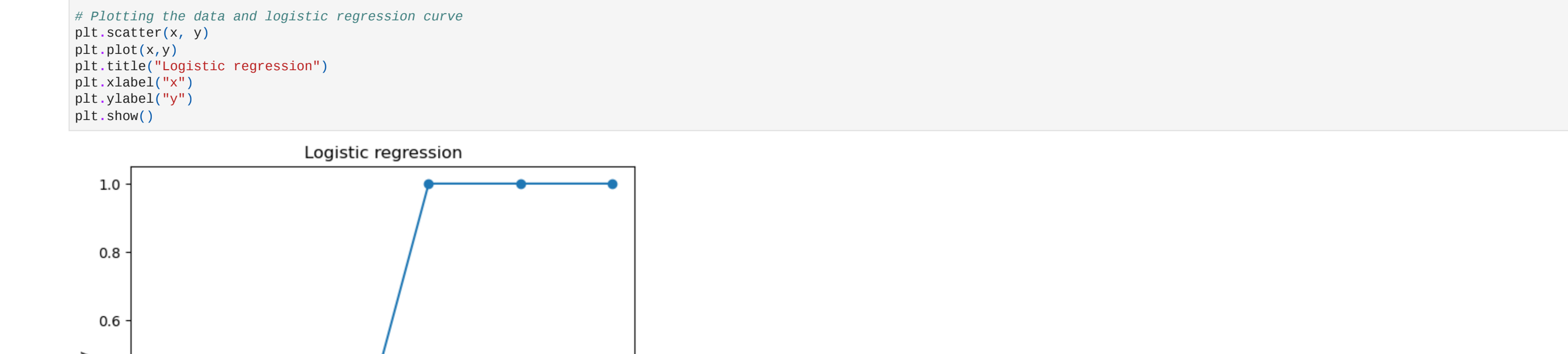
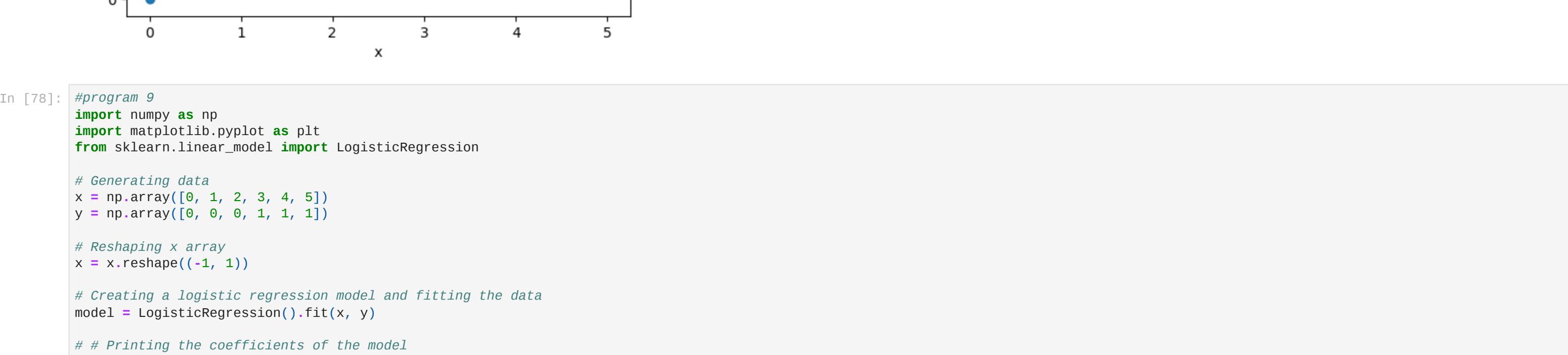
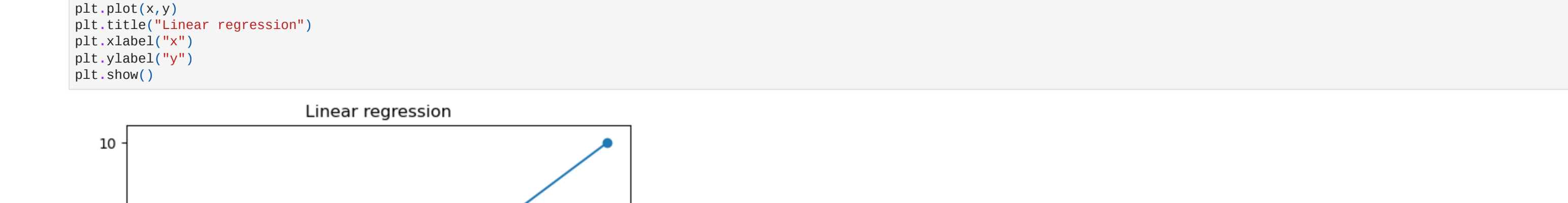
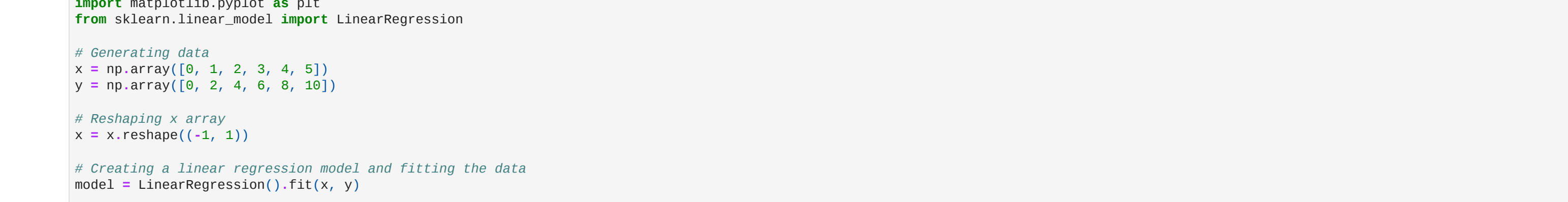
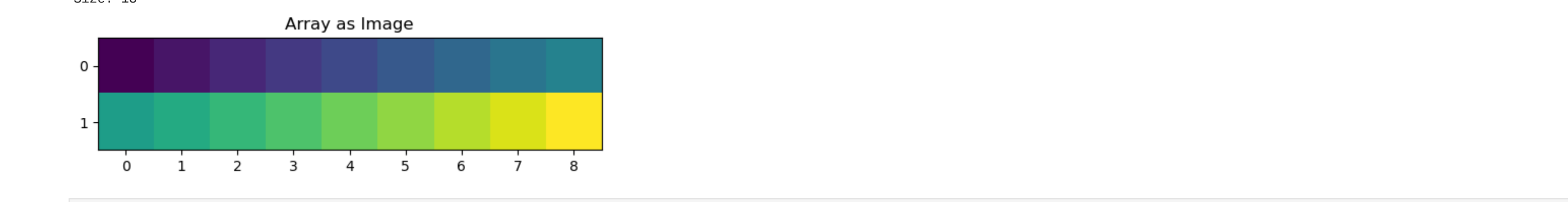
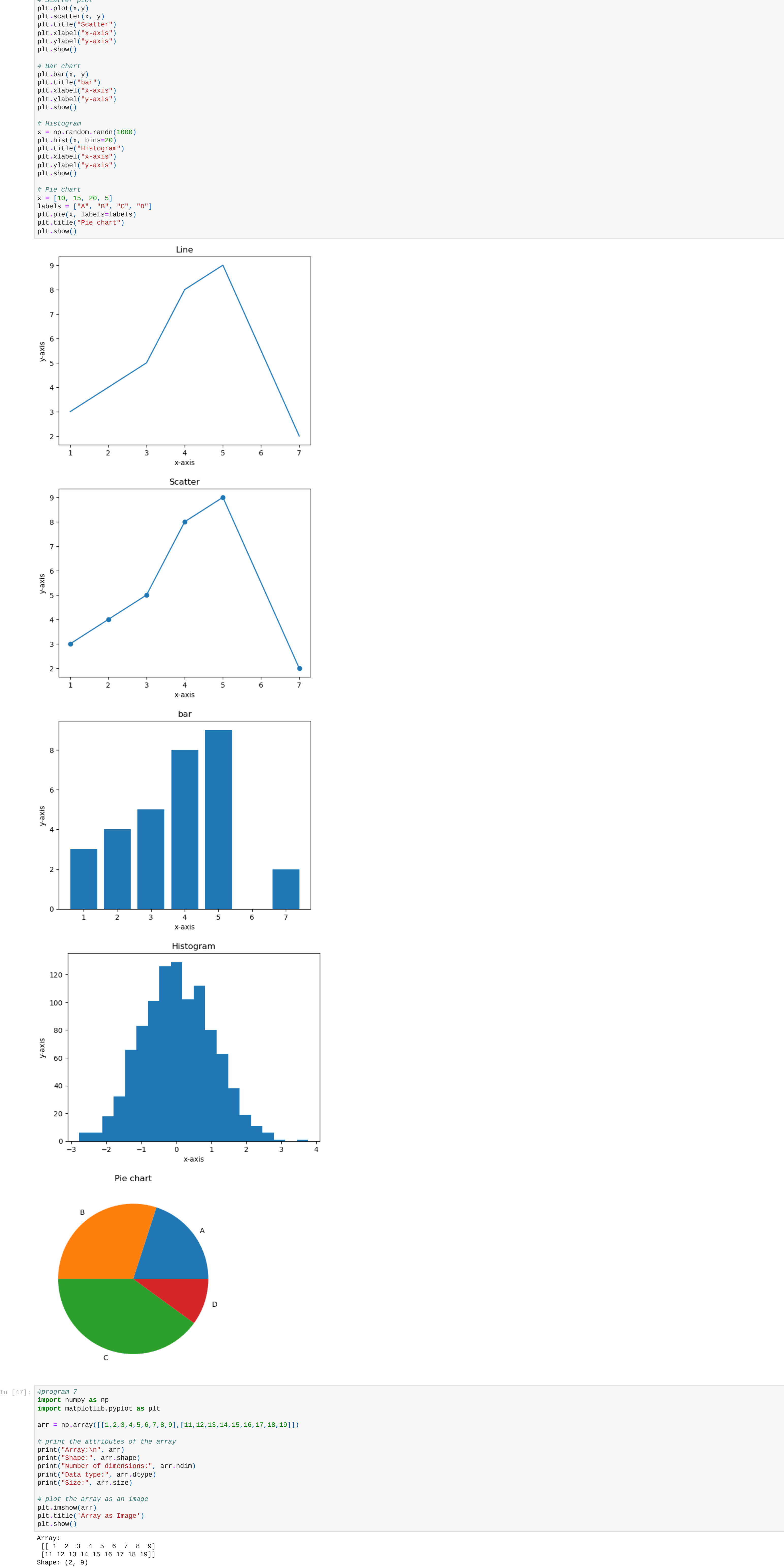
# Print the resulting data frame
print(df)
print("my_mean",my_mean)
```

```

   Unnamed: 0  Price   Age   KM  FuelType  HP  MetColor  Automatic  \
0            0    0  13500   525.0  46986   Diesel    90      1.0      0
1            1    1  13750   525.0  72937   Diesel    90      1.0      0
3            3    3  14950   676.0  48000   Diesel    90      0.0      0
4            4    4  13750   980.0  38500   Diesel    90      0.0      0
5            5    5  12900  1024.0  63900   Diesel    90      0.0      0
...         ...    ...    ...    ...    ...    ...    ...    ...
1425         1425  7950  6400.0   ??    Petrol    86      1.0      0
1429         1429  8950  6084.0  24000   Petrol    86      1.0      1
1430         1430  8450  6400.0  23000   Petrol    86      0.0      0
1432         1432  10845  5184.0   ??    Petrol    86      0.0      0
1435         1435  6950  5776.0    1    Petrol   110      0.0      0

   CC  Doors  Weight
0    2000   three   1165
1    2000    3     1165
3    2000    3     1165
4    2000    3     1170
5    2000    3     1170
...    ...    ...    ...
1425  1300    4     1000
1429  1300    5     1005
1430  1300    3     1015
1432  1300    3     1015
1435  1600    5     1114

[111 rows x 11 columns]
my_mean= 55.58595859585959
```



```
In [88]: #(program 10)Time series analysis
import pandas as pd

df = pd.read_csv(r"C:\Users\lenovo\Desktop\AD_Java\PYTHON LAB\PYTHON LAB\AAPL.csv", parse_dates=["Date"], index_col=["Date"])
df.head()
df.tail()
df.index
df.loc['2017-08-30']
df.loc['2016-01'].head()
df.loc['2016-01'].close.mean()
df.loc['2016-01'].head(2)
```

