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Category A

Data Analysis and data science

In [1]:
```
#Data Analysis
```

Data analysis generally refers to the process of assembling, cleaning, interpreting, transforming,and modeling data to gain insights or conclusions and generate reports to help businesses become more profitable

In [2]:
```
#data science
```

Data science combines math and statistics, specialized programming, advanced analytics, artificial intelligence (AI) and machine learning with specific subject matter expertise to uncover actionable insights hidden in an organization's data. These insights can be used to guide decision makingand strategic planning

data analysis vs data science in simple expiation data analysis is an integral path of data science

Category B

The life circle of data anaysis can be categories into three steps namely:

1. Collect data
2. Analyse data
3. create report.

1.Collect Data: The data is collected from a variety of sources and is then stored to be cleaned and prepared. This step involves removing all missing values and outliers.

2.Analyse Data: As soon as the data is prepared, the next step is to analyze it. Improvements are made by running a model repeatedly. Following that, the model is validated to ensure that it is meeting the requirements.

3.Create Reports: In the end, the model is implemented, and reports are generated as well as distributed to stakeholders.

What are the tools used by data scientist

Tools used by a data scientist include the following

1.Relational databases

2.NoSQL databases

3.Big data frameworks

4.Visualization tools

5.Scraping tools

6.Programming languages

7.IDEs 8.Deep learning tools

In [ ]:

In [ ]:

In [3]:
```
#creation od dataframe
```

In [28]:
```
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
```

In [29]:
```
dic={"STATE":["Lagos","Ondo","Ogun","Oyo","Anambra","Rivers","Osun","Kano","Sokoto","K
"YEARS":[2024,2024,2024,2024,2024,2024,2024,2024,2024,2024],"ALLOCATION AMOUNT(₦)":[23
```

In [6]:
```
Federal_Allocation_2024=pd.DataFrame(dic)
```

In [7]:
```
Federal_Allocation_2024
```

Out[7]:

	STATE	YEARS	ALLOCATION AMOUNT(₦)
0	Lagos	2024	2300000000
1	Ondo	2024	1000000000
2	Ogun	2024	710000000
3	Oyo	2024	105000000
4	Anambra	2024	101000000
5	Rivers	2024	284000000
6	Osun	2024	780000000
7	Kano	2024	1300000000
8	Sokoto	2024	840000000
9	Kogi	2024	740000000

In [8]:
```
#Now let us explore the our datafreame
```

In [9]:
```
Federal_Allocation_2024["ALLOCATION AMOUNT(₦)"].max()
```

Out[9]:
```
2300000000
```

In [10]:
```
Federal_Allocation_2024["ALLOCATION AMOUNT(₦)"].min()
```

Out[10]:
```
101000000
```

In [11]:
```
Federal_Allocation_2024["ALLOCATION AMOUNT(₦)"].mode()
```

Out[11]:
```
0     101000000
1     105000000
2     284000000
3     710000000
4     740000000
5     780000000
6     840000000
7    1000000000
8    1300000000
9    2300000000
Name: ALLOCATION AMOUNT(₦), dtype: int64
```

In [12]:
```
Federal_Allocation_2024["ALLOCATION AMOUNT(₦)"].sum()
```

Out[12]:
```
8160000000
```

In [13]:
```
Federal_Allocation_2024.isnull().sum()
```

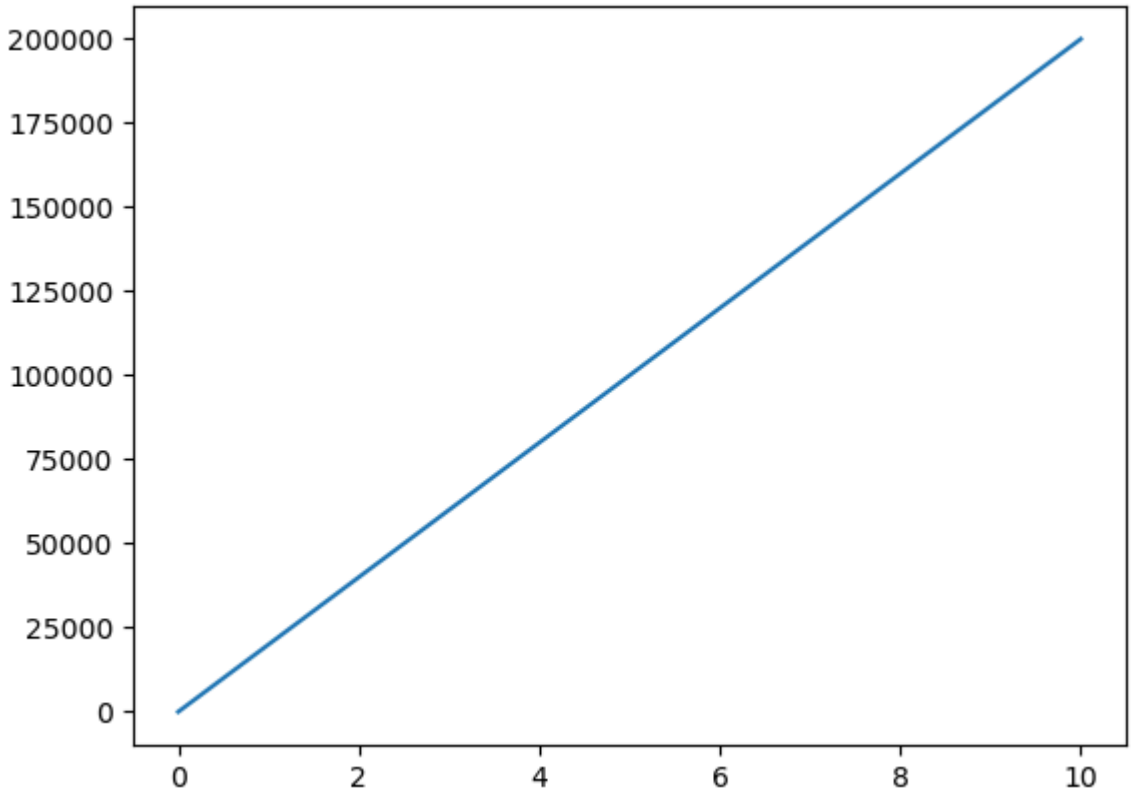
Out[13]:
```
STATE                  0
YEARS                  0
ALLOCATION AMOUNT(₦)   0
dtype: int64
```

In [14]:
```
Federal_Allocation_2024.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10 entries, 0 to 9
Data columns (total 3 columns):
 #   Column                Non-Null Count  Dtype 
---  ------                --------------  ----- 
 0   STATE                 10 non-null     object
 1   YEARS                 10 non-null     int64 
 2   ALLOCATION AMOUNT(₦)  10 non-null     int64 
dtypes: int64(2), object(1)
memory usage: 372.0+ bytes
```

In [15]:
```
xpoint=np.array([0,10])
ypoint=np.array([10,200000])
```

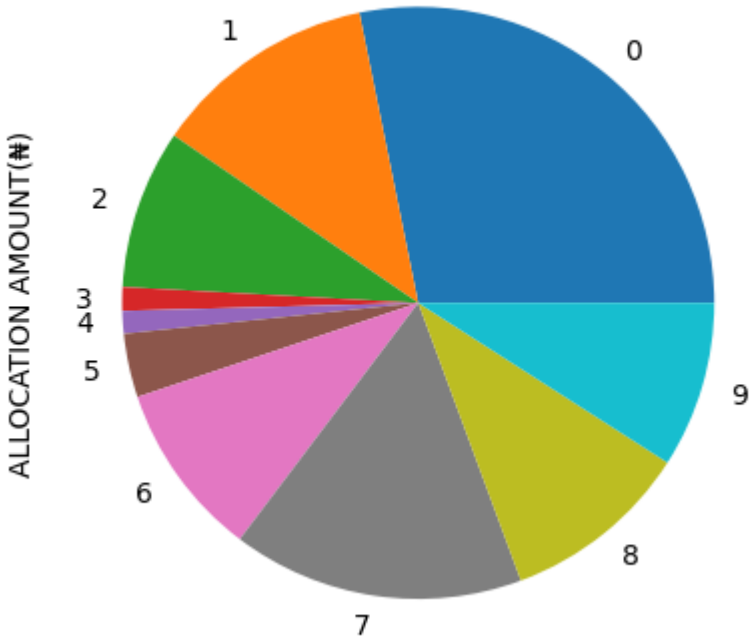
In [16]:
```
plt.plot(xpoint,ypoint)
plt.show()
```



NOW LET US VISUALIZE THE FEDERAL ALLOCATION FOR YEAR 2024

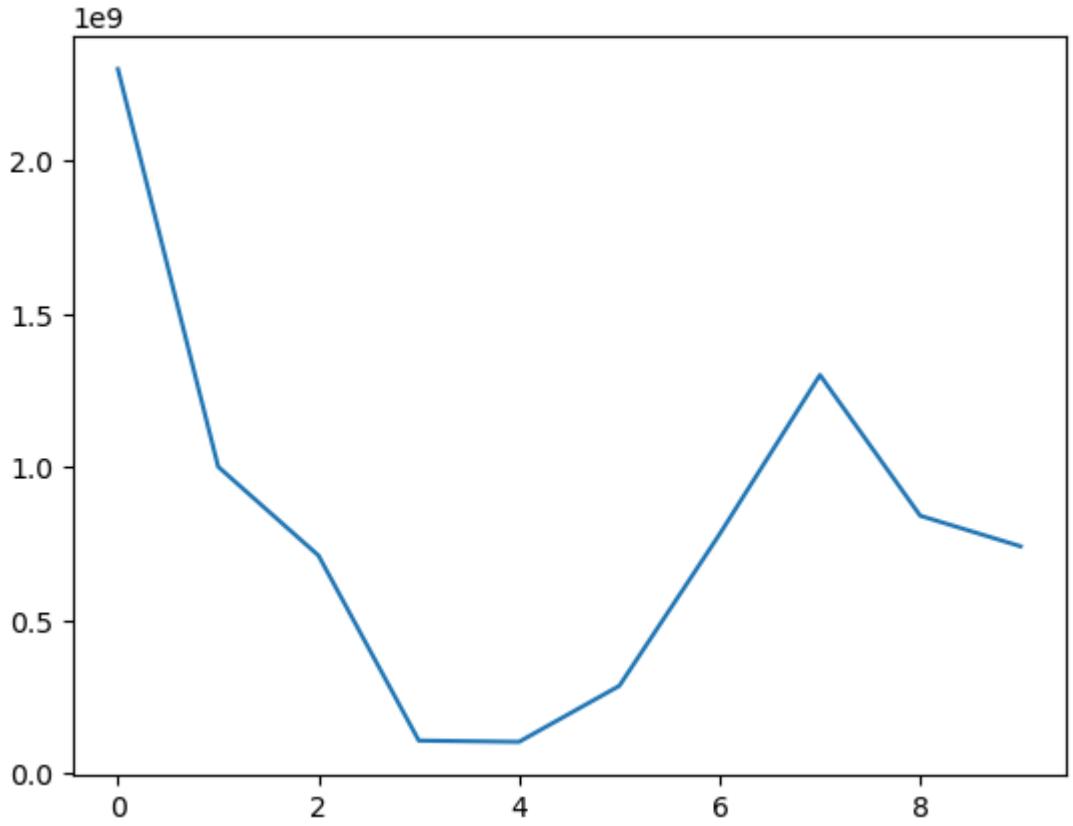
In [17]:
```
Federal_Allocation_2024["ALLOCATION AMOUNT(₦)"].plot(kind="pie")
```

Out[17]:
```
<Axes: ylabel='ALLOCATION AMOUNT(₦)'>
```



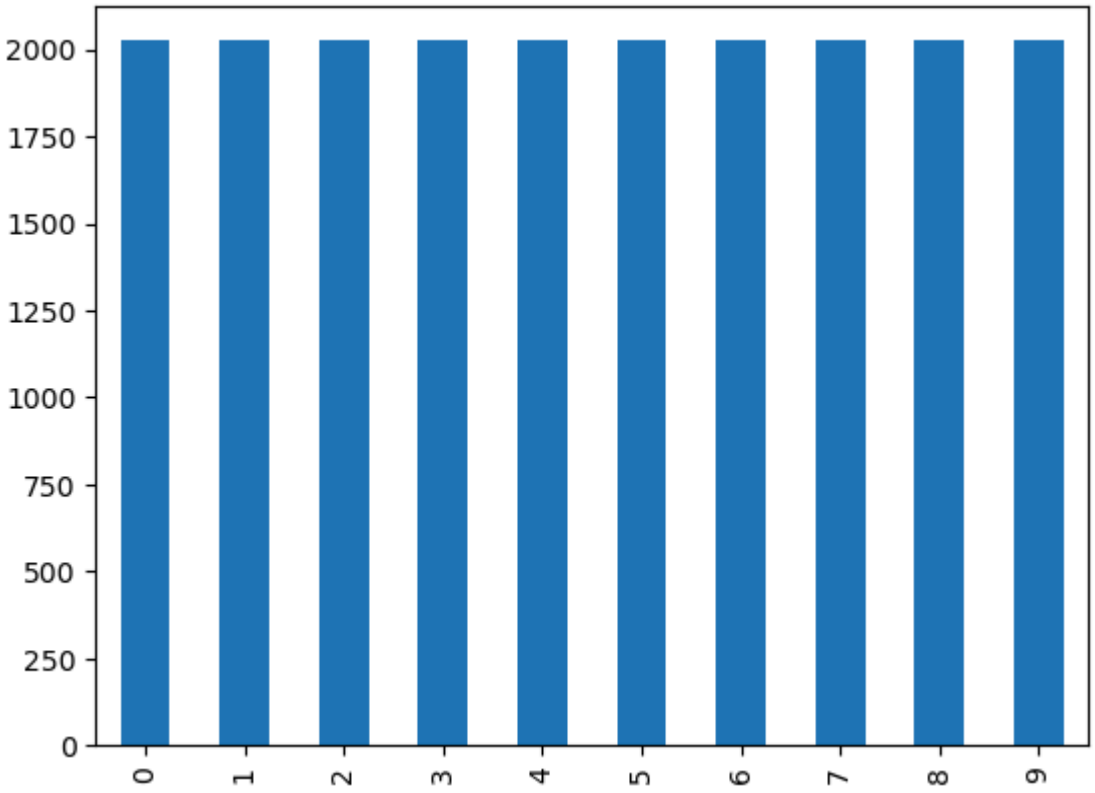
In [18]:
```
Federal_Allocation_2024["ALLOCATION AMOUNT(₦)"].plot(kind="line")
```

Out[18]: <Axes: >



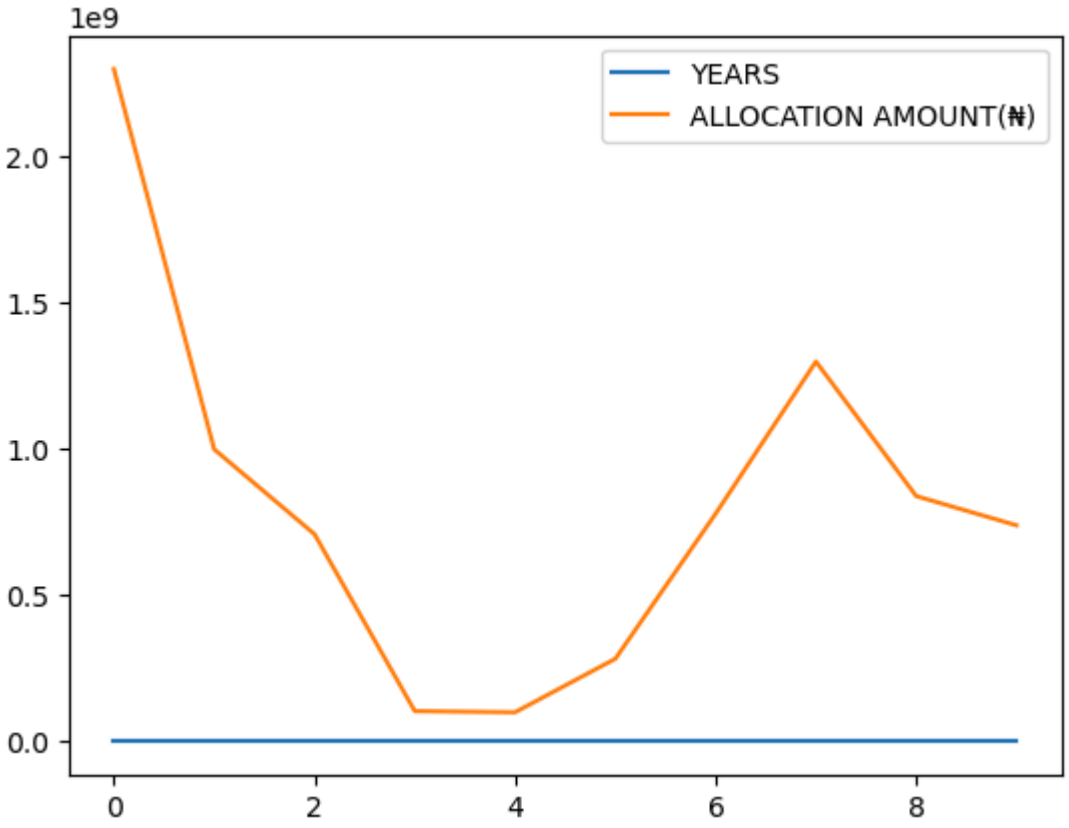
In [19]:
```
Federal_Allocation_2024["YEARS"].plot(kind="bar")
```

Out[19]: <Axes: >



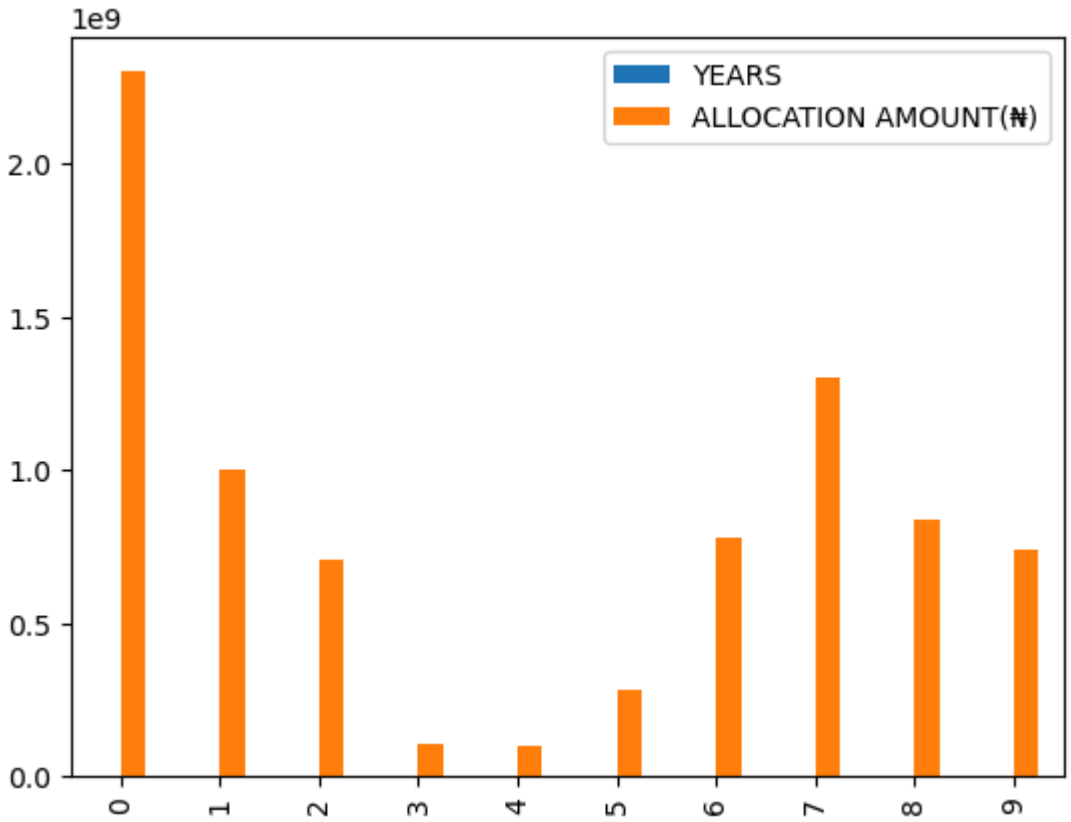
In [20]:
```
Federal_Allocation_2024.plot(kind='line')
```

Out[20]: <Axes: >



In [21]:
```
Federal_Allocation_2024.plot(kind='bar')
```

Out[21]: <Axes: >



In [67]:
```
taoheed=("thanks sir")
```

In [68]:
```
print(taoheed)
```

```
thanks sir
```

In [ ]:

In [ ]: