In [14]:
```
from pyspark.sql import SparkSession
spark = SparkSession.builder.appName('Filter_operations').getOrCreate()
spark
```

Out[14]:

SparkSession - in-memory

SparkContext

Spark UI (http://DESKTOP-5NN8I6U:4041)

Version

v3.5.1

Master

local[*]

AppName

Filter_operations

In [15]:
```
df=spark.read.csv(r'C:\Users\Neha\Downloads\NARESH IT DATA SCIENCE\MAY\
```

In [16]:
```
df.show()
```

```
+--------+------------+------+
|    Name| Departments|salary|
+--------+------------+------+
|    jack|Data Science| 10000|
|    alex|          ML|  5000|
|caroline|          AI|  4000|
|    jack|          AI|  4000|
|  sandra|Data Science|  3000|
|    jack|         NLP| 20000|
|    alex|          AI| 10000|
|   kathy|          ML|  5000|
|  andrew|Data Science| 10000|
|    jack|         NLP|  2000|
+--------+------------+------+
```

In [17]:
```
df.printSchema()
```

```
root
 |-- Name: string (nullable = true)
 |-- Departments: string (nullable = true)
 |-- salary: integer (nullable = true)
```

In [24]:
```
df.groupby('Name')
```

Out[24]:
```
GroupedData[grouping expressions: [Name], value: [Name: string, Department
s: string ... 1 more field], type: GroupBy]
```

In [25]:
```
1 df.groupby('Name').show()
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
Cell In[25], line 1
----> 1 df.groupby('Name').show()

AttributeError: 'GroupedData' object has no attribute 'show'
```

In [22]:
```
1 df.groupby('Name').sum().show()
```

```
+--------+-----------+
|    Name|sum(salary)|
+--------+-----------+
|    jack|      36000|
|  andrew|      10000|
|  sandra|       3000|
|    alex|      15000|
|   kathy|       5000|
|caroline|       4000|
+--------+-----------+
```

In [26]:
```
1 df.show()
```

```
+--------+------------+------+
|    Name| Departments|salary|
+--------+------------+------+
|    jack|Data Science| 10000|
|    alex|          ML|  5000|
|caroline|          AI|  4000|
|    jack|          AI|  4000|
|  sandra|Data Science|  3000|
|    jack|         NLP| 20000|
|    alex|          AI| 10000|
|   kathy|          ML|  5000|
|  andrew|Data Science| 10000|
|    jack|         NLP|  2000|
+--------+------------+------+
```

In [27]:
```
1 df.groupby('Name').sum().show()
```

```
+--------+-----------+
|    Name|sum(salary)|
+--------+-----------+
|    jack|      36000|
|  andrew|      10000|
|  sandra|       3000|
|    alex|      15000|
|   kathy|       5000|
|caroline|       4000|
+--------+-----------+
```

In [28]:
```
1 df.groupby('Name').avg().show()
```

```
+--------+-----------+
|    Name|avg(salary)|
+--------+-----------+
|    jack|     9000.0|
|  andrew|    10000.0|
|  sandra|     3000.0|
|    alex|     7500.0|
|   kathy|     5000.0|
|caroline|     4000.0|
+--------+-----------+
```

In [30]:
```
1 df.groupby('Departments').sum().show()
```

```
+------------+-----------+
| Departments|sum(salary)|
+------------+-----------+
|         NLP|      22000|
|          AI|      18000|
|          ML|      10000|
|Data Science|      23000|
+------------+-----------+
```

In [31]:
```
1 df.groupby('Departments').mean().show()
```

```
+------------+-----------------+
| Departments|      avg(salary)|
+------------+-----------------+
|         NLP|          11000.0|
|          AI|           6000.0|
|          ML|           5000.0|
|Data Science|7666.666666666667|
+------------+-----------------+
```

In [32]:
```
1 df.groupby('Departments').min().show()
```

```
+------------+-----------+
| Departments|min(salary)|
+------------+-----------+
|         NLP|       2000|
|          AI|       4000|
|          ML|       5000|
|Data Science|       3000|
+------------+-----------+
```

In [33]:
```
1 df.groupby('Departments').max().show()
```

```
+------------+-----------+
| Departments|max(salary)|
+------------+-----------+
|         NLP|      20000|
|          AI|      10000|
|          ML|       5000|
|Data Science|      10000|
+------------+-----------+
```

In [34]:
```
1 df.groupby('Departments').count().show()
```

```
+------------+-----+
| Departments|count|
+------------+-----+
|         NLP|    2|
|          AI|    3|
|          ML|    2|
|Data Science|    3|
+------------+-----+
```

In [35]:
```
1 df.agg({'Salary':'sum'}).show()
```

```
+-----------+
|sum(Salary)|
+-----------+
|      73000|
+-----------+
```

In [36]:
```
1 df.agg({'Salary':'min'}).show()
```

```
+-----------+
|min(Salary)|
+-----------+
|       2000|
+-----------+
```

In [37]:
```
1 df.agg({'Salary':'max'}).show()
```

```
+-----------+
|max(Salary)|
+-----------+
|      20000|
+-----------+
```

In [38]:
```
1 df.agg({'Salary':'count'}).show()
```

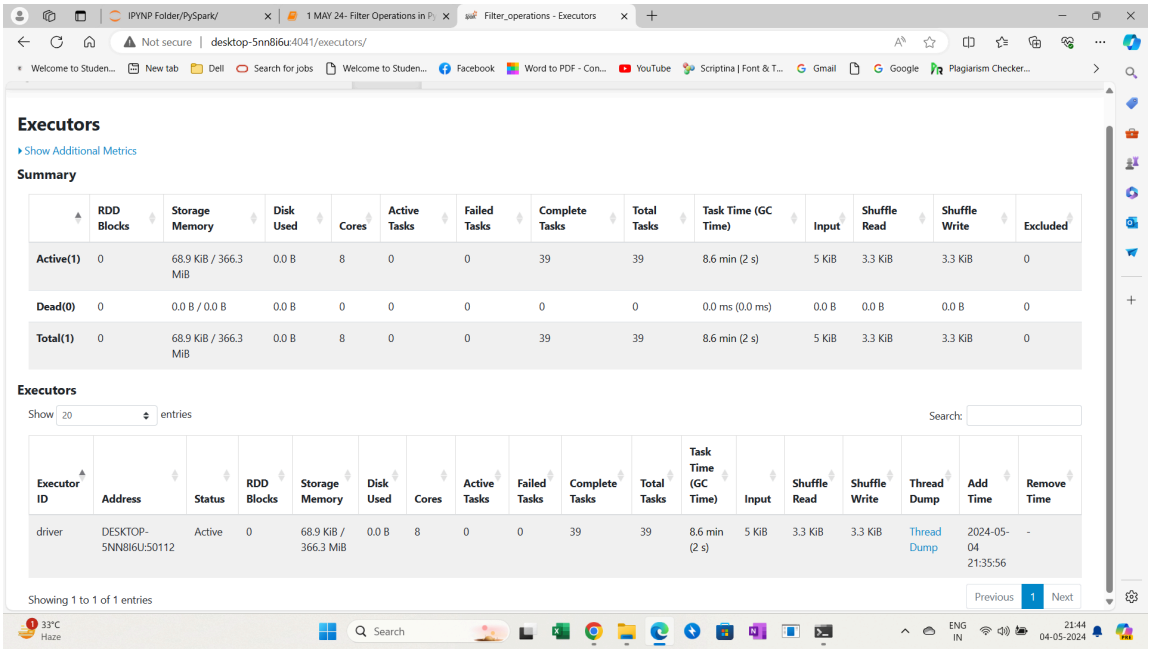
```
+-------------+
|count(Salary)|
+-------------+
|           10|
+-------------+
```

In [39]:
```
1 df.agg({'Salary':'median'}).show()
```

```
+--------------+
|median(Salary)|
+--------------+
|        5000.0|
+--------------+
```

In [40]:
```
1 df.agg({'Salary':'mode'}).show()
```

```
+------------+
|mode(Salary)|
+------------+
|       10000|
+------------+
```



In [ ]:
```
1
```