Name: Rohan Vinayak Chaudhari

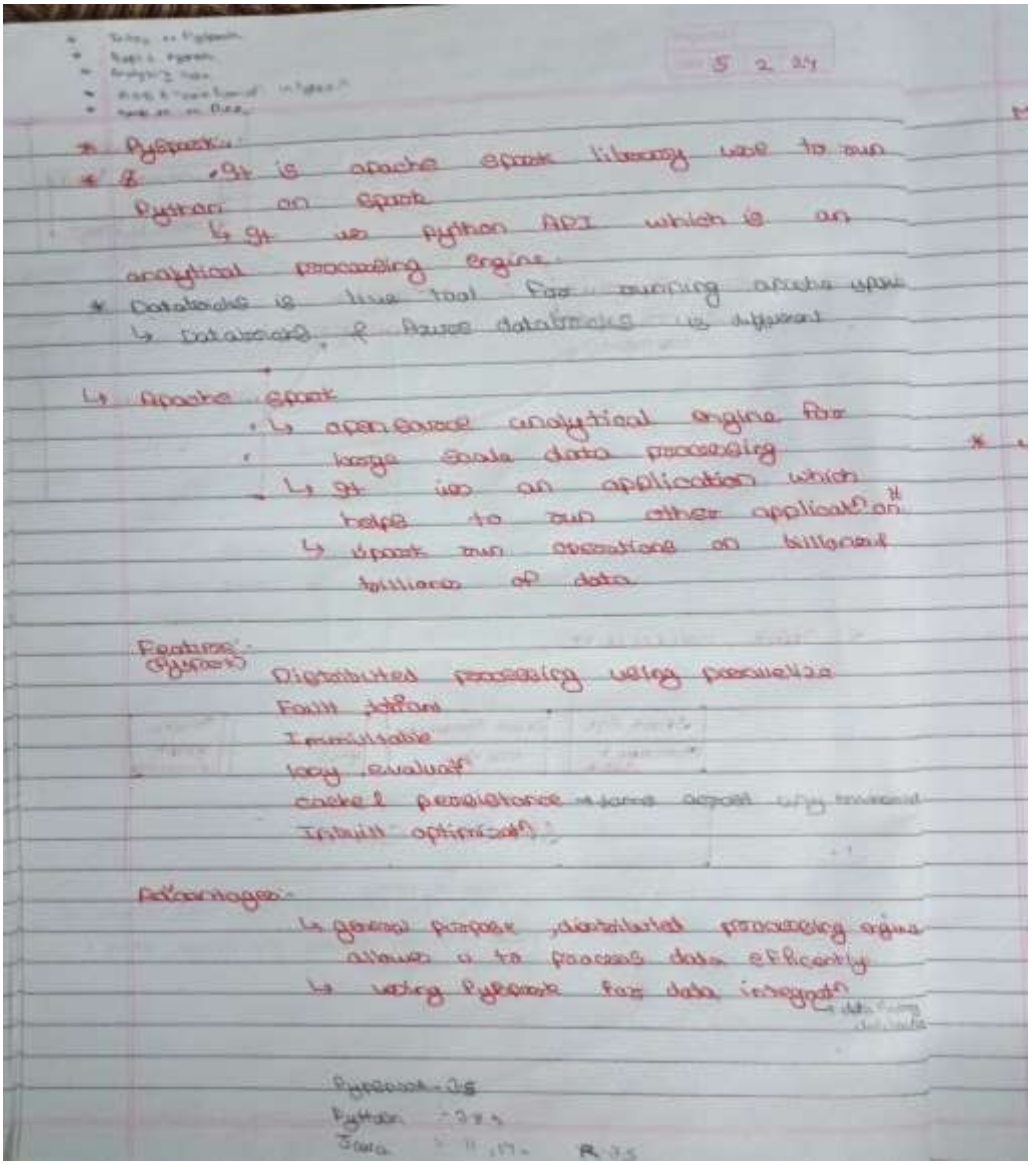
Batch: Data Engineering

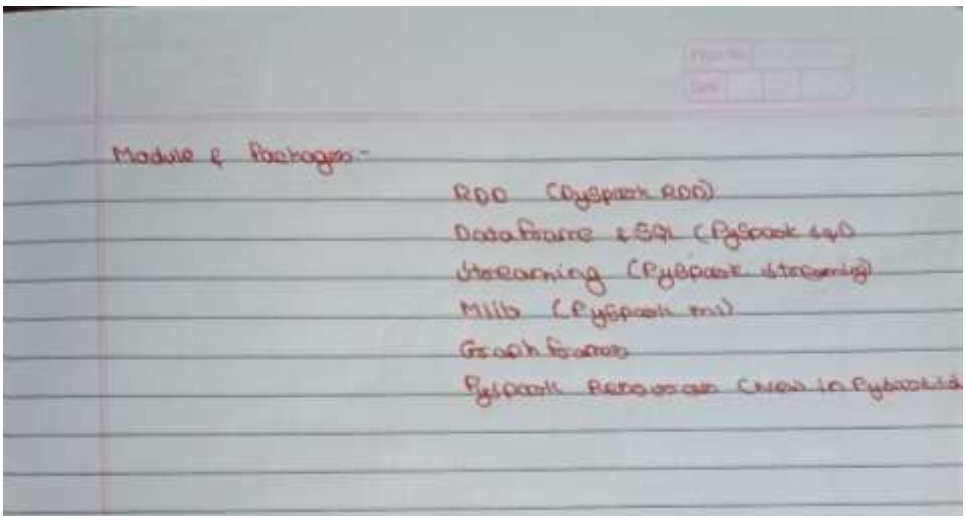
Date:05/02/2024

Topic: Pyspark

Solution:

1.Pyspark:





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Run Code

```
In [5]: import pyspark
```

```
In [8]: import findspark
```

```
In [10]: from pyspark.sql import SparkSession
```

```
In [11]: spark=SparkSession.builder.appName('Dataframe').getOrCreate()
```

```
In [12]: spark
```

Out[12]:

SparkSession - in-memory

SparkContext

Spark UI

Version
v3.5.0

Master
local[*]

AppName
Dataframe

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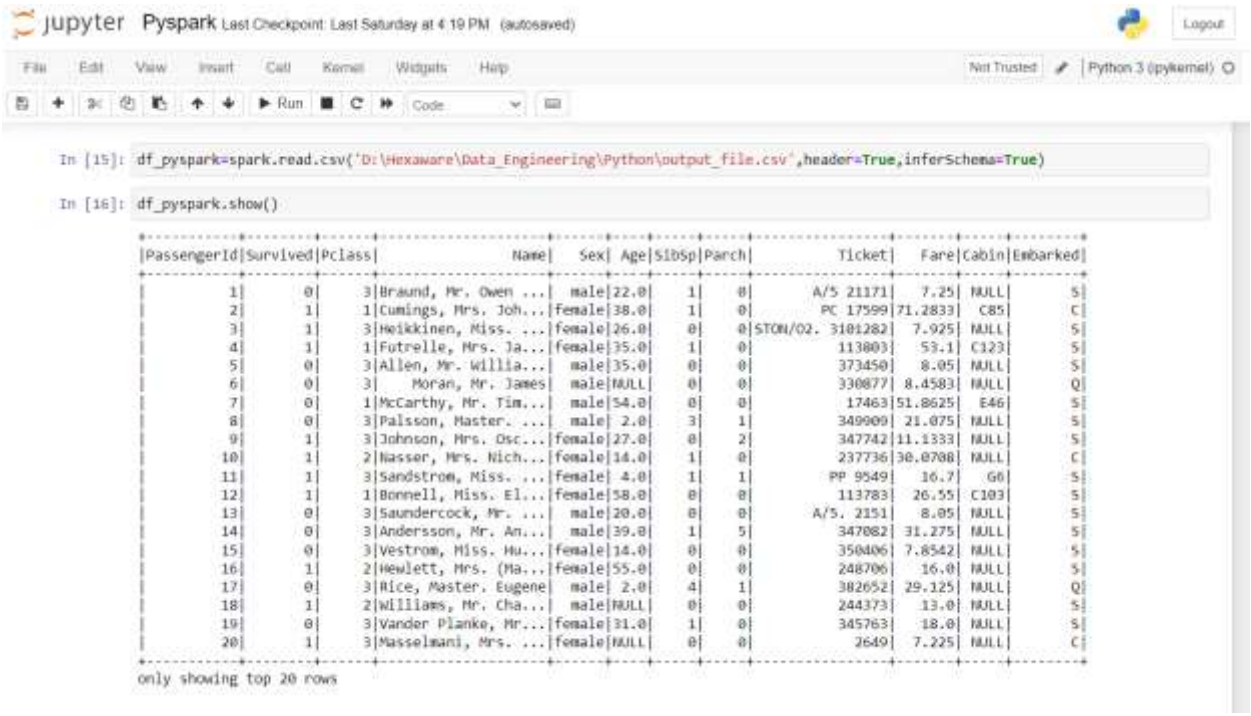
Run Code

```
In [13]: df_pyspark=spark.read.option('header','true').csv("D:\Hexaware\Data_Engineering\Python\output_file.csv",inferSchema=True)
```

```
In [14]: df_pyspark.printSchema()
```

```
root
 |-- PassengerId: integer (nullable = true)
 |-- Survived: integer (nullable = true)
 |-- Pclass: integer (nullable = true)
 |-- Name: string (nullable = true)
 |-- Sex: string (nullable = true)
 |-- Age: double (nullable = true)
 |-- SibSp: integer (nullable = true)
 |-- Parch: integer (nullable = true)
 |-- Ticket: string (nullable = true)
 |-- Fare: double (nullable = true)
 |-- Cabin: string (nullable = true)
 |-- Embarked: string (nullable = true)
```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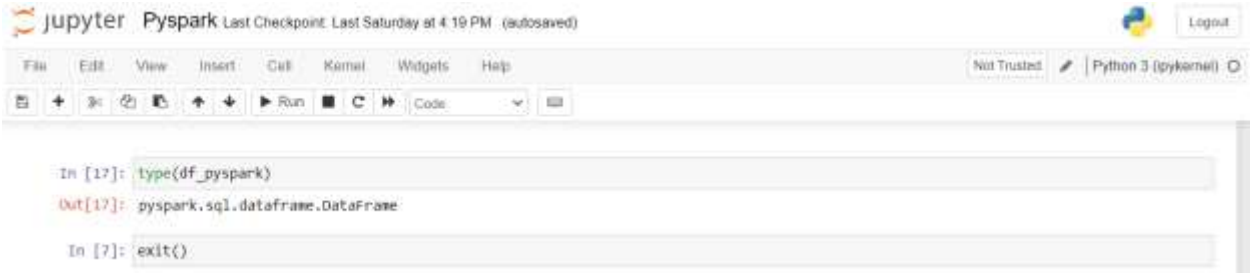
Python 3 (ipykernel)
Run
Code
In [15]: df_pyspark=spark.read.csv('D:\Hexaware\Data_Engineering\Python\output_file.csv',header=True,inferSchema=True)
In [16]: df_pyspark.show()
PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
1	0	3	Braund, Mr. Owen ...	male	22.0	1	0	A/5 21171	7.25	NULL	S
2	1	1	Cumings, Mrs. Joh...	female	38.0	1	0	PC 17599	71.2833	C85	C
3	1	3	Heikkinen, Miss. ...	female	26.0	0	0	STON/O2. 3101282	7.925	NULL	S
4	1	1	Futrelle, Mrs. Ja...	female	35.0	1	0	113803	53.1	C123	S
5	0	3	Allen, Mr. Willia...	male	35.0	0	0	373450	8.05	NULL	S
6	0	3	Moran, Mr. James	male	NULL	0	0	330877	8.4583	NULL	Q
7	0	1	McCarthy, Mr. Tim...	male	54.0	0	0	17463	51.8625	E46	S
8	0	3	Palsson, Master. ...	male	2.0	3	1	349909	21.075	NULL	S
9	1	3	Johnson, Mrs. Osc...	female	27.0	0	2	347742	11.1333	NULL	S
10	1	2	Nasser, Mrs. Nich...	female	14.0	1	0	237736	30.0708	NULL	C
11	1	3	Sandstrom, Miss. ...	female	4.0	1	1	PP 9549	16.7	G6	S
12	1	1	Bonnell, Miss. El...	female	58.0	0	0	113783	26.55	C103	S
13	0	3	Saundercock, Mr. ...	male	20.0	0	0	A/5. 2151	8.05	NULL	S
14	0	3	Andersson, Mr. An...	male	39.0	1	5	347082	31.275	NULL	S
15	0	3	Vestrom, Miss. Hu...	female	14.0	0	0	350406	7.8542	NULL	S
16	1	2	Hewlett, Mrs. (Ma...	female	55.0	0	0	248706	16.0	NULL	S
17	0	3	Rice, Master. Eugene	male	2.0	4	1	382652	29.125	NULL	Q
18	1	2	Williams, Mr. Cha...	male	NULL	0	0	244373	13.0	NULL	S
19	0	3	Vander Planke, Mr...	female	31.0	1	0	345763	18.0	NULL	S
20	1	3	Masselmani, Mrs. ...	female	NULL	0	0	2649	7.225	NULL	C
only showing top 20 rows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Python 3 (ipykernel)
Run
Code
In [17]: type(df_pyspark)
Out[17]: pyspark.sql.dataframe.DataFrame
In [7]: exit()

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Run Code

In [1]:
```
import findspark
findspark.init()
```

In [2]:
```
from pyspark import SparkContext

# Create a SparkContext
sc = SparkContext("local", "RDD Transformation Exercise")
```

In [3]:
```
# Create an RDD from a list of numbers
data = [1, 2, 3, 4, 5]
rdd = sc.parallelize(data)
```

In [4]:
```
# Use map transformation to square each element
squared_rdd = rdd.map(lambda x: x ** 2)
print("Squared RDD:", squared_rdd.collect())
```

```
Squared RDD: [1, 4, 9, 16, 25]
```

In [5]:
```
import pyspark
from pyspark.sql import SparkSession
spark = SparkSession.builder.appName('test').getOrCreate()

columns = ["language","users_count"]
data = [("Java", "20000"), ("Python", "100000"), ("Scala", "3000")]

df = spark.createDataFrame(data=data, schema=columns)
print(df.printSchema())
```

```
root
 |-- language: string (nullable = true)
```

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Run Code

In [6]:
```
df.show()
```

```
+--------+-----------+
|language|users_count|
+--------+-----------+
|    Java|      20000|
|  Python|     100000|
|   Scala|       3000|
+--------+-----------+
```

In [1]:
```
# Import SparkSession
from pyspark.sql import SparkSession


# Create SparkSession
spark = SparkSession.builder \
      .master("local[1]") \
      .appName("SparkByExamples.com") \
      .getOrCreate()
dataList = [("Java", 20000), ("Python", 100000), ("Scala", 3000)]
rdd=spark.sparkContext.parallelize(dataList)
rdd2 = spark.sparkContext.textFile("/path/test.txt")
```

In [3]:
```
rdd.collect()
```

Out[3]:
```
[('Java', 20000), ('Python', 100000), ('Scala', 3000)]
```

With Databricks: