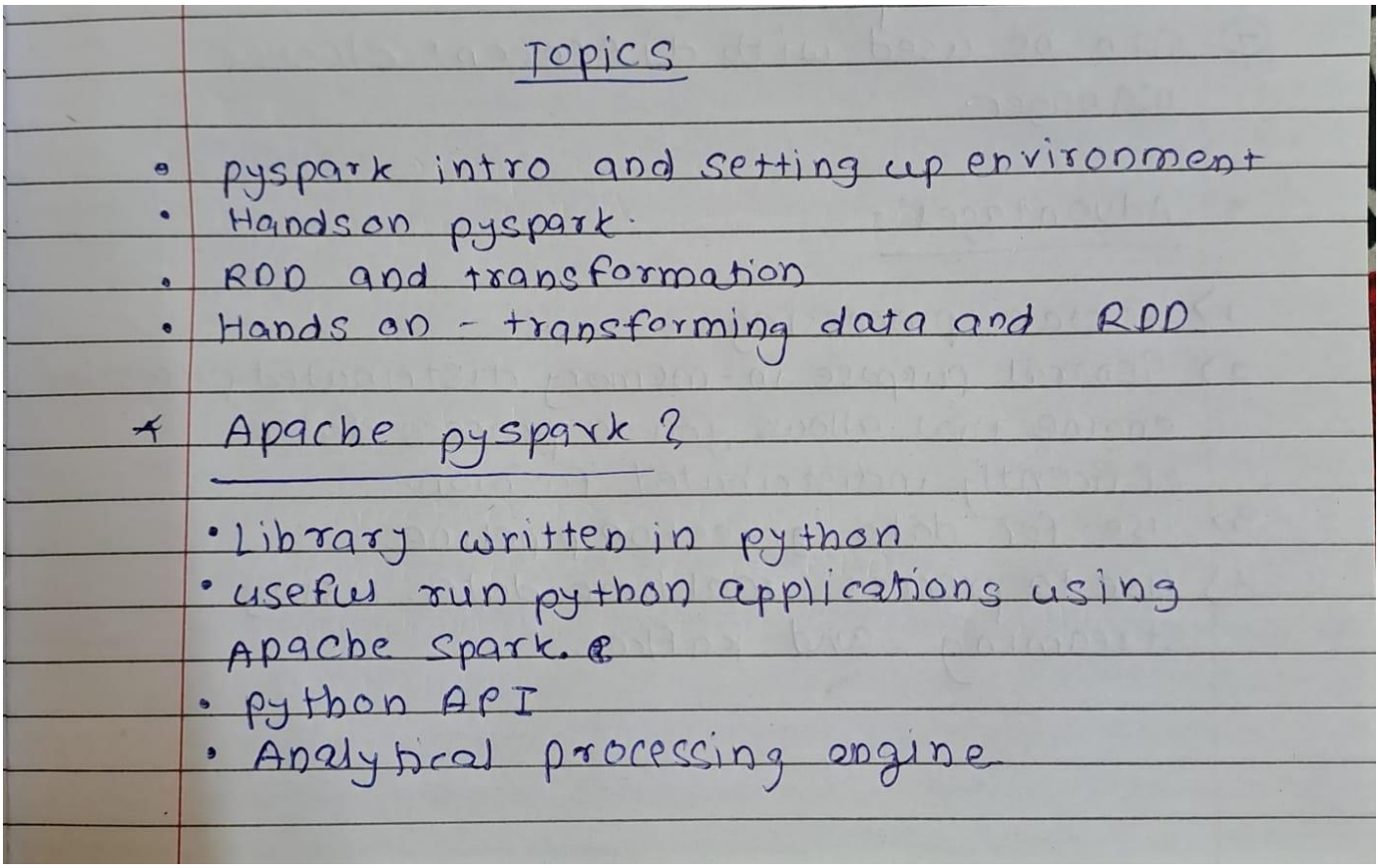
PySpark Assignment 2

Pratik Wani

- Hand Written Notes:



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* Apache Spark?

- Unified Analytical engine used for large dataset
- faster
- can run on single node or multiple nodes
- In memory processing.
- Numpy + Tenserflow

* Features:-

1. In memory computation
2. Distributed processing
3. immutable
4. Lazy evalution
5. Supports ANSI SQL
6. Cache and persistance
7. can be used with different cluster manager

* Advantages:-

1) Faster processing
2) General purpose in-memory distributed processing engine that allows you to process data efficently indistributed fashion.
3) use for data ingestion pipeline
4) use to process real time data using Streaming and Kafka.

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* Apache kafka :-
  - Event streaming platform
  - Distributed event streaming platform.

* versions

Py → 3.8 and above

Java → Java 8, 11, 13, 17 and above.

Scala → 2.12 and 2.13

R → 3.5

* python modules and package :-

- Pyspark RDD
- pyspark dataframe
- Pyspark Streaming
- pyspark MyLib
- pyspark Graphframes
- Pyspark Resource (NEW in 3.0)

* commands :

Read data from file
→ create txt file
→ val filepath = "...path..."
→ val textRDD = sc.textFile(filepath)
→ textRDD.collect()

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* RDD creation :-

2 ways:

1st

using paralize() :-
- create session
- make dataset
- then passing it in paralize()

2nd

using txt file.

textfile ("textfilename")

- Codes:
- Jupyter Notebook:

    - Read CSV

```
In [1]: import pyspark

In [2]: from pyspark.sql import SparkSession

In [3]: spark = SparkSession.builder.appName("practice").getOrCreate()

In [4]: spark

Out[4]: SparkSession - in-memory
        SparkContext

        Spark UI
        Version
        v3.5.0
        Master
        local[*]
        AppName
        practice
```

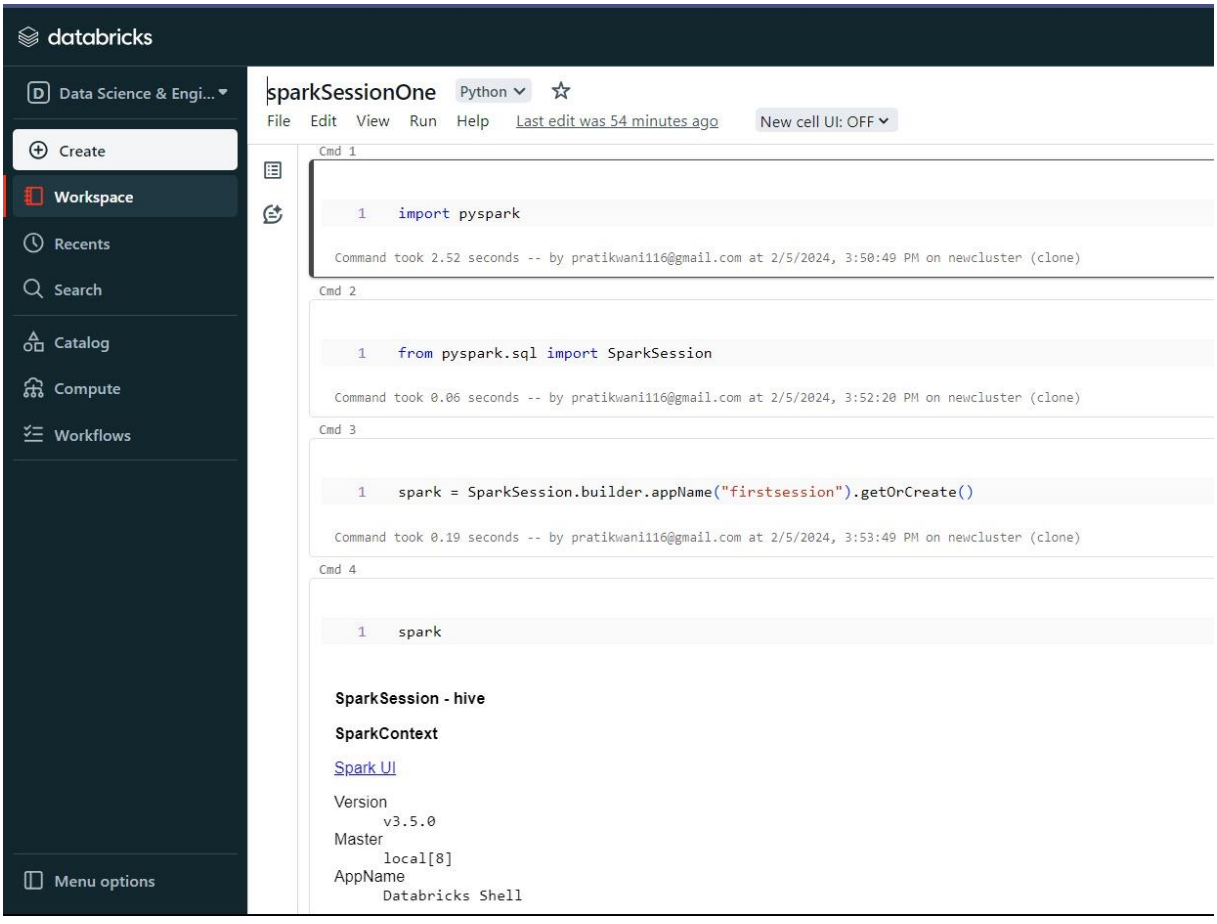
```
In [10]: df = spark.read.csv('student_salary_info.csv')
         df

Out[10]: DataFrame[_c0: string, _c1: string, _c2: string]

In [11]: df.show()

         +------+---+------+
         |   _c0|_c1|   _c2|
         +------+---+------+
         |  Name|Age|Salary|
         |Pratik| 21| 50000|
         | Vikas| 23|100000|
         | Rushi| 22|120000|
         +------+---+------+
```

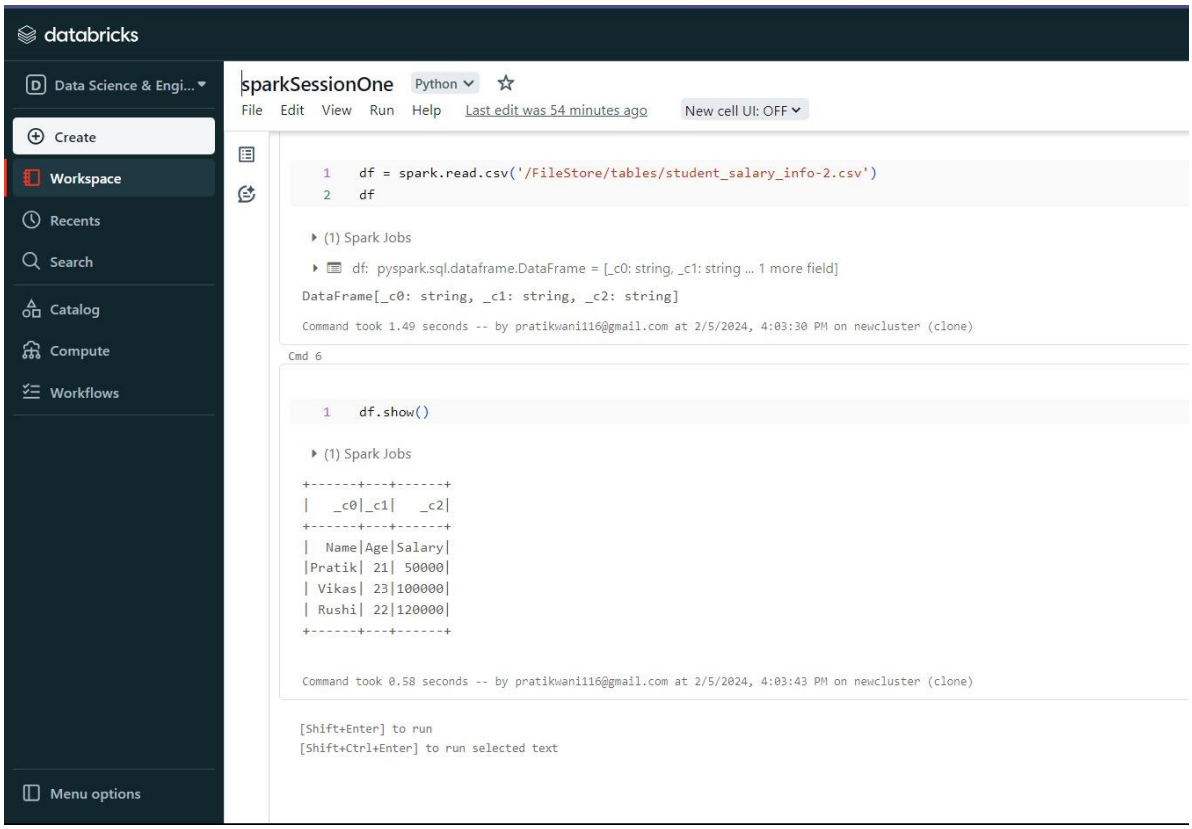
- Using Paralize()

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

In [2]: spark = SparkSession.builder \
            .master("local[1]") \
            .appName("SparkByExamples.com") \
            .getOrCreate()

In [3]: dataList = [("Shiva", 20000), ("Pratik", 100000), ("vikas", 3000)]

In [4]: rdd=spark.sparkContext.parallelize(dataList)

In [5]: rdd2 = spark.sparkContext.textFile("/path/test.txt")

In [7]: result = rdd.collect()

In [8]: result
Out[8]: [('Shiva', 20000), ('Pratik', 100000), ('vikas', 3000)]

In [9]: result
Out[9]: ('RDD Contents:', [('Shiva', 20000), ('Pratik', 100000), ('vikas', 3000)])

In [10]: rdd2=spark.sparkContext.textFile("myfile.txt")

In [11]: rdd2.collect()
Out[11]: ['Hello!!', 'My name is pratik arun wani', 'Pyspark', 'Databricks']
```

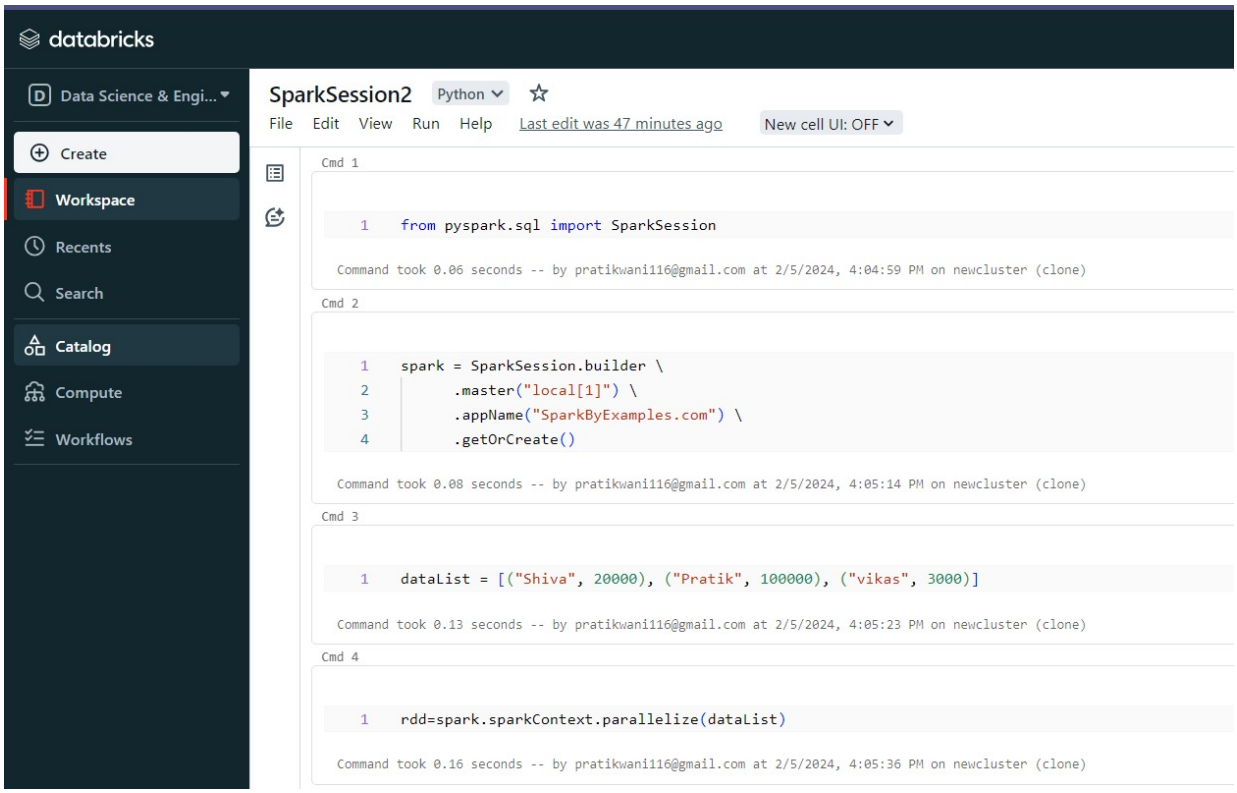
- Databricks:

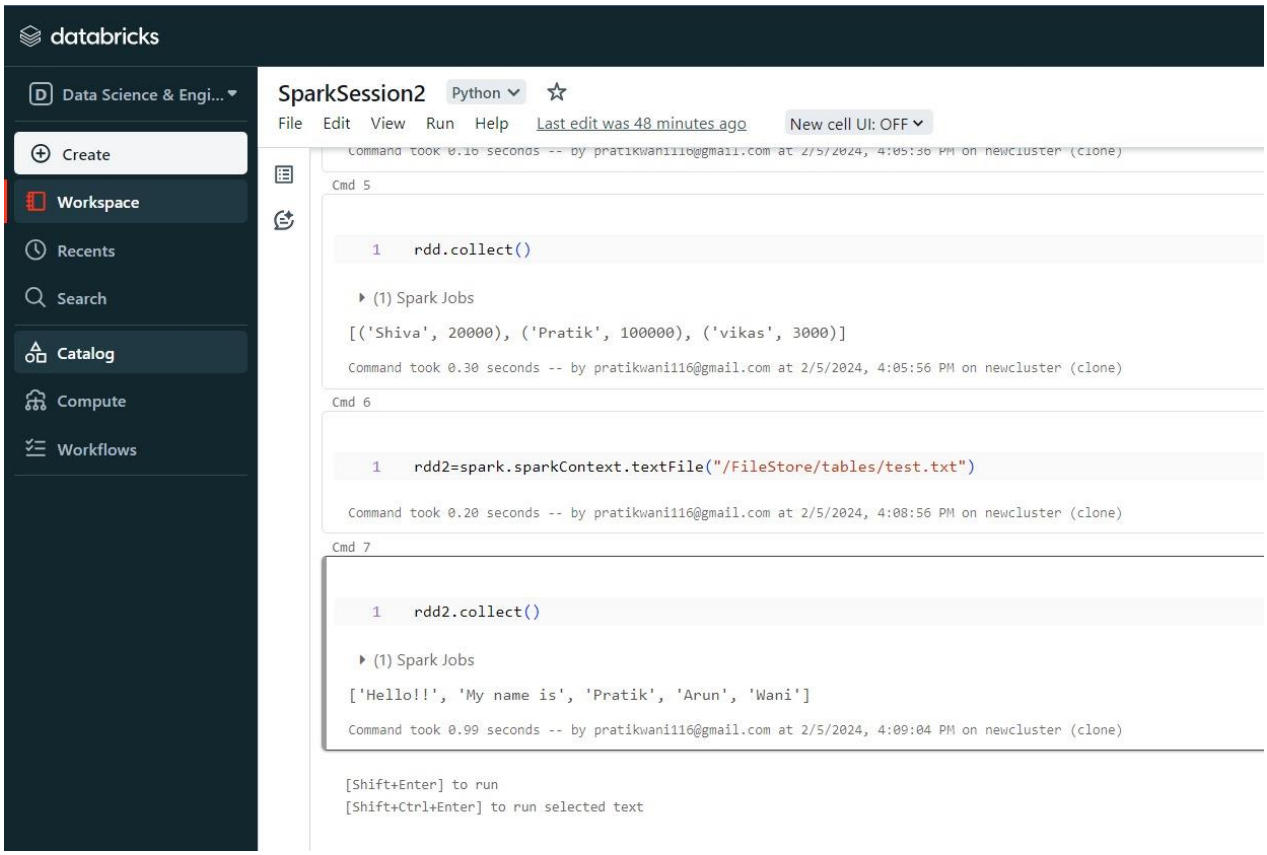
  - Read CSV





- Using Paralize()





- Local Host 4040/jobs