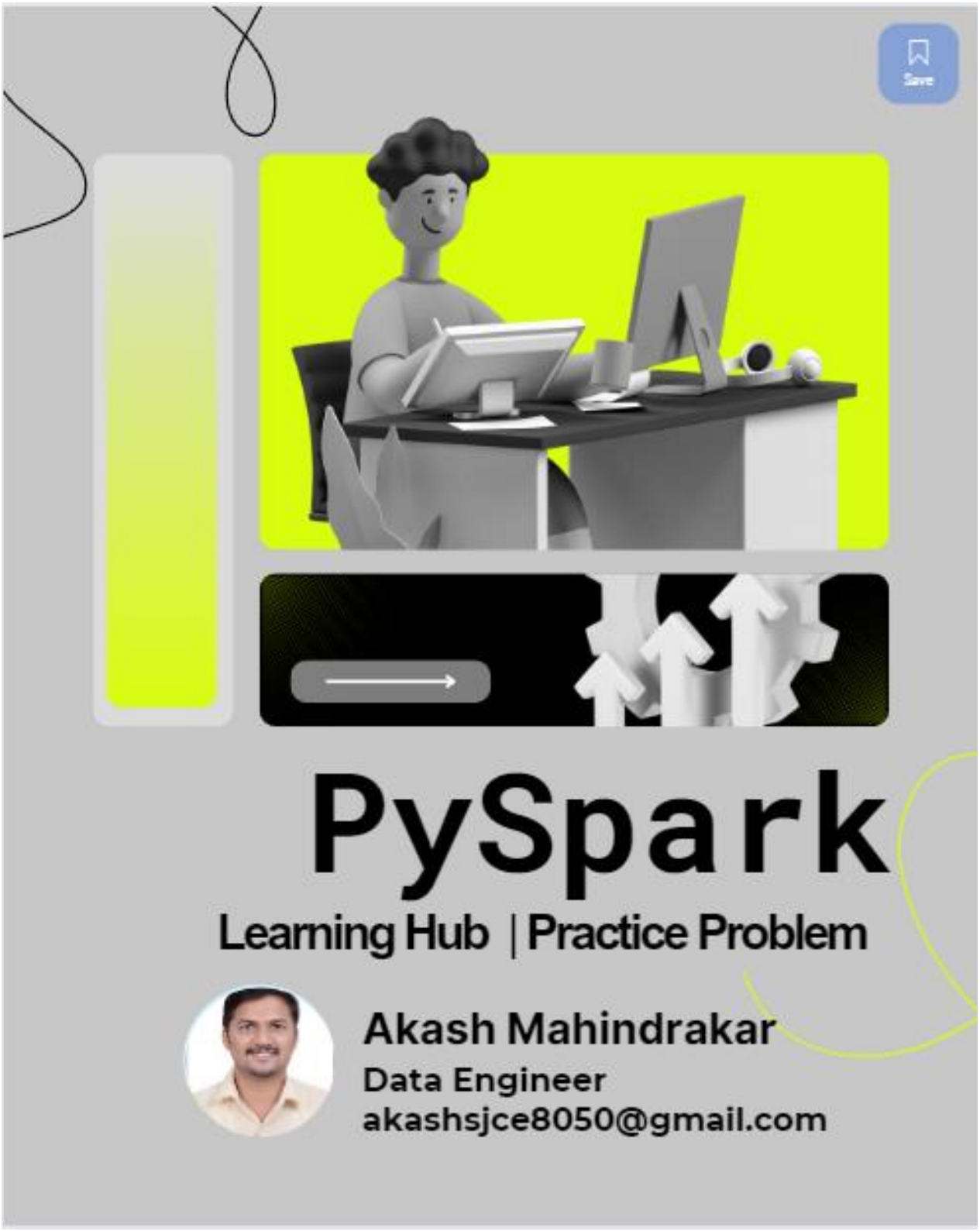
PYSPARK LEARNING HUB : DAY - 28



Step - 1 : Problem Statement

28_Join_in_pyspark

Write a pyspark code perform below function

- Write down the query to fetch Project name assign to more than one Employee
- Get employee name, project name order by firstname from "EmployeeDetail" and"ProjectDetail" for those employee which have assigned project already.

Difficult Level : EASY

DataFrame:

```
data = [
        [1, "Vikas", "Ahlawat", 600000.0, "2013-02-15 11:16:28.290", "IT", "Male"],
        [2, "nikita", "Jain", 530000.0, "2014-01-09 17:31:07.793", "HR", "Female"],
        [3, "Ashish", "Kumar", 1000000.0, "2014-01-09 10:05:07.793", "IT", "Male"],
        [4, "Nikhil", "Sharma", 480000.0, "2014-01-09 09:00:07.793", "HR", "Male"],
        [5, "anish", "kadian", 500000.0, "2014-01-09 09:31:07.793", "Payroll", "Male"],
]
```

```
# Create a schema for the DataFrame
schema = StructType([
        StructField("EmployeeID", IntegerType(), True),
        StructField("First_Name", StringType(), True),
        StructField("Last_Name", StringType(), True),
        StructField("Salary", DoubleType(), True),
        StructField("Joining_Date", StringType(), True),
        StructField("Department", StringType(), True),
        StructField("Gender", StringType(), True)
])

pro_schema = StructType([
        StructField("Project_DetailID", IntegerType(), True),
        StructField("Employee_DetailID", IntegerType(), True),
        StructField("Project_Name", StringType(), True)
])

# Create the data as a list of tuples
pro_data = [
        (1, 1, "Task Track"),
        (2, 1, "CLP"),
        (3, 1, "Survey Management"),
        (4, 2, "HR Management"),
        (5, 3, "Task Track"),
        (6, 3, "GRS"),
        (7, 3, "DDS"),
        (8, 4, "HR Management"),
        (9, 6, "GL Management")
]
```

Step - 2 : Writing the pyspark code to solve the

```
# import packages
from pyspark.sql import SparkSession
from pyspark.sql.types import
StructType,StructField,IntegerType,StringType,DoubleType,TimestampType
from pyspark.sql.functions import col

#creating spark session
spark = SparkSession. \
builder. \
config('spark.shuffle.useOldFetchProtocol', 'true'). \
config('spark.ui.port','0'). \
config("spark.sql.warehouse.dir", "/user/itv008042/warehouse"). \
enableHiveSupport(). \
master('yarn'). \
getOrCreate()
```

```
pro_schema = StructType([
    StructField("Project_DetailID", IntegerType(), True),
    StructField("Employee_DetailID", IntegerType(), True),
    StructField("Project_Name", StringType(), True)
])
# Create the data as a list of tuples
pro_data = [
    (1, 1, "Task Track"),
    (2, 1, "CLP"),
    (3, 1, "Survey Management"),
    (4, 2, "HR Management"),
    (5, 3, "Task Track"),
    (6, 3, "GRS"),
    (7, 3, "DDS"),
    (8, 4, "HR Management"),
    (9, 6, "GL Management")
]
pro_df=spark.createDataFrame(pro_data,pro_schema)
pro_df.show()
```

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Project_DetailID	Employee_DetailID	Project_Name
1	1	Task Track
2	1	CLP
3	1	Survey Management
4	2	HR Management
5	3	Task Track
6	3	GRS
7	3	DDS
8	4	HR Management
9	6	GL Management

```
# Create a list of rows from the image
emp_data = [
[1, "Vikas", "Ahlawat", 600000.0, "2013-02-15 11:16:28.290", "IT", "Male"],
[2, "nikita", "Jain", 530000.0, "2014-01-09 17:31:07.793", "HR", "Female"],
[3, "Ashish", "Kumar", 1000000.0, "2014-01-09 10:05:07.793", "IT", "Male"],
[4, "Nikhil", "Sharma", 480000.0, "2014-01-09 09:00:07.793", "HR", "Male"],
[5, "anish", "kadian", 500000.0, "2014-01-09 09:31:07.793", "Payroll", "Male"]
]
# Create a schema for the DataFrame
emp_schema = StructType([
StructField("EmployeeID", IntegerType(), True),
StructField("First_Name", StringType(), True),
StructField("Last_Name", StringType(), True),
StructField("Salary", DoubleType(), True),
StructField("Joining_Date", StringType(), True),
StructField("Department", StringType(), True),
StructField("Gender", StringType(), True)
])
emp_df=spark.createDataFrame(emp_data,emp_schema)
emp_df.show()
```

```
+----------+----------+---------+---------+-------------------+----------+------+
|EmployeeID|First_Name|Last_Name|   Salary|       Joining_Date|Department|Gender|
+----------+----------+---------+---------+-------------------+----------+------+
|         1|     Vikas|  Ahlawat| 600000.0|2013-02-15 11:16:...|        IT|  Male|
|         2|    nikita|     Jain| 530000.0|2014-01-09 17:31:...|        HR|Female|
|         3|    Ashish|    Kumar|1000000.0|2014-01-09 10:05:...|        IT|  Male|
|         4|    Nikhil|   Sharma| 480000.0|2014-01-09 09:00:...|        HR|  Male|
|         5|     anish|   kadian| 500000.0|2014-01-09 09:31:...|   Payroll|  Male|
+----------+----------+---------+---------+-------------------+----------+------+
```

```python
# 49. Write down the query to fetch Project name assign to
#more than one Employee

from pyspark.sql.functions import count,col

pro_df.groupby(col("Project_Name"))\
      .agg(count("*").alias("count_pro"))\
      .filter(col("count_pro") > 1).show()
```

```
+-------------+---------+
| Project_Name|count_pro|
+-------------+---------+
|HR Management|        2|
|   Task Track|        2|
+-------------+---------+
```

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```
# 51. Get employee name, project name order by firstname from "EmployeeDetail"
# and "ProjectDetail" for those employee which have assigned project already.

from pyspark.sql.functions import lower
emp_df.join(pro_df,emp_df['EmployeeID']==pro_df['Employee_DetailID'],"inner")\
      .orderBy(lower(col("First_Name")).asc())\
      .select("First_Name","Project_Name").show()
```

```
+----------+------------------+
|First_Name|      Project_Name|
+----------+------------------+
|    Ashish|               GRS|
|    Ashish|               DDS|
|    Ashish|        Task Track|
|    Nikhil|     HR Management|
|    nikita|     HR Management|
|     Vikas|        Task Track|
|     Vikas|               CLP|
|     Vikas|Survey Management|
+----------+------------------+
```

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