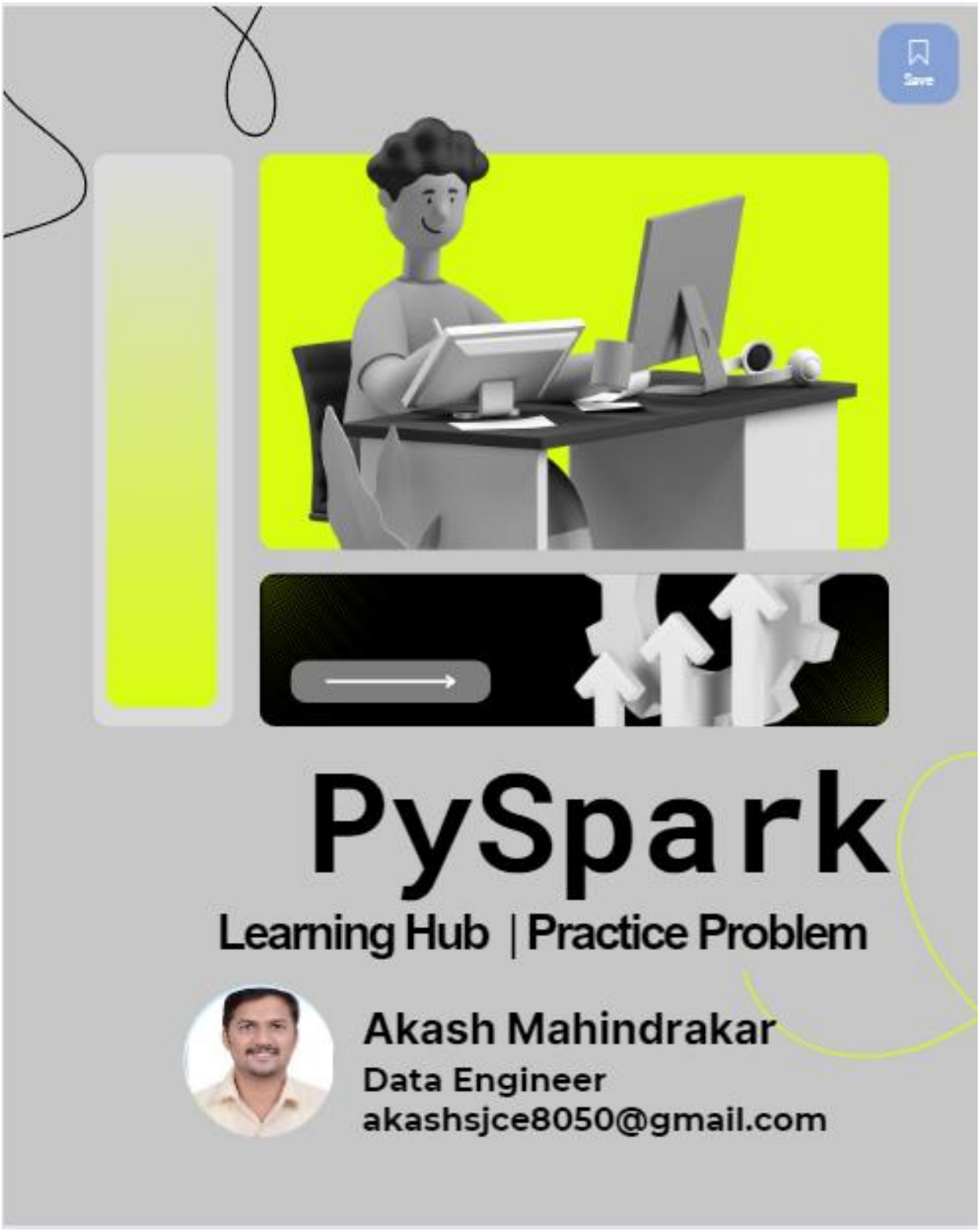
# PYSPARK LEARNING HUB : DAY - 29



# PYSPARK LEARNING HUB : DAY - 29

## Step - 1 : Problem Statement

### 29_Join_in_pyspark

Write a pyspark code perform below function

- 52. Get employee name, project name order by firstname from "EmployeeDetail" and "ProjectDetail" for all employee even they have not assigned project.
- 53 Get employee name, project name order by firstname from "EmployeeDetail" and "ProjectDetail" for all employee if project is not assigned then display "-No Project Assigned".

**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**

# PYSPARK LEARNING HUB : DAY - 29

```python
# 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()
```

```python
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()
```

# PYSPARK LEARNING HUB : DAY - 29

| 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
# 52. Get employee name, project name order by firstname from "EmployeeDetail" and
# "ProjectDetail" for all employee even they have not assigned project.

emp_df.join(pro_df,emp_df['EmployeeID'] == pro_df['Employee_DetailID'] ,"left")\
      .select("First_Name","Project_Name")\
      .orderBy(lower(col("First_Name")))\
      .show()
```

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

# PYSPARK LEARNING HUB : DAY - 29

```python
#  Get employee name, project name order by firstname from
# "EmployeeDetail" and "ProjectDetail" for all employee if project is not assigned then
# display "-No Project Assigned".
from pyspark.sql.functions import when,coalesce,lower,lit

left_df=emp_df.join(pro_df,emp_df['EmployeeID'] == pro_df['Employee_DetailID'] ,"left")\
      .select("EmployeeID","First_Name","Last_Name","Project_Name")\
      .orderBy(lower(col("First_Name")))

left_df.withColumn("Project_Name",coalesce(col("Project_Name"), lit("-No Project
Assigned"))).show()
```

```
+----------+----------+---------+--------------------+
|EmployeeID|First_Name|Last_Name|        Project_Name|
+----------+----------+---------+--------------------+
|         5|     anish|   kadian|-No Project Assigned|
|         3|    Ashish|    Kumar|                 GRS|
|         3|    Ashish|    Kumar|                 DDS|
|         3|    Ashish|    Kumar|          Task Track|
|         4|    Nikhil|   Sharma|       HR Management|
|         2|    nikita|     Jain|       HR Management|
|         1|     Vikas|  Ahlawat|          Task Track|
|         1|     Vikas|  Ahlawat|   Survey Management|
|         1|     Vikas|  Ahlawat|                 CLP|
+----------+----------+---------+--------------------+
```

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