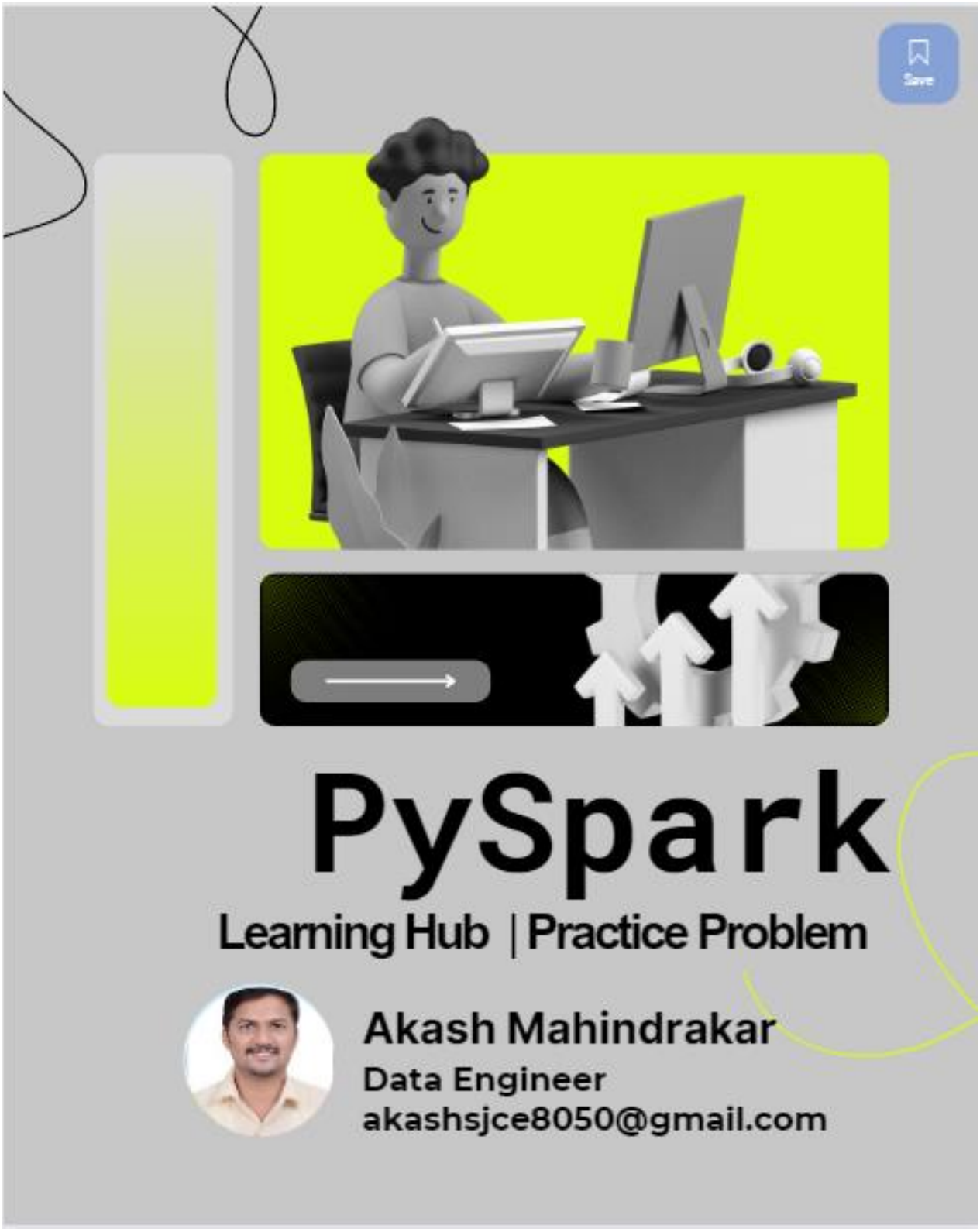
PYSPARK LEARNING HUB : DAY - 12



Step - 1 : Problem Statement

12_Cities With Completed Trades

Write a pypsark code to retrieve the top three cities that have the highest number of completed trade orders listed in descending order. Output the city name and the corresponding number of completed trade orders.

Difficult Level : EASY

DataFrame:

```
# Define the schema for the trades
trades_schema = StructType([
    StructField("order_id", IntegerType(), True),
    StructField("user_id", IntegerType(), True),
    StructField("price", FloatType(), True),
    StructField("quantity", IntegerType(), True),
    StructField("status", StringType(), True),
    StructField("timestamp", StringType(), True)
])

# Define the schema for the users
users_schema = StructType([
    StructField("user_id", IntegerType(), True),
    StructField("city", StringType(), True),
    StructField("email", StringType(), True),
    StructField("signup_date", StringType(), True)
])

# Create an RDD with the data for trades
trades_data = [
    (100101, 111, 9.80, 10, 'Cancelled', '2022-08-17 12:00:00'),
    (100102, 111, 10.00, 10, 'Completed', '2022-08-17 12:00:00'),
    (100259, 148, 5.10, 35, 'Completed', '2022-08-25 12:00:00'),
    (100264, 148, 4.80, 40, 'Completed', '2022-08-26 12:00:00'),
    (100305, 300, 10.00, 15, 'Completed', '2022-09-05 12:00:00'),
    (100400, 178, 9.90, 15, 'Completed', '2022-09-09 12:00:00'),
    (100565, 265, 25.60, 5, 'Completed', '2022-12-19 12:00:00')
]
```

```
# Create an RDD with the data for users
users_data = [
    (111, 'San Francisco', 'rrok10@gmail.com', '2021-08-03 12:00:00'),
    (148, 'Boston', 'sailor9820@gmail.com', '2021-08-20 12:00:00'),
    (178, 'San Francisco', 'harrypotterfan182@gmail.com', '2022-01-05
12:00:00'),
    (265, 'Denver', 'shadower_@hotmail.com', '2022-02-26 12:00:00'),
    (300, 'San Francisco', 'houstoncowboy1122@hotmail.com', '2022-06-30
12:00:00')
]
```

Step - 2 : Identifying The Input Data And Expected

INPUT

INPUT-1 trade					
ORDER_ID	USER_ID	PRICE	QUANTITY	STATUS	TIMESTAMP
100101	111	9.8	10	Cancelled	2022-08-17 12:00:00
100102	111	10	10	Completed	2022-08-17 12:00:00
100259	148	5.1	35	Completed	2022-08-25 12:00:00
100264	148	4.8	40	Completed	2022-08-26 12:00:00
100305	300	10	15	Completed	2022-09-05 12:00:00
100400	178	9.9	15	Completed	2022-09-09 12:00:00
100565	265	25.6	5	Completed	2022-12-19 12:00:00

INPUT - 2 user			
USER_ID	CITY	EMAIL	SIGNUP_DATE
111	San Francisco	rrok10@gmail.com	2021-08-03 12:00:00
148	Boston	sailor9820@gmail.com	2021-08-20 12:00:00
178	San Francisco	harrypotterfan182@gmail.com	2022-01-05 12:00:00
265	Denver	shadower_@hotmail.com	2022-02-26 12:00:00
300	San Francisco	houstoncowboy1122@hotmail.com	2022-06-30 12:00:00

OUTPUT

OUTPUT	
CITY	COUNT()
San Francisco	3

Boston	2
Denver	1

Step - 3 : Writing the pyspark code to solve

```
# Creating Spark Session
from pyspark.sql import SparkSession
from pyspark.sql.types import
StructType,StructField,IntegerType,StringType

#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()

# Define the schema for the trades
trades_schema = StructType([
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        StructField("user_id", IntegerType(), True),
        StructField("price", FloatType(), True),
        StructField("quantity", IntegerType(), True),
        StructField("status", StringType(), True),
        StructField("timestamp", StringType(), True)
])
# Define the schema for the users
users_schema = StructType([
        StructField("user_id", IntegerType(), True),
```

```
        StructField("city", StringType(), True),
        StructField("email", StringType(), True),
        StructField("signup_date", StringType(), True)
])



# Create an RDD with the data for trades
trades_data = [
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        (100102, 111, 10.00, 10, 'Completed', '2022-08-17 12:00:00'),
        (100259, 148, 5.10, 35, 'Completed', '2022-08-25 12:00:00'),
        (100264, 148, 4.80, 40, 'Completed', '2022-08-26 12:00:00'),
        (100305, 300, 10.00, 15, 'Completed', '2022-09-05 12:00:00'),
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# Create an RDD with the data for users
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12:00:00'),
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        (178, 'San Francisco', 'harrypotterfan182@gmail.com', '2022-
01-05 12:00:00'),
        (265, 'Denver', 'shadower_@hotmail.com', '2022-02-26
12:00:00'),
        (300, 'San Francisco', 'houstoncowboy1122@hotmail.com',
'2022-06-30 12:00:00')
]


Trade_df=spark.createDataFrame(trades_data,trades_schema)
User_df=spark.createDataFrame(users_data,users_schema)
Trade_df.show()
User_df.show()
```

order_id	user_id	price	quantity	status	timestamp
100101	111	9.8	10	Cancelled	2022-08-17 12:00:00
100102	111	10.0	10	Completed	2022-08-17 12:00:00
100259	148	5.1	35	Completed	2022-08-25 12:00:00
100264	148	4.8	40	Completed	2022-08-26 12:00:00
100305	300	10.0	15	Completed	2022-09-05 12:00:00
100400	178	9.9	15	Completed	2022-09-09 12:00:00
100565	265	25.6	5	Completed	2022-12-19 12:00:00

user_id	city	email	signup_date
111	San Francisco	rrok10@gmail.com	2021-08-03 12:00:00
148	Boston	sailor9820@gmail.com	2021-08-20 12:00:00
178	San Francisco	harrypotterfan182...	2022-01-05 12:00:00
265	Denver	shadower_@hotmail...	2022-02-26 12:00:00
300	San Francisco	houstoncowboy1122...	2022-06-30 12:00:00

```
join_df=Trade_df.join(User_df,Trade_df['user_id']==User_df['user_id'],"inner")
join_df.show()
```

order_id	user_id	price	quantity	status	timestamp	user_id	city	email	signup_date
100259	148	5.1	35	Completed	2022-08-25 12:00:00	148	Boston	sailor9820@gmail.com	2021-08-20 12:00:00
100264	148	4.8	40	Completed	2022-08-26 12:00:00	148	Boston	sailor9820@gmail.com	2021-08-20 12:00:00
100305	300	10.0	15	Completed	2022-09-05 12:00:00	300	San Francisco	houstoncowboy1122...	2022-06-30 12:00:00
100101	111	9.8	10	Cancelled	2022-08-17 12:00:00	111	San Francisco	rrok10@gmail.com	2021-08-03 12:00:00
100102	111	10.0	10	Completed	2022-08-17 12:00:00	111	San Francisco	rrok10@gmail.com	2021-08-03 12:00:00
100400	178	9.9	15	Completed	2022-09-09 12:00:00	178	San Francisco	harrypotterfan182...	2022-01-05 12:00:00
100565	265	25.6	5	Completed	2022-12-19 12:00:00	265	Denver	shadower_@hotmail...	2022-02-26 12:00:00

```
join_df.filter(join_df['status'] == 'Completed').groupby(join_df['city']).count()
```

```
join_df.filter(join_df['status'] == 'Completed').groupby(join_df['city']).count()
```

city	count
San Francisco	3
Denver	1
Boston	2

Save

Was it helpful?

follow for more!

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