```python
# Databricks notebook source
from pyspark.sql import SparkSession
from pyspark.sql.functions import col
spark: SparkSession = SparkSession.builder \
    .master("local[1]") \
    .appName("SparkByExamples.com") \
    .getOrCreate()

data = [
    ("James",None,"M"),
    ("Anna","NY","F"),
    ("Julia",None,None)
]

columns = ["name","state","gender"]
df =spark.createDataFrame(data,columns)

df.printSchema()
df.show()

df.filter("state is NULL").show()
df.filter(df.state.isNull()).show()
df.filter(col("state").isNull()).show()

df.filter("state IS NULL AND gender IS NULL").show()
df.filter(df.state.isNull() & df.gender.isNull()).show()

df.filter("state is not NULL").show()
df.filter("NOT state is NULL").show()
df.filter(df.state.isNotNull()).show()
df.filter(col("state").isNotNull()).show()
df.na.drop(subset=["state"]).show()

df.createOrReplaceTempView("DATA")
spark.sql("SELECT * FROM DATA where STATE IS NULL").show()
spark.sql("SELECT * FROM DATA where STATE IS NULL AND GENDER IS
NULL").show()
spark.sql("SELECT * FROM DATA where STATE IS NOT NULL").show()




# COMMAND ----------
```