

(https://datahack.analyticsvidhya.com/contest/datanner/)

science blogath on 6/2//www.analyticsvidhya.com/blog/category/data-engineering/)

utm\_source=blog&utm\_medium=stickybanner2)

# RDDs vs. Dataframes vs. Datasets – What is the Difference and Why Should Data Engineers Care?

LAKSHAY ARORA (HTTPS://WWW.ANALYTICSVIDHYA.COM/BLOG/AUTHOR/LAKSHAYARORA/), NOVEMBER 5, 2020 LOGIN TO BOOKMARK THIS A...

Article



#### Overview

- Understand the difference between 3 spark APIs RDDs, Dataframes, and Datasets
- We will see how to create RDDs, Dataframes, and Datasets



(https://spark.apache.org/) came into existence and it impressively developers. Developers have always loved it for providing simple and s on big data.



(https://blackbelt.analyticsvidhya.com/plus?



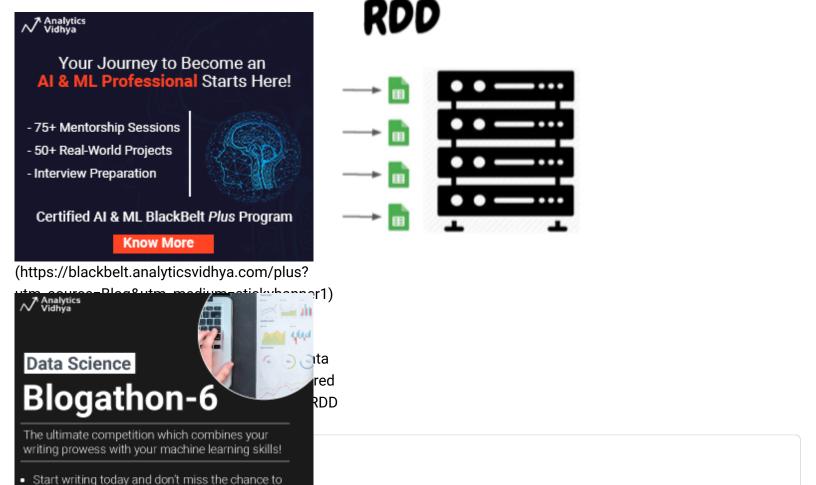
cept of RDDs, then in 2013 with Dataframes and later in 2015 with the depreciated, we can still use all of them. In this article, we will understand em.

(https://datahack.analyticsvidhya.com/contest/data-4. What are Datasets? science-blogathon-6/? 5. RDD vs. Dataframes vs. Datasets? utm\_source=blog&utm\_medium=stickybanner2)

### What are RDDs?

RDDs or Resilient Distributed Datasets is the fundamental data structure of the Spark. It is the collection of objects which is capable of storing the data partitioned across the multiple nodes of the cluster and also allows them to do processing in parallel.

It is fault-tolerant if you perform multiple transformations on the RDD and then due to any reason any node fails. The RDD, in that case, is capable of recovering automatically.



(https://datahack.analyticsvidhya.com/contest/data-

Register Now

win lucrative prizes and the new iPad!

3rd March to 31st March 2021

science-blogathon-6/?
view raw (https://gist.github.com/lakshayview raw (https://gist.github.com/lakshayutm-sout5924c2id9ed387a5078de509a925cb/raw/ef9c562aa12548b0fcb39035d6fc5f587c06489f/rdd\_23.py)
rdd\_23.py (https://gist.github.com/lakshay-arora/a49924c2fd0e0387a5078de509a923cb#file-rdd\_23-py) hosted with ♥ by GitHub
(https://github.com)

#### When to use RDDs?

We can use RDDs in the following situations-

- When we want to do low-level transformations on the dataset. Read more about RDD Transformations: <u>PySpark</u> to <u>perform Transformations</u> (<u>https://www.analyticsvidhya.com/blog/2016/10/using-pyspark-to-perform-transformations-and-actions-on-</u>
  - rdd/utm\_medium=What\_is\_the\_Differene\_between\_RDDs\_Dataframes\_And\_Datasets)
- 2. It does not automatically infer the schema of the ingested data, we need to specify the schema of each and every dataset when we create an RDD. Learn how to infer the schema to the RDD here: <u>Building Machine Learning Pipelines using PySpark (https://www.analyticsvidhya.com/blog/2019/11/build-machine-learning-pipelines-pyspark/utm\_medium=What\_is\_the\_Differene\_between\_RDDs\_Dataframes\_And\_Datasets)</u>

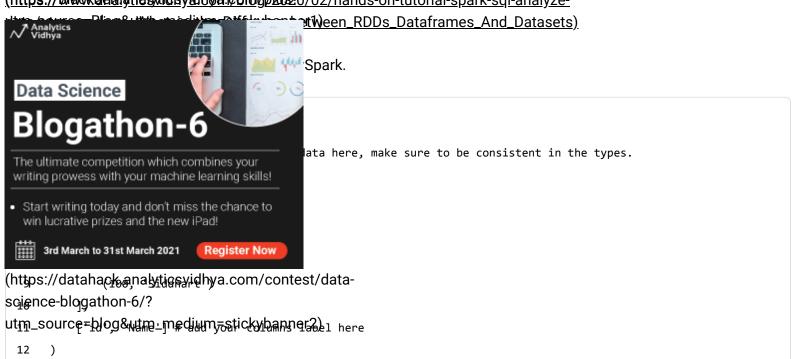


overcome the limitations of the Spark RDD. Spark Dataframes are the ere, the data is organized into the named columns. They allow developers as not allowed with the RDDs.

various formats like CSV, JSON, AVRO, HDFS, and HIVE tables. It is already of the pre-processing tasks so that we do not need to write complex

urposes. If you want to read more about the catalyst optimizer I would cle: <u>Hands-On Tutorial to Analyze Data using Spark SQL</u>

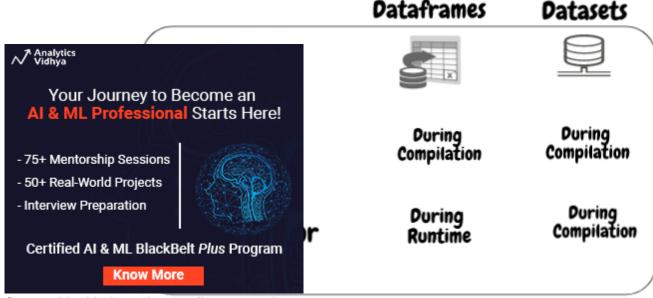
(https://www.kaalalatiebytichyedbyen&bloop2020/02/hands-on-tutorial-spark-sql-analyze-



view raw (https://gist.github.com/lakshay-arora/9563dc134b2916db16fc431556d795fb/raw/a891b1241d3a246cc88ce8b9ea093834e9123f52/dataframe.py)
dataframe.py (https://gist.github.com/lakshay-arora/9563dc134b2916db16fc431556d795fb#file-dataframe-py) hosted with ♥ by GitHub (https://github.com)

### What are Datasets?

Spark Datasets is an extension of Dataframes API with the benefits of both RDDs and the Datasets. It is fast as well as provides a type-safe interface. Type safety means that the compiler will validate the data types of all the columns in the dataset while compilation only and will throw an error if there is any mismatch in the data types.

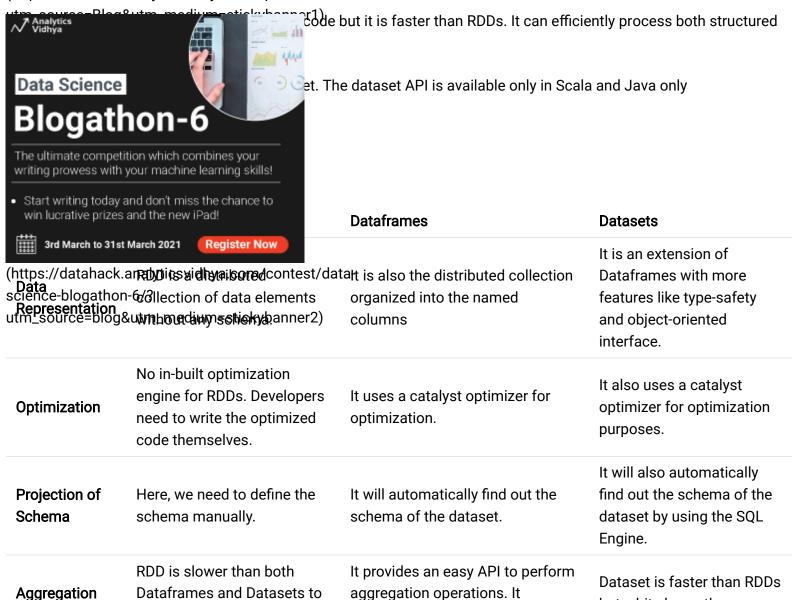


(https://blackbelt.analyticsvidhya.com/plus?

Operation

perform simple operations

like grouping the data.



performs aggregation faster than

both RDDs and Datasets.

but a bit slower than

Dataframes.

# **End Notes**



tween the three major APIs of Apache Spark. So to conclude, if you want afety then go for Dataframes or Datasets. If you need more control over he RDDs.

resources on Apache Spark to enhance your knowledge-

<u> Iust Know Tool For all Big Data and Data Engineering Professionals</u> <u>/2020/10/getting-started-with-apache-</u>

<u>ne\_between\_RDDs\_Dataframes\_And\_Datasets)</u>

<u>n Apache Spark Every Data Engineer Must Know!</u>

<u>/2020/10/data-engineering-101-data-sources-apache-</u>

<u>rene\_between\_RDDs\_Dataframes\_And\_Datasets)</u>

(https:///hlackheelhan#ffikireswidbybenvee/pDafa Lake and Data Warehouse?



№2020/10/what-is-the-difference-between-data-lake-and-data-

is\_the\_Differene\_between\_RDDs\_Dataframes\_And\_Datasets)

se share it with your friends, and also if you want to give any suggestions in the notes below.





tahack.analyticsyldhya.com/contest/data-alvticsyldhya.android&utm\_source=blog\_article&utm\_campaign=blog&pcampaignid=MKT-Other-global-allscience-blogathon-6/

utm\_source=blog&utm\_medium=st co-prtnr-py-PartBadge-Mar2515-1)



App Store (https://apps.apple.com/us/app/analytics-

vidhya/id1470025572)

# **Related Articles**







(https://www.analyticsvidhya.com/blog/如如如://www.analyticsvidhya.com/blog/如如如://www.analyticsvidhya.com/blog/ to-spark-mllib-for-big-data-andmust-know-spark-optimization-tipscan-you-optimize-your-spark-jobs-



machine-learning/)

for-data-engineering-beginners/)
8 Must Know Spark Optimization Tips
for Data Engineering Beginners

s://www.analyticsvidhya.com/blog D/11/8-must-know-sparknization-tips-for-data-engineeringners/) and-attain-efficiency-tips-and-tricks/)
How Can You Optimize your Spark Jobs and Attain Efficiency - Tips and Tricks!
(https://www.analyticsvidhya.com/blog/2020/10/how-can-you-optimize-your-spark-jobs-and-attain-efficiency-tips-and-tricks/)

e industry k market overvie

(https://blackbelt.analyticsvidhya.com/plus?



1DHYA.COM/BLOG/TAG/APACHE-SPARK/), DATAFRAMES

DATAFRAMES/), DATASETS

<u>DATASETS/), RDD (HTTPS://WWW.ANALYTICSVIDHYA.COM/BLOG/TAG/RDD/)</u>

**NEXT ARTICLE** 

# er Live data using Pretrained NLP models

log/2020/11/summarize-twitter-live-data-using-pretrained-nlp-models/)

• • •

(https://datahack.analyticsvidhya.com/contest/data<sup>PREVIOUS</sup> ARTICLE

science-**blagath Regression causes sparsity while Ridge Regression doesn't! – Unfolding the math** utm\_s(வந்தை/கூடும் கூடும் கூடியின் கூடும் க



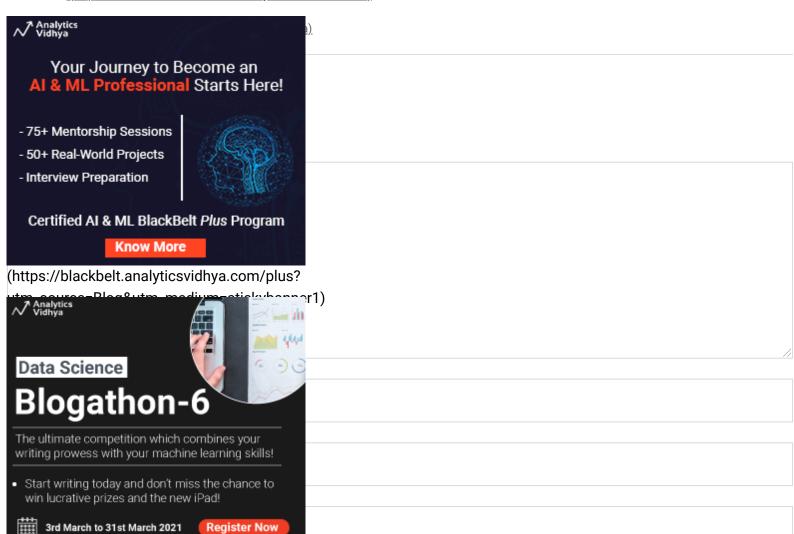
(https://www.analyticsvidhya.com/blog/author/lakshayarora/)

LAKSHAY ARORA (Https://Www.Analyticsvidhya.Com/Blog/Author/Lakshayarora/)

Ideas have always excited me. The fact that we could dream of something and bring it to reality fascinates me.

Computer Science provides me a window to do exactly that. I love programming and use it to solve problems and a beginner in the field of Data Science.

in (https://www.linkedin.com/in/lakshay-arora-262bb512a/)

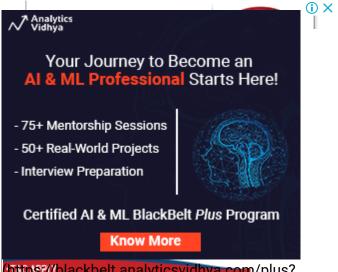


(https://datahack.analyticsvidhya.com/contest/data-

ട്ട**്പ്പെട്ട**്ടിയുമ്പ് സെട്ട് by email.

utm\_source=blog&utm\_medium=stickybanner2)

**SUBMIT COMMENT** 



https:///blackbelt.analyticsvidhya.com/plus?



hms (with Python and R Codes)

017/09/common-machine-learning-algorithms/)

for (aspiring) data scientists

017/02/lintroductory-guide-on-linear-programming-explained-in-simple-

Start writing today and don't miss the chance to win lucrative prizes and the new iPad!

3rd March to 31st March 2021

Register Now

hm with codes in Python and R

017/09/naive-bayes-explained/)

(https://datahack.analyticsvidhya.com/contest/data-.40 Questions to test a data scientist on Machine Learning [Solution: SkillPower – Machine Learning, DataFest 2017] science-blogathon-6/? (https://www.analyticsvidhya.com/blog/2017/04/40-questions-test-data-scientist-machine-learning-solution-utm\_source=blog&utm\_medium=stickybanner2) skillpower-machine-learning-datafest-2017/)

40 Questions to test a Data Scientist on Clustering Techniques (Skill test Solution) (https://www.analyticsvidhya.com/blog/2017/02/test-data-scientist-clustering/)

45 Questions to test a data scientist on basics of Deep Learning (along with solution) (https://www.analyticsvidhya.com/blog/2017/01/must-know-questions-deep-learning/)

30 Questions to test a data scientist on Linear Regression [Solution: Skilltest - Linear Regression] (https://www.analyticsvidhya.com/blog/2017/07/30-questions-to-test-a-data-scientist-on-linear-regression/)

Understanding Support Vector Machine(SVM) algorithm from examples (along with code) (https://www.analyticsvidhya.com/blog/2017/09/understaing-support-vector-machine-example-code/)









https://blackbelt.analyticsvidhya.com/plus?



Key Questions You Should Answer Before Transitioning into Data pience (https://www.analyticsvidhya.com/16-key-questions-data-sciencereer-transition/?

htm\_source=Blog&utm\_medium=CareerResourceWidget)

DVEMBER 23, 2020

Start writing today and don't miss the chance to win lucrative prizes and the new iPad!



3rd March to 31st March 2021

Register Now

ere's What You Need to Know to Become a Data Scientist! ttps://www.analyticsvidhya.com/blog/2021/01/heres-what-you-need-toow-to-become-a-data-scientist/?

(https://datahack.analyticsvidhya.com/confest/data

**JANUARY 22, 2021** science-blogathon-6/?

utm\_source=blog&utm\_medium=stickybanner2)



These 7 Signs Show you have Data Scientist Potential!

(https://www.analyticsvidhya.com/blog/2020/12/these-7-signs-show-youhave-data-scientist-potential/?

&utm\_source=Blog&utm\_medium=CareerResourceWidget)

**DECEMBER 3, 2020** 



How To Have a Career in Data Science (Business Analytics)?

(https://www.analyticsvidhya.com/blog/2020/11/how-to-have-a-career-indata-science-business-analytics/?

&utm\_source=Blog&utm\_medium=CareerResourceWidget)

**NOVEMBER 26, 2020** 



Should I become a data scientist (or a business analyst)? (https://www.analyticsvidhya.com/blog/2020/11/become-data-scientistbusiness-analyst/?

&utm\_source=Blog&utm\_medium=CareerResourceWidget)



://www.analyticsvidhya.com/blog/2021/03/tokenization-and-text-

(https://www.analyticsvidhya.com/blog/2021/03/common-data-

(https://blackbelt.analyticsvidhya.com/plus?

Simplexety Method – Plot millions of (time-series) data points into one chart (cartesian coordinate system)

Analytics

1/2 Analytics

1/2 Analytics

1/3 Analytics

1/4 An



(https://www.analyticsvidhya.com/blog/2021/03/beginners-guide-to-

The ultimate competition which combines your writing prowess with your machine learning skills!

 Start writing today and don't miss the chance to win lucrative prizes and the new iPad!



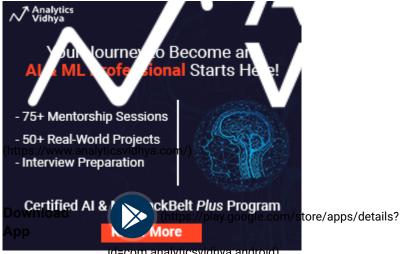
3rd March to 31st March 2021

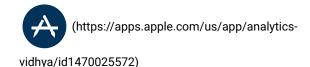
Register Now

(https://datahack.analyticsvidhya.com/contest/data-

science-blogathon-6/?

utm\_source=blog&utm\_medium=stickybanner2)





(https://blackbelt.analyticsyldnya.com/plus?



(https://datahack.analyticsvidhya.com/contest/datascience-blogathon-6/?

utm\_source=blog&utm\_medium=stickybanner2) **Visit us** 

#### in

f (https://www.limedin.com/company/analytics-

(https://www./fattpsc/duktpsc/

## **Data Science**

Blog (https://www.analyticsvidhya.com/blog/)

Hackathon (https://datahack.analyticsvidhya.com/)

Discussions (https://discuss.analyticsvidhya.com/)

Apply Jobs (https://www.analyticsvidhya.com/jobs/)

## Companies

Post Jobs (https://www.analyticsvidhya.com/corporate/)

Trainings (https://courses.analyticsvidhya.com/)

Hiring Hackathons (https://datahack.analyticsvidhya.com/)

Advertising (https://www.analyticsvidhya.com/contact/)

© Copyright 2013-2020 Analytics Vidhya

Privacy Policy Terms of Use Refund Policy

22