



جهد دانشگاهی صنعتی شریف  
مرکز آموزش های تخصصی کاربردی

سرفصل های  
دوره آموزشی

# Big Data





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## Big Data

- **Introduction to Big Data**
  - *What is Big Data*
  - *Big Data opportunities, Challenges*
  - *Characteristics of Big Data*
  
- **Introduction to Hadoop**
  - *Hadoop Distributed File System*
  - *Comparing Hadoop & SQL*
  - *Industries using Hadoop*
  - *Data Locality*
  - *Hadoop Architecture*
  - *Map Reduce & HDFS*
  
- **Hadoop Distributed File System (HDFS)**
  - *HDFS Design & Concepts*
  - *Blocks, Name nodes and Data nodes*
  - *HDFS High-Availability and HDFS Federation*
  - *Hadoop DFS The Command-Line Interface*
  - *Basic File System Operations*
  - *Anatomy of File Read, File Write*
  - *Block Placement Policy and Modes*



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- *Metadata, FS image, Edit log, Secondary Name Node and Safe Mode*
  
- **Map Reduce**
  - *Map Reduce Functional Programming Basics*
  - *Map and Reduce Basics*
  - *How Map Reduce Works*
  - *Anatomy of a Map Reduce Job Run*
  - *Shuffling and Sorting*
  - *Splits, Record reader, Partition, Types of partitions & Combiner*
  - *Distributed Cache*
  - *Sequential Files and Map Files*
  - *Map side Join with distributed Cache*
  
- **Map Reduce Programming – Java Programming**
  - *Hands on “Word Count” in Map Reduce in standalone and Pseudo Distribution Mode*
  - *Write some Map Reduce programs to solve some real world problems*
  
- **YARN Component**
  - *Architecture Overview*
  - *ResourceManager*
  - *YARN Scheduling Components*
  - *FIFO Scheduler*
  - *Capacity Scheduler*





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- *Fair Scheduler*
  - *NodeManager*
  - *YARN Resource Model*
  - *ApplicationMaster Container Allocation*
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- **Apache Hive**
    - *What is Hive?*
    - *Architecture of Hive*
    - *Installing Hive*
    - *Configuring Hive*
    - *HIVE Data Types*
    - *Create Database Statement*
    - *Drop Database Statement*
    - *Create Table Statement*
    - *Load Data Statement*
    - *Alter Table Statement*
    - *Rename to... Statement*
    - *Change Statement*
    - *Add Columns Statement*
    - *Drop Table Statement*
    - *Partitioning*
    - *Views and Indexes*
    - *Creating a View Example*



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- *Creating an Index Example*
  
- **Apache Sqoop**
  - *Creating MySQL Database Tables*
  - *Setting the Environment*
  - *Importing into HDFS*
  - *Exporting from HDFS*
  - *Importing into Hive*
  - *Importing into HBase*