

Industry 4.0

Introduction to Industry 4.0

Introduction to Cloud Computing

- A short history
- Client Server Computing Concepts
- Challenges with Distributed Computing
- Introduction to Cloud Computing
- Why Cloud Computing?
- Benefits of Cloud Computing

Networking Basics

- Understanding Networking Concepts
- TCP/IP
- Application Protocols
- Understanding Linux Files and Network Tooling
- ifconfig
- dig
- ping
- traceroute
- netstat
- tcpdump
- resolv.conf
- ssh
- scp/rsync

Characteristics of Cloud Computing

- API based access
- Cost
- Device independence
- Virtualization

- Multitenancy

Types of Cloud Computing

- Software as a Service
- Platform as a Service
- CLOUD COMPUTING – BASIC AND ADVANCED
- Infrastructure as a Service
- Other XaaS's

Cloud Deployment Models

- Public Cloud
- Private Cloud
- Hybrid Cloud
- When to choose what?
- Virtualization
- Introduction to Virtualization
- Role of Virtualization in Cloud Computing
- Types of Virtualization
- Examples of Virtualization
- Benefits of Virtualization
- Amazon Web Services (AWS)
- Introduction to the AWS products
- Amazon Elastic Compute Cloud (EC2)
- Amazon Simple Storage Service (S3)

BigData/Hadoop

What is Big Data & Why Hadoop?

- What is Big Data?
- Traditional data management systems and their limitations
- What is Hadoop?
- Why is Hadoop used?
- The Hadoop eco-system
- Big data/Hadoop use cases

HDFS (Hadoop Distributed File System)

- HDFS Architecture
- Namenode memory concerns
- Secondary namenode
- Basic Hadoop commands

- PIG and HIVE Programming

Data Science

- Introduction to R
- History of R
- An Insight into R
- Data Structure and Data Type
- Data Management and Data Cleaning
- Missing Value Treatment
- Outlier Treatment
- Sorting Datasets
- Merging Datasets
- Creating new variables
- Binning variables
- Reading datasets from other environments into R (importing)
- Writing datasets from R environment to other environments (exporting)

Data Visualization in R

- Bar Chart
- Dot Plot
- Scatter Plot (3D)
- Spinning Scatter Plots
- Pie Chart
- Histogram (3D) [including colourful ones]
- Overlapping Histograms
- Boxplot
- Plotting with Base and Lattice Graphics

IOT (NODE RED)

- A brief introduction to Node-RED
 - Building your first flows
 - Basic nodes and flows A tour of the core nodes
 - The Node-RED programming model
 - Intermediate flows
 - Dashboards and UI techniques.
 - Node-RED, the cloud and IoT platforms
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- Advanced flows