



**HYPERLEDGER**  
TRAINING PARTNER



# CERTIFIED HYPERLEDGER DEVELOPER

FOR UNDERGRADS,  
GRADUATES & WORKING  
PROFESSIONALS.

DURATION - 40 HOURS

DESIGNED & DELIVERED BY  
EXPERT SENIOR HYPERLEDGER  
BLOCKCHAIN DEVELOPERS &  
SOLUTION ARCHITECTS.

[www.idssoft.com](http://www.idssoft.com)



## **PROGRAM OFFERING BY ABOUT IDS - INFORMATION DATA SYSTEMS.**

IDS is Global Digital transformation and IT products & services Leader headquartered in Michigan. Since 1996 we have been helping global companies and governments re-imagine their business by building impactful digital engineering solutions powered by emerging technologies like AI, Blockchain, Cloud and Internet of Things.

IDS help enterprises and governments accelerate adoption of new technologies, untangle complex issues that always emerge during digital evolution, and orchestrate ongoing innovation, the company leads the process from ideation and concept to delivery, and provides ongoing support through its complete framework.

# SUBJECT MATTER EXPERT PROFILES.

## VORUGANTI ARAVIND

VICE PRESIDENT - BLOCKCHAIN PRACTICE & PRODUCTS, IDS. Alumnus of IIIT HYDERABAD. IBM CERTIFIED BLOCKCHAIN SOLUTION ADVISOR.

Product Leader with 8+ years working on various Blockchain technology projects and products in Supply chain, Telecommunications and Verification as a service domain for MNCs and Startups.

A Subject Matter Expert and Corporate trainer, who trained 800+ Working Professionals across US & India, 350 Engineering Faculty and Under Grad & Grad Students in Blockchain for Corporates, Government Upskilling Initiatives by TASK & APSSDC.

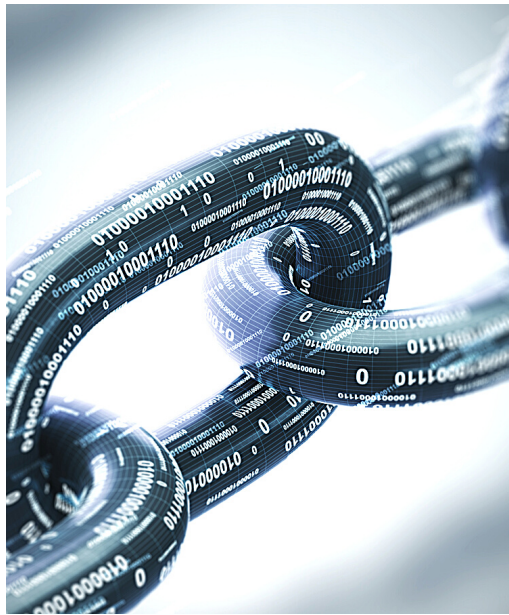
## ROHITH

SOLUTION ARCHITECT - BLOCKCHAIN PRACTICE, IDS

A Senior blockchain architect and full stack developer with 10+ years of experience, who has build various blockchain projects and products on Hyperledger Fabric.

Trained over 500+ working professionals and Engineering college faculties at KL University, Tier 2 engineering colleges.





# INTRODUCTION TO PROGRAM

Blockchain is one of the Industry 4.0 emerging technologies disrupting the industries from banking, financial services to supply chain, telecommunications and IT services.

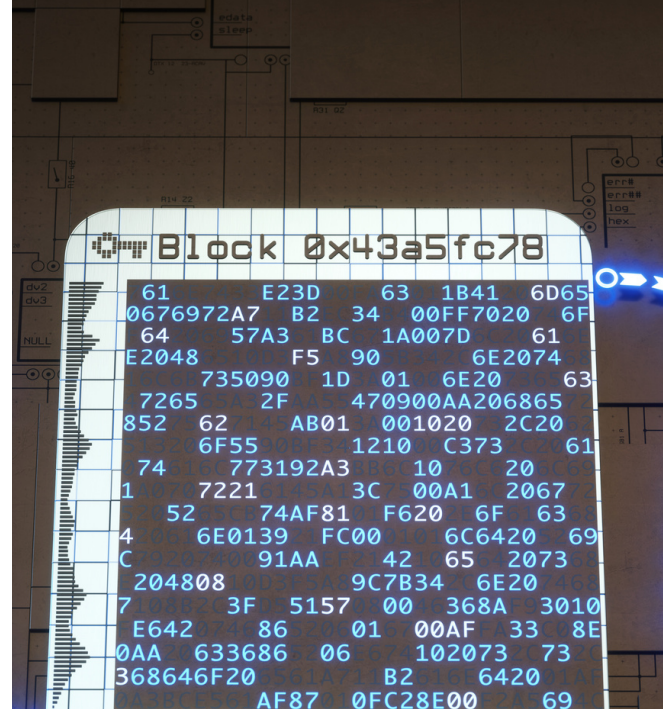
Getting ahead of the game as an early adopter will future-proof you and enables you building a great career with huge growth potential.

Hyperledger is used by more than half of top Forbes Blockchain 50 corporates and is the most widely used enterprise blockchain platform.

Our Hyperledger developer certification program empowers you with the understanding the concepts of setting up Hyperledger fabric network and developing enterprise multi party applications through chaincode.

This course can elevate your confidence building your career in enterprise blockchain space. The capstone project enables you to build an approach developing an business blockchain network.





## DESIGN, DEVELOP, DEPLOY AND DELIVER THE TRANSFORMATIONAL POWER OF HYPERLEDGER FABRIC.

### PROGRAM OUTCOME



You emerge as a confident Hyperledger blockchain developer/administrator with future-proof technical capabilities in terms of understanding the key principles of Hyperledger fabric and Hands-on experience delivered by certified hyperledger administrators, developers and solution architects.

#### Learning objectives:

1. Master the concepts behind Hyperledger Fabric and learn the programming concepts to set up Fabric network and write chain code to build enterprise Blockchain applications.
2. Understand Hyperledger Fabric functionalities and models to confidently use them as per feature requirement.
3. Develop practical exposure through cap stone project based on real world case study, components Involved, network Setup, developing chain code and REST API's.
4. Develop an approach to spot the relevant career opportunities, build profile and capture global hyperledger administrator/ developer jobs.

# Who are hiring Blockchain professionals?

facebook

IBM

CONSENSYS

EY

Deloitte

KPMG

accenture

JPMorganChase

Microsoft

CISCO

amazon

Tech Mahindra

IDS

TATA  
TATA CONSULTANCY SERVICES

Infosys

NPCI  
भारतीय राष्ट्रीय भुगतान विभाग  
NATIONAL PAYMENTS CORPORATION OF INDIA

All these companies have blockchain jobs listed on job sites or on their website careers page.



# BLOCKCHAIN STATISTICS

Blockchain has crossed the hype and now being explored and experimented in real world use cases. Blockchain adoption needs huge work force.

## 3.1 TRILLION \$

**GLOBAL BLOCKCHAIN MARKET SIZE**

Adoption of Blockchain across industries and governments is accelerating and its market size is expected to be a 3.1 trillion \$ by 2025 by Gartner Research.

## 400%

**RAISE IN DEMAND FOR BLOCKCHAIN PROFESSIONALS**

According to Coin Market research, There is a steep raise in demand for blockchain professionals across the globe. Presently there is shortage in Blockchain talent.

## TOP JOB

**BLOCKCHAIN DEVELOPER IS TOP 1 JOB**

According to recent LinkedIn research, Blockchain developer is No 1 of top 10 jobs in demand. Up-skilling in Blockchain gives an edge.



# CONTENT

## SESSION 1

Duration 3 Hours.

### ESSENTIALS OF BLOCKCHAIN

1. Essential understanding of Blockchain.
2. Emergence of Blockchain.
3. Building Blocks of Blockchain.
4. Concepts of Distributed Ledger & Decentralized Networks.
5. Fundamentals of Cryptography, Game theory & Distributed Computing.

**Key take aways :** Understanding fundamental concepts of Blockchain .



# SESSION 2

Duration 2 Hours.

## TYPES OF BLOCKCHAIN AND USABILITY TEST.

1. Evolution of Blockchain and Classification of Blockchain - Public, Private & Hybrid Blockchains.
2. Key benefits of Blockchain and DLTs.
3. Blockchain Fit Assessment Framework.
4. Technology - Business considerations for Enterprise Blockchain Implementation.

**Key takeaways :** Evolution of Blockchain and ability to assess the usability of blockchain for a given business scenario.





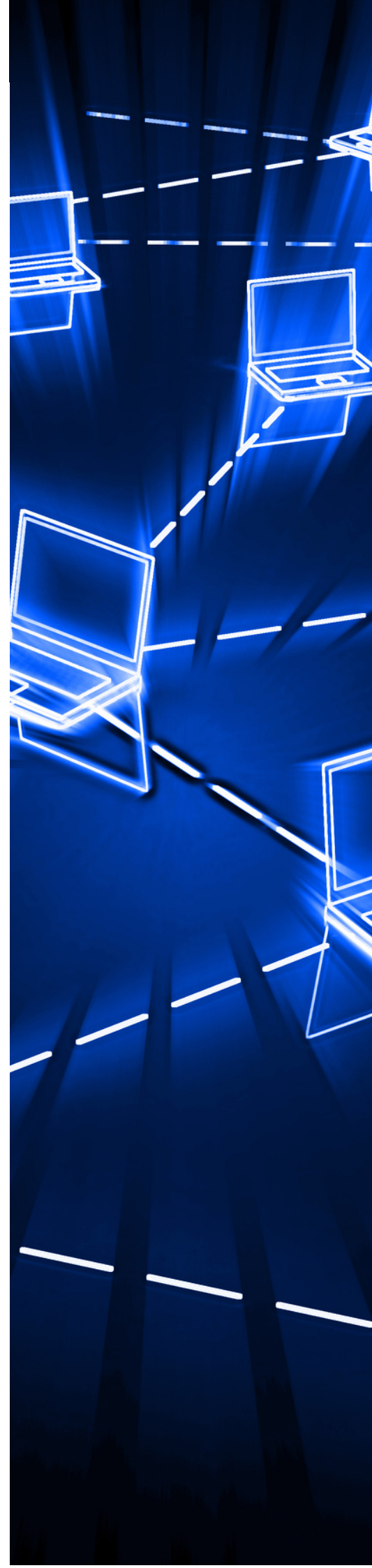
# SESSION 3

Duration: 3 Hours.

## INTRODUCTION TO HYPERLEDGER

1. Introduction to Hyperledger & it's Umbrella Projects.
2. Fundamentals of Hyperledger Fabric.
3. Environment Setup (prerequisites, Hyperledger Fabric) and bringing up a sample Fabric Network.
4. Overview of steps for Hyperledger Fabric Installation.

**Key takeaways :** Understanding Hyperledger and it's umbrella projects. Fundamentals of Hyperledger fabric.





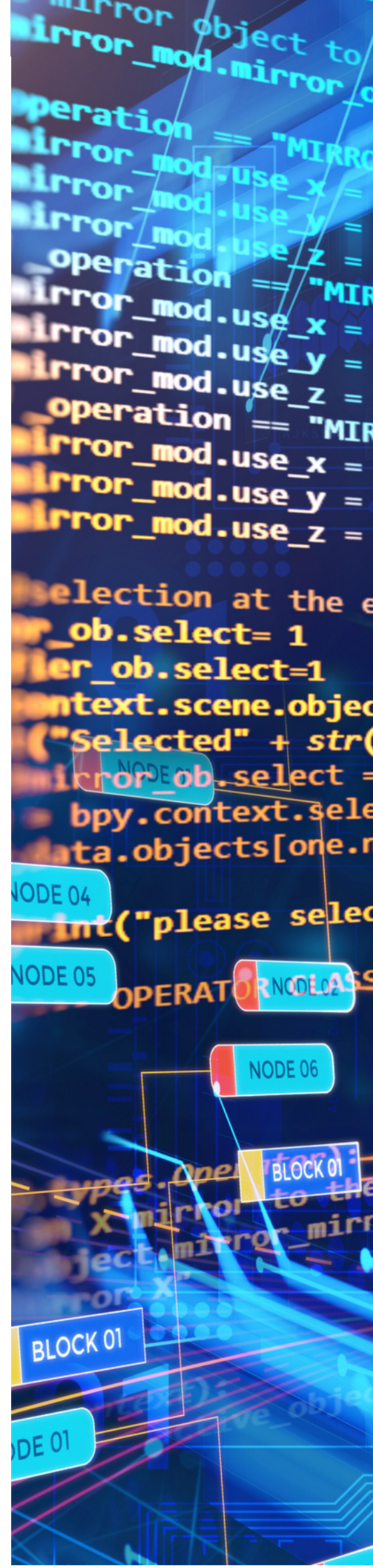
# SESSION 4

Duration: 5 Hours.

## HYPERLEDGER FABRIC CONCEPTS & CHAIN CODE DEV

1. Understanding Hyperledger Fabric Network, participants and model
2. Building a conceptual sample Hyperledger Fabric Network
3. Introduction to chaincode in Hyperledger Fabric
4. Starting the chaincode development | Compiling and running chaincode
5. Installing and instantiating chaincode | Invoking chaincode
6. Creating a chaincode | The chaincode interface | Setting up the chaincode file | The Invoke method

**Key takeaways :** Understanding concepts of Hyperledger fabric and getting started with chaincode.



# SESSION 5

Duration: 3 Hours.

## HYPERLEDGER FABRIC CHAIN CODE DEV-2

1. Attribute Based Access Control (ABAC)
2. Retrieving user identities and attributes in chaincode
3. Implementing chaincode functions | Defining chaincode assets | Coding chaincode functions
4. Creating an asset | Reading and modifying an asset
5. Main function | Testing chaincode
6. SHIM mocking to test chain codes
7. Testing the Init method | Testing the Invoke method | Running tests

**Key takeaways :** Deep dive in to chaincode.

# SESSION 6

Duration: 3 Hours.

## HYPERLEDGER FABRIC CHAIN CODE DEV - 3

1. Understanding Chaincode for managing the Blockchain network by leveraging the Hyperledger Fabric API
2. Using the Hyperledger Fabric Samples chaincode
3. Intro to Fabric CA
4. CA Server and CA Client
5. Register and Enroll identities

Key takeaways : Deep dive in to chaincode.

```
etStore().readKey
```

```
u, [&]() { return
```

```
() .accounts())  
e) = _signKey)
```

```
() { return getPass  
    _signKey << en
```



# SESSION 7

Duration: 3 Hours.

## USING COLLECTIONS FOR PRIVATE DATA IN FABRIC

1. Build a collection definition JSON file
2. Read and Write private data using chaincode APIs
3. Install and instantiate chaincode with a collection
4. Store private data
5. Query the private data as an authorized and unauthorized peer
6. Purge Private Data
7. Using indexes with private data

Key takeaways : Deep dive in to chaincode.

```
= getSecre  
outs.empty(  
outs.push_k  
ing const&
```

```
isFile = 1
```

```
Transaction  
if (m_forc  
| t.setN  
t.sign(s);  
cout << t.  
if (isFile  
{  
| writeF  
cout <  
}  
else  
| cout <
```

# SESSION 8

Duration: 2 Hours.

## USING COLLECTIONS FOR PRIVATE DATA IN FABRIC

1. Build a collection definition JSON file
2. Read and Write private data using chaincode APIs
3. Install and instantiate chaincode with a collection
4. Store private data
5. Query the private data as an authorized and unauthorized peer
6. Purge Private Data
7. Using indexes with private data

Key takeaways : Deep dive in to chaincode.

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else  
| cout <
```

# SESSION 9

Duration: 4 Hours.

## COUCHDB AS THE STATE DATABASE

1. Enable CouchDB in Hyperledger Fabric
2. Create and add index to your chaincode folder
3. Install and instantiate the Chaincode
4. Query the CouchDB State Database
5. Update and delete an Index

## REST API FOR CHAINCODE USING NODEJS

1. Generate Certificates to access Smart Contracts
2. Create a REST API by using the certificates in NODE JS
3. Query the Chaincode using REST API
4. Post some values to chaincode using REST API

Key takeaways : Deep dive in to chaincode.

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```



# SESSION 10

Duration: 12 Hours.

## HYPERLEDGER EXPLORER

1. Cloning the Explorer Repository
2. Make the Config File Changes to map the network
3. Launch the Explorer

## CAP STONE PROJECT

Product Traceability – Discussion of Case study, Components Involved, Network Setup, Developing Chaincode, Developing REST API's .

**Key takeaways :** Hyperledger Explorer and hands on experience through cap stone project based on real time use case.





## LEARN TO LEAD & LEAD TO LEARN.

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