Under the aegis of Vijayam Educational Trust
CATALYST COLLEGE
(A Unit of CIMAGE Group of Institutions)
Institution approved by Education Department, Government of Bihar, Affiliated to Patliputra University, Patna

Ref: CC/SRSP-NOT/23/62168.

Date: 02-Jun-2023

NOTICE

This is to inform all the Students that a workshop on Blockchain Unchained: Exploring Real-World Applications through Research will be organized on 15.6.2023 from 9:30 AM to 5:30 PM in the auditorium of Catalyst College.

The workshop is completely free, and no money will be charged for the Training or Certification.

Interested students are instructed to meet the Activity In-Charge / Class Coordinator for more details and their registration.

By the order of

Principal

Principal
CATALYST COLLEGE
Plot No.- C-16(P) Patliputra Industrial Area
Patliputra, Patna-13

Plot No.C16(P), Patliputra Industrial Area
Patliputra, Patna- 800013
(+91) 7250767676
megha@cimage.in

Date: 15/06/2023

Workshop Title:

Blockchain Unchained: Exploring Real-World Applications through Research

Number of Students Participated: 58

Objectives:

This "Blockchain Unchained" workshop is designed to help participants explore the wide-reaching impact of blockchain technology beyond cryptocurrencies. In this hands-on and research-driven session, we will examine the real-world applications of blockchain across various industries, while emphasizing how research methodologies can be applied to better understand its potential and shape future innovations. By the end of this workshop, participants will gain insights into how blockchain can transform business processes, create efficiencies, and open up new opportunities in sectors ranging from finance to supply chain, healthcare, and beyond.

Module 1. Introduction to Blockchain Technology

- Blockchain's Evolution:
  - From Bitcoin to Enterprise Blockchain: Understanding the shift from cryptocurrencies to business applications.
  - Key blockchain platforms: Ethereum, Hyperledger, Polkadot, Solana, etc.
- Why Blockchain Matters:
  - The transformative power of blockchain in terms of trust, transparency, and efficiency.
  - Blockchain's potential to disrupt industries like finance, healthcare, supply chain, and more.

Module 2. Research Methodology in Blockchain

- Why Research Methodology is Essential in Blockchain:
  - Applying structured research to assess blockchain solutions, frameworks, and platforms.
  - Key research methodologies: qualitative vs. quantitative approaches, surveys, case studies, experimental research, and A/B testing in blockchain implementation.
- Building a Blockchain Research Framework:
  - Identifying business problems or opportunities that blockchain can solve.
  - Research questions to ask when considering blockchain adoption (e.g., scalability, security, cost, and regulatory challenges).
  - Establishing hypotheses for blockchain applications: Testing assumptions about blockchain's efficiency, security, or user adoption.

Module 3.Real-World Blockchain Applications Across Industries

- Blockchain in Finance:
  - Decentralized Finance (DeFi): Exploring how blockchain eliminates intermediaries in financial transactions (e.g., lending, borrowing, trading).

Principal
CATALYST COLLEGE
Plot No.- C-16(P) Patliputra Industrial Area
Patliputra, Patna-13

- Stablecoins and Central Bank Digital Currencies (CBDCs): The research into digital currencies as alternatives to traditional fiat currencies.
- Blockchain in Cross-Border Payments: Case studies such as Ripple and Stellar.

- Blockchain in Supply Chain Management:
  - Transparency, traceability, and efficiency improvements in supply chains.
  - Case study: IBM Food Trust, Walmart, and Maersk using blockchain for better logistics and tracking.
  - Research Focus: How blockchain reduces fraud, errors, and inefficiencies in global supply chains.
- Blockchain in Healthcare:
  - Securing patient data, enhancing interoperability, and reducing administrative costs.
  - Case study: Medicalchain, MediLedger.
  - Research Focus: Data privacy and security in healthcare applications, improving data sharing between institutions while maintaining patient control.
- Blockchain in Identity Management:
  - Self-Sovereign Identity (SSI): Empowering individuals to control their own digital identities using blockchain.
  - Use cases: Digital IDs, online authentication, and preventing identity fraud.
  - Research Focus: Legal, regulatory, and security implications of using blockchain for identity management.
- Blockchain in Voting and Governance:
  - How blockchain can enable secure and transparent voting systems.
  - Case study: Estonia's e-Residency program and blockchain-based voting systems.
  - Research Focus: Validating the feasibility and security of blockchain in public governance.

Module 4.Conducting Blockchain Research: Tools, Platforms, and Methodologies

- Tools for Blockchain Research:
  - Introduction to blockchain explorers, APIs, and developer tools (e.g., Ethereum, Polkadot, Hyperledger).
  - How to use blockchain analytics platforms (e.g., Nansen, Glassnode) for tracking on-chain data.
- Experimentation and Prototyping in Blockchain:
  - Setting up a test blockchain environment (e.g., creating smart contracts, deploying DApps on Ethereum or Solana).
  - Hands-on Demo: How to create a simple blockchain-based application using smart contracts or NFTs.
- Data Collection and Analysis in Blockchain Research:
  - How to collect data from blockchain transactions (e.g., transaction history, network performance metrics, user activity).
  - Analyzing performance and scalability metrics to evaluate blockchain platforms.

Module 5.Case Studies: Researching and Implementing Blockchain Solutions

- Group Activity: Blockchain Research Case Study
  - Participants will break into small groups to analyze a real-world blockchain application.
  - Each group will identify a business or societal problem, explore how blockchain can solve it, and research the feasibility, benefits, and challenges of implementation.
  - Groups will present their findings, including their research methodology, conclusions, and suggested next steps.
- Examples of Blockchain Applications:
  - Supply Chain Management: Researching how blockchain is used to optimize the food supply chain (e.g., transparency and traceability in sourcing).

- Healthcare: Studying how blockchain is transforming patient data management, medical research, and pharmaceuticals.
- Voting Systems: Investigating the effectiveness of blockchain as a solution for transparent and tamper-proof elections.
- Blockchain for Sustainability: How blockchain can be used to track carbon credits, reduce waste, and increase corporate social responsibility (CSR).

Module 6.Overcoming Challenges in Blockchain Adoption

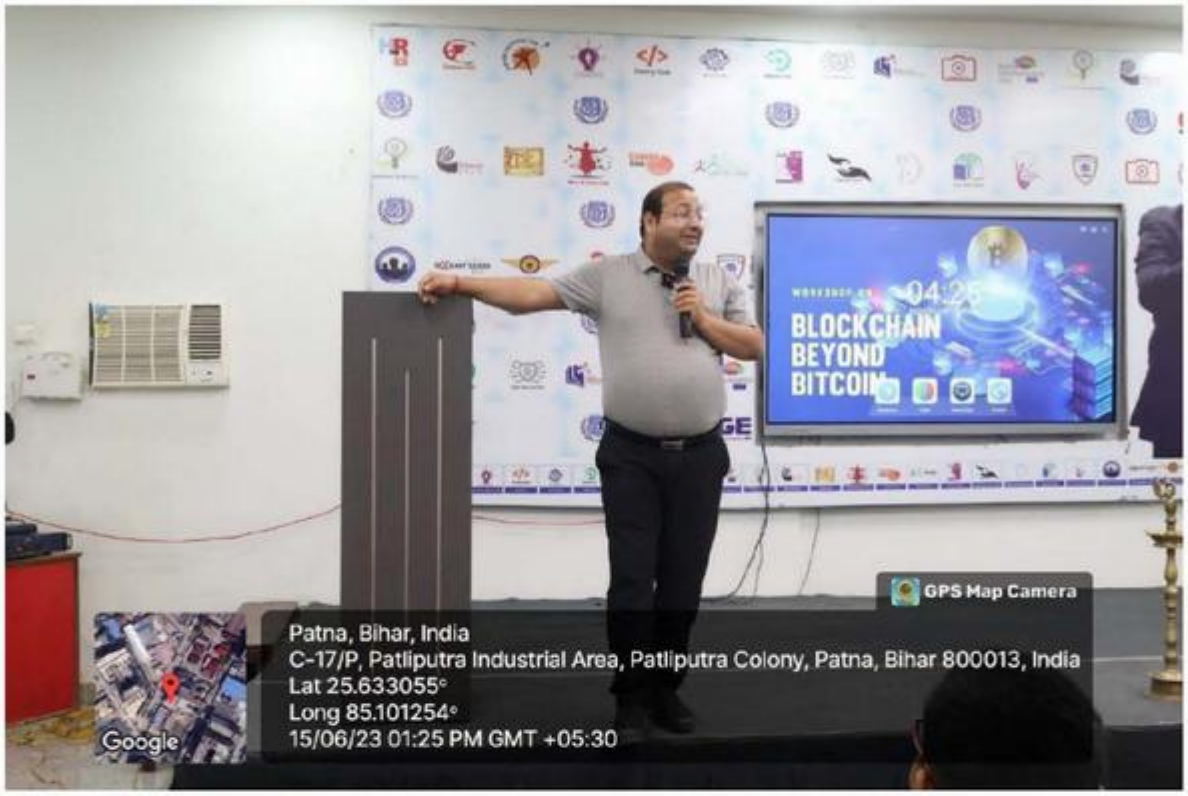
- Scalability and Performance Issues:
  - How to research blockchain scalability (e.g., Ethereum's gas fees, transaction throughput, and blockchain size).
  - Solutions: Layer 2 scaling, sharding, sidechains, and cross-chain solutions.
- Regulatory and Legal Concerns:
  - Research into blockchain regulations, legal implications, and data privacy laws (e.g., GDPR, KYC/AML).
  - How governments and regulatory bodies are responding to blockchain and cryptocurrency.
- Security Challenges:
  - Blockchain vulnerabilities: 51% attacks, smart contract vulnerabilities, and network security.
  - Research focus: How to ensure the security and integrity of blockchain applications.

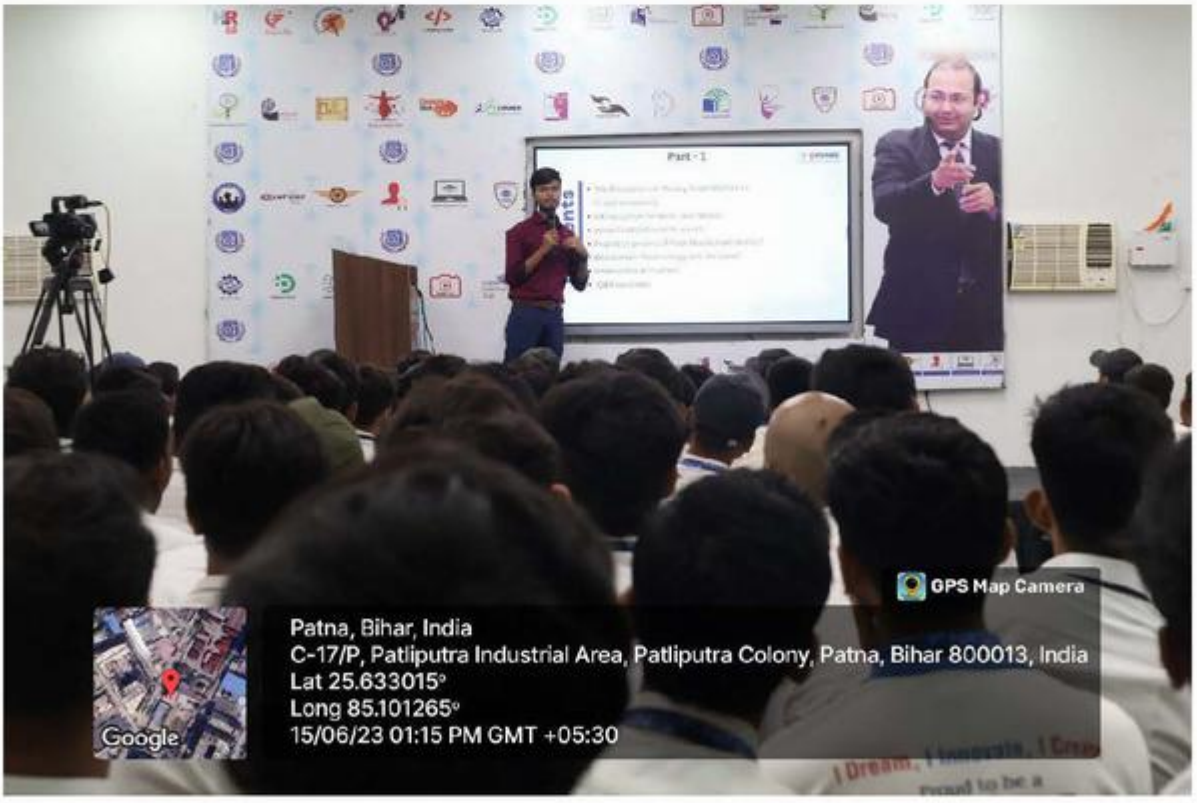
Key Takeaways

- Understanding blockchain's real-world applications and the research methodologies required to assess and implement them.
- Practical experience in researching and prototyping blockchain solutions across industries such as finance, healthcare, and supply chain.
- Insight into the challenges of scaling, securing, and regulating blockchain systems.
- A roadmap for conducting your own blockchain research projects and leveraging blockchain for business innovation.

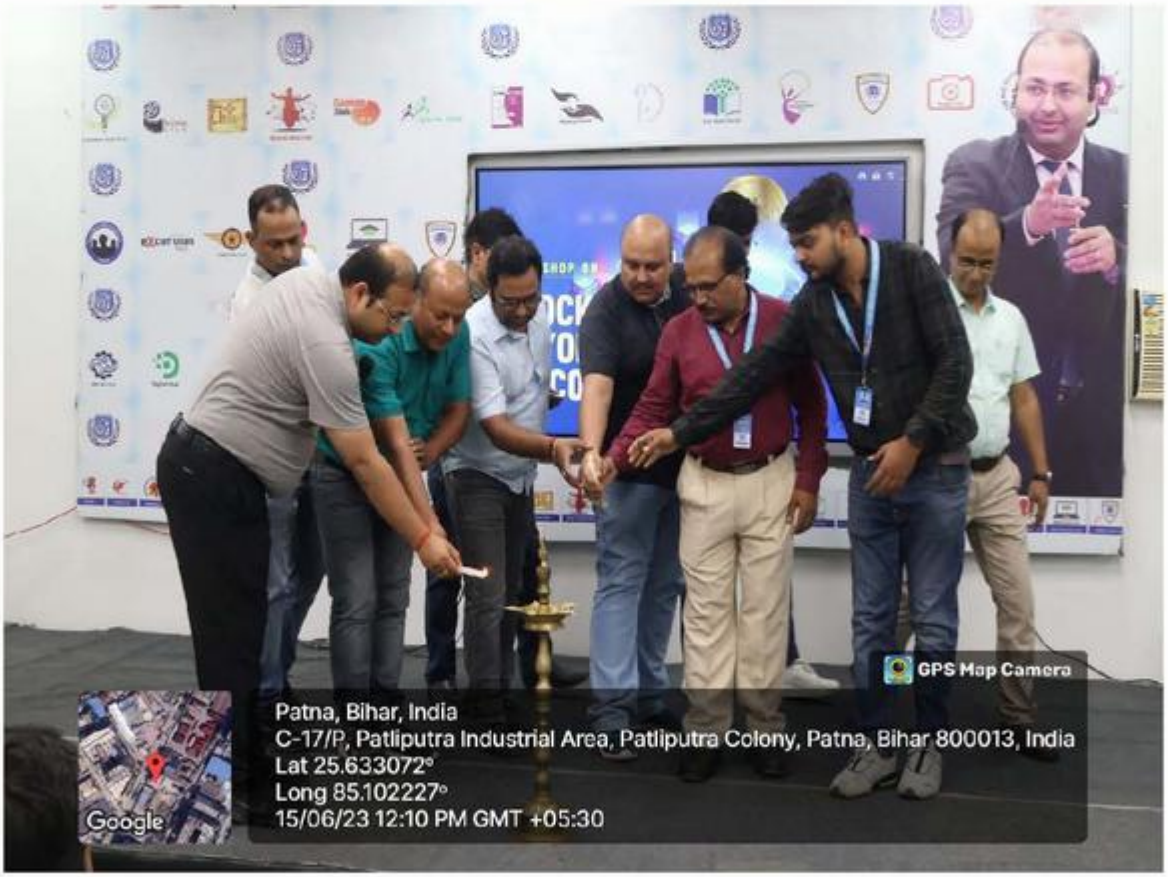
Principal
CATALYST COLLEGE
Plot No.- C-16(P) Patliputra Industrial Area
Patliputra, Patna-13

Blockchain Unchained: Exploring Real-World Applications through Research Date:-15/06/2023





Principal
CATALYST COLLEGE
Plot No.- C-16(P) Patliputra Industrial Area
Patliputra, Patna-13



Blockchain Unchained: Exploring Real-World Applications through Research Date:-15/06/2023

Principal
CATALYST COLLEGE
Plot No.- C-16(P) Patliputra Industrial Area
Patliputra, Patna-13

Registration

For Workshops/Seminars/Conferences during Academic Year 2022-2023

Blockchain Unchained: Exploring Real-World Applications through Research

(15 June 2023)

S. No.	ID	Name of the student	Student's Signature
1	445-7843	Shubham Raj	Shubham Raj
2	445-7873	Sikandar Chauhan	Sikandar Chauhan
3	445-8213	Soniya Sah	Soniya Sah
4	445-7959	Sudhanshu Ranjan	Ranjan
5	445-7842	Suraj Kumar	Suraj Kumar.
6	445-7823	Sushil Kumar	Sushil Kumar
7	445-7918	Vishal Kumar	Vishal Kumar
8	445-8211	Vivek Kumar	Vivek Kumar
9	445-8269	Akshara Raj	Akshara Raj
10	445-8170	Aman Krishna	Aman Krishna
11	445-8157	Aman Kumar	
12	445-8257	Amit Kumar	Amit Kumar.
13	445-8018	Anshu Kumar	Anshu Kumar.
14	445-8255	Aryan Kumar	Aryan Kumar.
15	445-7863	Ayush Bharti	Ayush Bharti
16	445-8076	Ayush Kumar	Ayush Maurya
17	445-8156	Ayush Maurya	Ayush Maurya
18	445-8173	Ayush Raj	Ayush Raj.
19	445-8152	Deepak Kumar	Deepak Kumar
20	445-8278	Gaurav Kumar	Gaurav Kumar
21	445-8273	Harsh Agnihotri	Harsh Agnihotri
22	445-8195	Harsh Sinha	Harsh Sinha
23	445-8062	Kanhaiya Kumar	Kanhaiya Kumar
24	445-8129	Kartik Shubham	Kartik Shubham
25	445-8275	Krishan Kumar	Krishan Kumar
26	445-8318	Kumar Rajeev Ranjan	Kr Rajeev Ranjan
27	445-8316	Kundan Kumar	Kundan Kumar
28	445-8285	Md. Akram	Md. Akram
29	445-8286	Md. Shahbaz	Md. Shahbaz
30	445-8280	Piyush Anand	Piyush Anand
31	445-8334	Pooja Kumari	Pooja Kumari
32	445-8232	Prince Kumar	Prince Kumar

33	445-8259	Priya Kumari Prasad	Priya Kumari Prasad.
34	445-7821	Priyanshu Kumar Singh	Priyanshu Kr Singh
35	445-8423	Priyanshu Pramod Kumar Singh	Priyanshu Pramod Kr Singh
36	445-8044	Rahul Kumar	Rahul Kr
37	445-8001	Rahul Kumar	Rahul Kumar
38	445-8176	Rana Ranjeet Kumar	Rana Ranjeet Kumar.
39	445-8276	Rana Yadav	Rana Yadav.
40	445-8003	Raushan Kumar	Raushan Kumar
41	445-8230	Raushan Kumar	Raushan Kr
42	445-8171	Raushan Raj	Raushan Raj.
43	445-8042	Ravi Kumar	Ravi Kumar
44	445-8148	Riya Kumari	Riya Kumari.
45	445-8258	Rohit Kumar Chaurasia	Rohit Kr Chaurasia
46	445-8132	Rohit Kumar	Rohit Kumar
47	445-8222	Rohit Kumar	Rohit Kumar
48	445-8175	Sabir Jalani	Sabir Jalani
49	445-7903	Sagar Kumar	Sagar Kr
50	445-8317	Sahil Kumar	Sahil Kumar
51	445-8086	Sapna Kumari	Sapna Kumari
52	445-8032	Satyam Kumar	Satyam Kumar
53	445-8153	Saurabh Kumar	Saurabh Kr
54	445-7963	Saurav Kumar	Saurav Kumar
55	445-7910	Shani Kant Prasad	Shani Kant Prasad.
56	445-8063	Shikha Rani	Shikha Rani
57	445-8117	Sidharth Mehta	Sidharth Mehta
58	445-8205	Srikant Kumar	Srikant Kumar.

(Sign.)

Course Coordinator