



# Sessions 01

# Introduction to Blockchain

Blockchain Protocols and Decentralized Applications





# Introduction to Blockchain

- Logistics
- Team
- Expectations
- Curriculum Overview
- Course Objectives
- Sense of what to expect



# Logistics

GitHub OER:

- <https://cs-pub-ro.github.io/blockchain-protocols-and-distributed-applications/>

Moodle:

- <https://curs.upb.ro/2025/course/view.php?id=1887>

Lecture:

- Thursday: 18:00-20:00 - PR705

Practical Sessions:

- Thursday: 16:00-18:00 - PR705
- Thursday: 20:00-22:00 - PR705

# Course Structure

- **Lectures:** Theoretical understanding of blockchain concepts.
- **Practical Sessions:** Hands-on experience with blockchain tools and development.
- **Projects:** (Collaborative) projects to build real-world blockchain applications.
- **Assessments:** hands-on assignments.
- **Guest Lectures:** Insights from industry experts and blockchain professionals.
  - MultiversX
  - Solana
  - TBD

# Team

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**Expectations?**

# Curriculum overview

Week			
Start	End	Lecture	Practical Sessions
6-Oct-2025	10-Oct-2025	Introduction	
13-Oct-2025	17-Oct-2025	Bitcoin - Blockchain V1	Setup & First Transaction
20-Oct-2025	24-Oct-2025	Ethereum - Blockchain V2	First Transaction & CLI (+ further Setup)
27-Oct-2025	31-Oct-2025	Consensus Mechanisms	Fungible Tokens & NFT
3-Nov-2025	7-Nov-2025	Blockchain Protocols (BFT)	Smart Contracts (1)
10-Nov-2025	14-Nov-2025	MultiversX vs Solana - Blockchain V3	Smart Contracts (2)
17-Nov-2025	21-Nov-2025	VM	Smart Contracts (3)
24-Nov-2025	28-Nov-2025	Privacy and Security in Blockchain	dApps
1-Dec-2025	5-Dec-2025		
8-Dec-2025	12-Dec-2025	Scalling	dApps
15-Dec-2025	19-Dec-2025	Fungible & NFT & Use Cases	Projects brainstorming
23-Dec-2024	06-Jan-2025		
11-Jan-2026	17-Jan-2026	Tokenomics	DeFi (1)
18-Jan-2026	24-Jan-2026	DeFi	DeFi (2)

\*subject to change

# Course Objectives

- Understand the fundamental principles of blockchain technology.
- Differentiate between various blockchain protocols and their use cases.
- Develop and deploy smart contracts on platforms like MultiversX and Solana
- Analyze the security and privacy aspects of blockchain applications.
- Explore tokenomics and its impact on decentralized finance.
- Build decentralized applications (dApps) integrating blockchain features.



# Focus

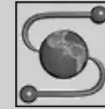
- Science & Technology of Blockchain
- Not about: hype, investment, trading, getting rich

# Getting Started

- Prerequisites:
  - Basic understanding of computer science and programming.
- Tools You'll Use:
  - Wallets: MultiversX Wallet, Solflare, MetaMask
- Development Environments: Visual Studio Code, Solana Playground, Remix
- Setup @ first practical session
- Blockchain Platforms: Ethereum, MultiversX, Solana
- Expectations:
  - Active participation in lectures and practical sessions;
  - Completion of assignment and project;
  - Engagement in discussions and collaborative learning.

Document Title: Welcome to PizzaNet!

Document URL: <http://www.pizzahut.com/>



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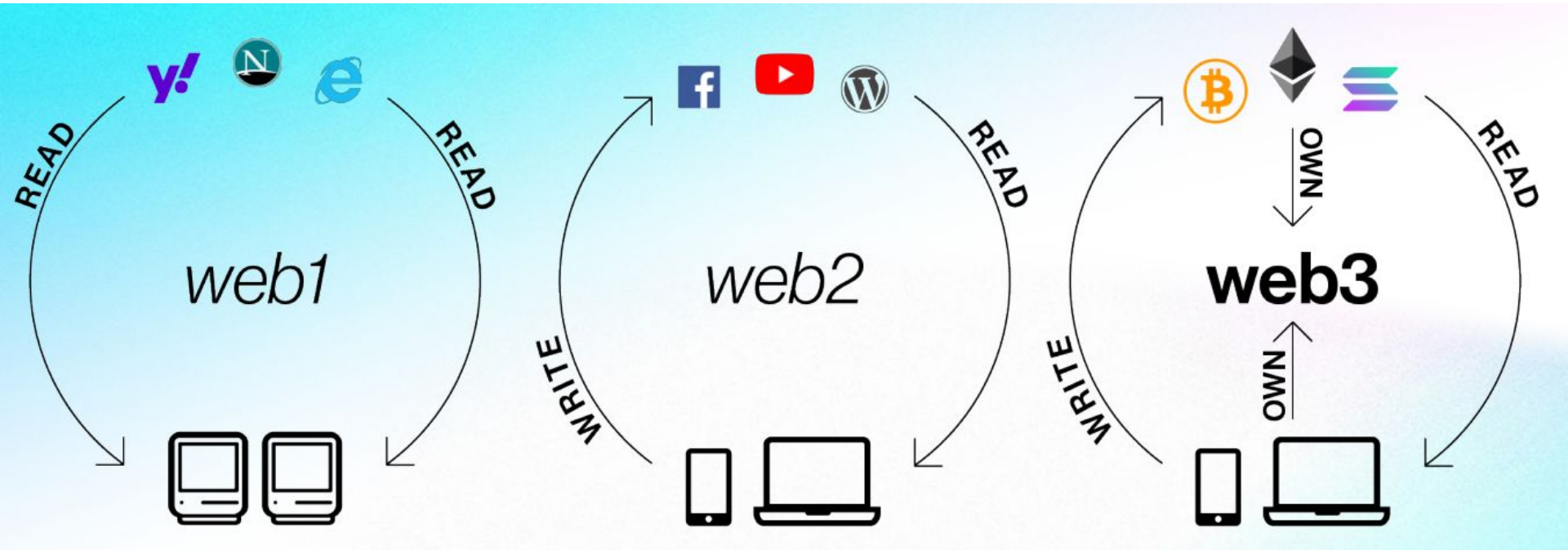
Voice Phone ###-###-####

(where we can reach you)

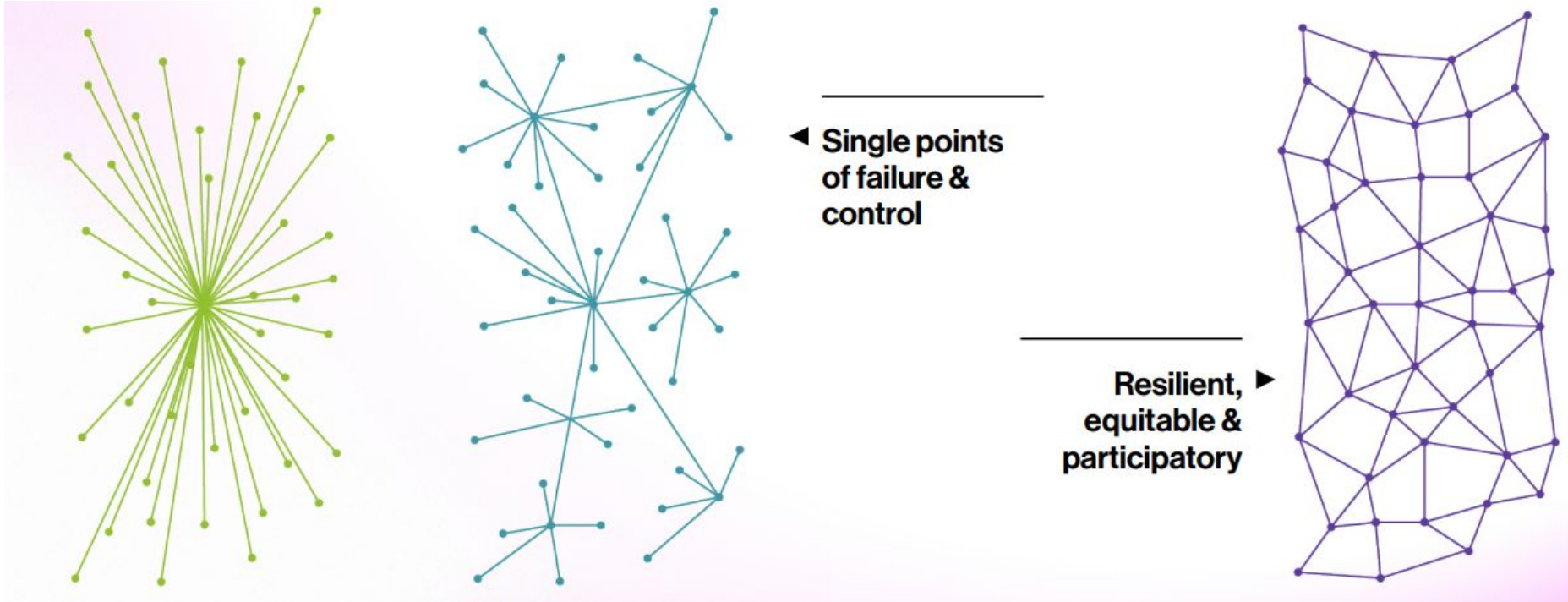
# What is web3?

01. The first era of the modern internet — roughly 1990-2005 — was about open protocols that were decentralized and community-governed. Most of the value accrued to the edges of the network: users and builders.
02. The second era of the internet — roughly 2005-2020 — was about siloed, centralized services. Most of the value accrued to a handful of large tech companies.
03. We are now beginning the third era of the internet — what many call web3 — which combines the decentralized, community governed ethos of the first era with the advanced, modern functionality of the second era. This will unlock a new wave of creativity and entrepreneurship.

# Web3



# Web3



# Blockchain

- Network that:
  - No one owns it
  - Anyone can use it
- Use cases:
  - Money: Bitcoin
  - Computer: Ethereum
  - Filesystem: Filecoin
  - Exchange: Uniswap

# Why Blockchain Matters

- Trustless Transactions - No need for intermediaries
- Enhanced Security - Cryptographic principles ensure data integrity
- Transparency - All transactions are publicly recorded
- Efficiency - Streamlined processes reduce costs and time
- Innovation - Enables new business models and applications



# Bitcoin & Pizza



# Bitcoin

<https://bitcointalk.org/index.php?topic=137.msg1195>

May 18, 2010, 12:35:20 AM

*"I'll pay 10,000 bitcoins for a couple of pizzas.. like maybe 2 large ones so I have some left over for the next day. I like having left over pizza to nibble on later. You can make the pizza yourself and bring it to my house or order it for me from a delivery place, but what I'm aiming for is getting food delivered in exchange for bitcoins where I don't have to order or prepare it myself, kind of like ordering a 'breakfast platter' at a hotel or something, they just bring you something to eat and you're happy!*

*I like things like onions, peppers, sausage, mushrooms, tomatoes, pepperoni, etc.. just standard stuff no weird fish topping or anything like that. I also like regular cheese pizzas which may be cheaper to prepare or otherwise acquire.*

*If you're interested please let me know and we can work out a deal."*



# Bitcoin

<https://bitcointalk.org/index.php?topic=137.msg1195>

May 21, 2010, 07:06:58 AM

*“So nobody wants to buy me pizza? Is the bitcoin amount I'm offering too low?”*



# Bitcoin

<https://bitcointalk.org/index.php?topic=137.msg1195>

May 22, 2010, 07:17:26 PM

*“I just want to report that I successfully traded 10,000 bitcoins for pizza.”*



# Bitcoin - Medium of Exchange

May 22, 2010 - \$41

\$20.50 per pizza

Oct 3, 2024 - \$600.000.000

\$300.000.000 per pizza

**Suggestions?**