Building a dashboard to visualize and search public blockchain addresses

Team Project Spring 24
Chair of Data Science in the Economic and Social Sciences

Supervisor: Dr. Stefano Balietti
What is the Blockchain?

Img Source: https://www.wired.com/story/how-the-blockchain-is-redefining-trust/
What is the Blockchain?

OVERVIEW:

- It is a (simple) **technology**
- It is not Bitcoin, Bitcoin it's just an application
- It is a distributed (or replicated) **ledger** (database)
- It's **decentralized**: no single-point of failure
- It's tamper-proof and censor-resistant

- Allows everyone to **verify** who writes what
Use cases for Blockchain

Asset trading
Asset tokenization
Data management
Central Bank Digital Currencies
Provenance tracking in supply chains
Remittances and cross-border payments
Bootstrapping new projects
Decentralized governance
Identity management
...

Img Source: https://www.worthpoint.com/worthopedia/1950s-restaurant-accounting-ledger-172740335
Blockchain Search: More like AltaVista than Google

AltaVista (1995)  

Google (Today)
Etherscan: The Blockchain “Explorer” for Ethereum
Blockchain Addresses are mostly “anonymous”

0x546974616e2028746974616e6275696c6465722e78797a29
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The co-voting network of the Top-100 DAOs on the Ethereum blockchain
Ethereum Dashboards: Can We Do Better?

https://www.ethdash.xyz/
Validate network and intersectional identities
Find communities, e.g., coalitions of voters in DAOs (Decentralized Autonomous Organizations)

Testing network theories on new data
Recruit people to participate in research
State of Crypto Survey

Independent, Scientific Research
Mapping the present and the future of crypto
At the crossroad with key social trends

Survey + Video Story
In 29 languages

@stateof_cryptocurrency
https://stateofcrypto.net
Skillset

Prerequisites:

• *Strong* programming skills in general
• Front-end and back-end web development (in Node.js / JavaScript)
• Solid understanding of software engineering
• Solid understanding of public blockchains
• Network Analysis

To learn quickly:

• Solidity
• Ethereum node management
• Network Database Neo4J

Useful

• NLP/LLMs (e.g., search queries in natural language grounded to network searches)
Work Process

Interaction
• Regular (bi-weekly) meetings with supervisor
• Codes shared regularly on Github
• Prototype updated regularly for testing

Initial deliverables
• Work Plan: Detailed specifications of platform requirements and tasks assigned to each team member
• Mid-term Progress Report with presentation

Final deliverables
• Running platform hosted on a dedicated server (provided)
• Platform can be explored visually (dashboard) and queried via API
• Written report (including software documentation and maintenance plan)
Building a dashboard to visualize and search public blockchain addresses

Responsible person: Dr. Stefano Balietti (stefano.balietti@uni-mannheim.de)
Language: English
Duration: up to 6 months (deadline Aug 2024)
Min/Max number of participants: 2-5