Project Report: Blockchain in Advertising – Decentralized Demand Side Platform (DSP)

Introduction:

The Decentralized Demand Side Platform (DSP) for advertising is a cutting-edge solution built on blockchain technology. The system utilizes a smart contract written in Solidity to manage advertising campaigns. The primary goal is to create a decentralized and transparent platform that enhances the efficiency, security, and trust in the advertising ecosystem.

Technical Architecture:

The DSP is structured into three layers: Presentation, Application, and Data.

- **Presentation Tier:** The user interface is managed by a Flask application. The index.html and display.html files provide an intuitive interface for capturing AD company details and displaying the data, respectively.

- **Application Tier:** The core business logic and interaction with the blockchain are handled by the AdCampaign smart contract(ad.sol). This Solidity contract defines the structure of advertising campaigns, including essential details like the advertiser's address, budget, reward, and activation status. Functions such as createCampaign and toggleCampaignStatus enable the creation and management of campaigns.

- **Data Layer:** The Ethereum blockchain is leveraged as the data layer to securely store information about advertising campaigns. Each campaign's details are recorded on the blockchain, ensuring transparency and immutability.

Technical Implementation:
The DSP is implemented using Flask, Geth, Truffle, Solidity, Remix IDE and Python.

- **Flask:** Flask is a framework in python. It is employed to create a user-friendly interface for capturing AD company details.

- **Smart Contract:** The AdCampaign smart contract, implemented in Solidity using the Truffle framework, manages the lifecycle of advertising campaigns. It allows the creation of campaigns and toggling their activation status.

Usage:
The DSP is designed for ease of use by personnel involved in advertising campaigns.

1. **Installation and Deployment:** Personnel must install necessary dependencies and deploy smart contracts to the Ethereum blockchain before using the DSP.

2. **Capturing and Storing AD Company Details:**
    - Employees can use the DSP to capture AD company details by filling out the form in the index.html file.

3. **Managing Advertising Campaigns:**
    - The DSP provides functionalities for employees to create new campaigns and toggle their activation status.
    - The smart contract ensures ownership verification before allowing changes to campaign status.

4. **Viewing and Displaying Data:**
    - Employees can use the display.html file to view a list of all advertising campaigns recorded on the blockchain.
    - The data is displayed in a structured table, enhancing accessibility and understanding.

Benefits: The Decentralized Demand Side Platform offers several advantages:

- **Efficient and Secure Data Management:** The use of blockchain ensures efficient and secure storage of advertising campaign data.
- **Transparency and Trust:** The decentralized nature of the platform enhances transparency and trust in the advertising process.
- **Facilitation of Information Sharing:** The platform enables seamless sharing of advertising campaign information with relevant parties.
- **Identity Verification and Access to Services:** The DSP can potentially assist in identity verification for advertisers and provide access to advertising services.

Conclusion:

The Decentralized Demand Side Platform represents a groundbreaking approach to advertising, introducing transparency, security, and efficiency. By leveraging blockchain technology and a smart contract, the platform aims to redefine the advertising landscape, fostering trust among stakeholders and streamlining the campaign management process.

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GitHub Repo Link:
https://github.com/jeet142002/Blockchain_in_Advertising