



Blockchain-Based Privacy Management System Leveraging Blockchain for Differential Privacy

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Project Objective

The project aims to leverage on the decentralized nature of blockchain to improve the efficiency of differential privacy. By providing a secured storage for past query responses, it allows for previously generated Gaussian noise to be reused, decreasing the differential privacy cost. This will allow the privacy budget to be exhausted at a slower rate and the number of queries that analysts can make will increase significantly.

Demonstration

Account: 0xc9E81b70BF971E3e4f8A42D6603Fa27acBa4d65A Account Balance: 99.41658684 ETH

Blockchain Privacy Management

Input the two differential privacy parameters Epsilon (ϵ) and Delta (δ) and select the query type

Parameters: ϵ δ

Possible Queries:

Average Personal Income

Average Total Family Income

Frequency of US Citizens

Frequency of White Race

Frequency of Age more than 60

#1	#2	#3
Query: Average Personal Income Result: 34716 Sigma: 494 Price: 0.00266869999993856 ETH Privacy Cost: 1.5425482134213524 Remaining Budget: 398.45745178657864	Query: Average Personal Income Result: 34716 Sigma: 494 Price: 0.000857900000002048 ETH Privacy Cost: 0 Remaining Budget: 398.45745178657864	Query: Average Personal Income Result: 34961 Sigma: 345 Price: 0.00279424 ETH Privacy Cost: 1.6191857448172542 Remaining Budget: 396.8382660417614

