Homework 3 Exercice 1 Part D

Here are some scan photos regarding Exercice1 transactions:

Transaction Details ‹ ›

[Overview] [State]   More ⌄

[This is a Sepolia **Testnet** transaction only]

⑦ Transaction Hash:	0xd5ad1285f715c97651ac344273fa3b0f313f9281031e5cf09cd837b70be8badb 📋
⑦ Status:	✓ Success
⑦ Block:	✓ 5280230 82422 Block Confirmations
⑦ Timestamp:	⏱ 12 days 6 hrs ago (Feb-13-2024 02:08:00 PM +UTC)
⑦ From:	0xA7E4EF0a9e15bDEf215E2ed87AE050f974ECD60b 📋
⑦ To:	0x6E1B3770024C090D106358aD715a285327A1DEba 📋
⑦ Value:	⬨ 0.5 ETH ($0.00)
⑦ Transaction Fee:	0.001035061232268 ETH $0.00
⑦ Gas Price:	49.288630108 Gwei (0.000000049288630108 ETH)
⑦ Gas Limit & Usage by Txn:	84,000	21,000 (25%)
⑦ Gas Fees:	Base: 12.456693011 Gwei
⑦ Burnt Fees:	🔥 Burnt: 0.000261590553231 ETH ($0.00)
⑦ Other Attributes:	Txn Type: **0 (Legacy)** Nonce: **592689** Position In Block: **7**
⑦ Input Data:	0x

[Overview] [Logs (1)] [State]   More ⌄

[This is a Sepolia **Testnet** transaction only]

⑦ Transaction Hash:	0xd6daece5a04e0987498e7fe7ddf771380c424b95943242a81ab9c83eed1eefb1 📋
⑦ Status:	✓ Success
⑦ Block:	✓ 5281090 81580 Block Confirmations
⑦ Timestamp:	⏱ 12 days 4 hrs ago (Feb-13-2024 05:01:48 PM +UTC)
⚡ Transaction Action:	▸ Call Transfer Function by 0x6E1B37...27A1DEba on 📄 0x779877...b4624789 ✎
⑦ From:	0x6E1B3770024C090D106358aD715a285327A1DEba 📋
⑦ Interacted With (To):	📄 0x779877A7B0D9E8603169DdbD7836e478b4624789 📋 ✓
⑦ ERC-20 Tokens Transferred:	[All Transfers] [Net Transfers] ▸ From 0x6E1B37...27A1DEba To 0x4f1946...C2DE810D For 3 ◉ ChainLink To... (LINK...)
⑦ Value:	⬨ 0 ETH ($0.00)
⑦ Transaction Fee:	0.003468021906519092 ETH $0.00
⑦ Gas Price:	67.134265874 Gwei (0.000000067134265874 ETH)
⑦ Gas Limit & Usage by Txn:	78,076	51,658 (66.16%)
⑦ Gas Fees:	Base: 65.634265874 Gwei	Max: 88.186587598 Gwei	Max Priority: 1.5 Gwei
⑦ Burnt & Txn Savings Fees:	🔥 Burnt: 0.003390534906519092 ETH ($0.00) ✦ Txn Savings: 0.001087520835618392 ETH ($0.00)

By looking at these scan photos, we could know how much gas is used per random number request, how much I have to fund the initial contracts and reflect on the speed at which my Metamask wallet estimated these costs and performed the transaction.

Now let me draw a conclusion on the current technical challenges in blockchain and what needs to be improved in the future of blockchain.

The main technical challenges currently faced by blockchain technology include high transaction fees (Gas fees), slow transaction processing speed, and blockchain scalability issues.

In order to overcome these challenges, we needs to improve in the following aspects:

1. We should reduce user transaction fees by optimizing blockchain protocols or adopting layered solutions (such as lightning networks, side chains, etc.). It can allow blockchain technology to be more widely used in micropayments and daily transactions.

2. We should improve the processing speed and transaction throughput of the blockchain network by improving the consensus mechanism, optimizing the network architecture, or adopting sharding technology to meet the needs of large-scale applications.

3. We should develop more efficient data structures and algorithms to improve the scalability of the blockchain network so that it can handle more transactions and data.

4. We should develop more secure encryption algorithms and privacy protection technologies to protect user data from leakage and abuse.