EXPERMINT: 01

- **Project Title**: **Crowdfunding in Education Using Blockchain**
- **Aim:** To demonstrate the problem Statement with respect to solar environment as per research perspective.
- **Theory:** Defined the different problems in the Crowdfunding in Education Using Blockchain.

1. Problem Statement:

Many students face financial barriers when pursuing higher education due to the high cost of tuition fees, resulting in limited access to quality education.

1 Justification:

- **Financial Accessibility**: Traditional funding sources like scholarships and loans may not be sufficient or accessible to all students, especially those from low-income backgrounds.
- **Empowerment**: Crowdfunding platforms can empower students to raise funds for their education directly from a large number of individuals, potentially reducing the burden of student debt.
- **Transparency**: Blockchain technology can enhance transparency and trust in crowdfunding by providing immutable records of transactions and ensuring that funds are used for their intended purpose.

1 Reference Paper:

"Blockchain Technology in Education: A Systematic Mapping Study", by T. Pedersen, S. Veisamas, and A. Vaagan. (Link: https://ieeexplore.ieee.org/document/9145589).

2. Problem Statement:

The current centralized nature of educational funding systems often leads to inefficiencies, delays, and lack of transparency in the distribution of funds.

2 Justification:

- **Inefficiencies**: Centralized systems may involve bureaucratic processes and high administrative costs, leading to delays in fund disbursement.
- **Transparency**: Blockchain-based crowdfunding can provide real-time visibility into fund allocation, enabling donors to track their contributions and ensuring accountability in fund management.
- **Decentralization**: By leveraging blockchain technology, educational crowdfunding platforms can operate in a decentralized manner, reducing reliance on intermediaries and minimizing the risk of fraud or corruption.

2 Reference Paper:

"Decentralized Crowdfunding on Blockchain Platforms: Evolution, Market Ecosystem, and Future Directions", by A. I. Azouaou and C. Xu. (Link: https://www.sciencedirect.com/science/article/pii/S0040162519312334)

3 Problem Statement:

Limited Funding Opportunities for Educational Projects

3 Justification:

Many innovative educational projects struggle to secure funding through traditional channels. Crowdfunding platforms can offer a wider reach and more diverse funding sources, but existing crowdfunding platforms often face limitations in scalability and security. Blockchain-based crowdfunding can address these limitations by enabling secure, transparent, and global fundraising for educational initiatives.

3 Reference Paper:

“Li et al., 2017: https://doi.org/10.1016/j.procs.2017.11.230 - "A blockchain-based peer-to-peer micro-donation system for public welfare" presents a blockchain-powered micro-donation system that could be adapted for educational crowdfunding.”

4. Problem Statement:

Traditional fundraising platforms often charge high fees and impose restrictions on crowdfunding campaigns, limiting the potential impact of educational initiatives.

4 Justification:

- **High Fees**: Traditional crowdfunding platforms typically charge significant fees for hosting campaigns, reducing the amount of funds available for educational purposes.
- **Restrictive Policies**: Some crowdfunding platforms impose restrictions on the types of campaigns that can be hosted, limiting the diversity of educational projects that can receive funding.
- **Blockchain-based Tokenization**: Tokenization of educational assets on blockchain platforms can enable fractional ownership and trading of educational resources, creating new opportunities for fundraising and investment in education.

5Reference Paper:

"Tokenizing Education: A Case Study of Blockchain-Based Educational Assets", by M. Swan and K. Nissen. (Link: https://www.researchgate.net/publication/334837774_Tokenizing_Education_A_Case_Study_of_Blockchain-Based_Educational_Assets)

5. Problem Statement:

The lack of interoperability and standardization among existing crowdfunding platforms hinders collaboration and coordination in the educational fundraising ecosystem.

5 Justification:

- **Interoperability Challenges**: Existing crowdfunding platforms often operate in isolation, making it difficult for donors, students, and educational institutions to collaborate across platforms.
- **Standardization Efforts**: Blockchain-based initiatives such as the Interledger Protocol (ILP) aim to establish interoperability standards for payment networks, facilitating seamless transfer of funds between different crowdfunding platforms.
- **Open APIs**: By adopting open Application Programming Interfaces (APIs), crowdfunding platforms can integrate with each other more easily, enabling cross-platform compatibility and enhancing the overall efficiency of the educational fundraising ecosystem.

5 Reference Paper:

"Interledger Protocol: Enabling Payments between Blockchains", by S. Thomas, S. Bhowmik, and P. Singh. (Link: https://interledger.org/).

Conclusion:

These problem statements, justifications, and reference papers provide a comprehensive overview of the challenges and opportunities associated with crowdfunding in education using blockchain technology. Researchers and practitioners in this field can use them as a foundation for further exploration and development of innovative solutions.