**Trade Finance(Cross Border Payment)**

**Problem Statement:**

Despite its critical role in facilitating global trade, the process of issuing and managing Letters of Credit (LoC) faces several challenges:

* **Complexity and Lengthy Procedures:** The process of issuing an LC involves various steps, including documentation, verification, and approval from multiple parties. These procedures are often lengthy and complex, leading to delays in transactions.
* **High Transaction Costs**: Trade finance transactions, particularly those involving LCs, can incur significant costs due to banking fees, document processing charges, and other associated expenses. These costs may deter small and medium-sized enterprises (SMEs) from engaging in international trade.
* **Risk of Fraud and Disputes**: LCs are vulnerable to fraud schemes such as forged documents, misrepresentation of goods, or non-compliance with agreed-upon terms. Disputes may arise between buyers and sellers regarding the fulfillment of contractual obligations, leading to financial losses and legal battles.
* **Manual Processes and Paper-based Documentation**: Many aspects of LC issuance and management still rely on manual processes and paper-based documentation, which are prone to errors, inefficiencies, and security breaches. Moreover, the lack of standardization across different jurisdictions adds to the complexity.
* **Lack of Transparency and Accessibility:** The opacity of traditional LC processes makes it challenging for stakeholders to track the status of transactions in real-time. This lack of transparency can lead to misunderstandings, delays, and difficulties in resolving disputes promptly.
* **Regulatory Compliance Burdens**: Compliance with international trade regulations, anti-money laundering (AML) laws, and Know Your Customer (KYC) requirements adds another layer of complexity to LC transactions. Ensuring adherence to these regulations increases the administrative burden on banks and businesses.
* **Limited Availability of Financing Options:** SMEs, in particular, often struggle to access trade finance solutions, including LCs, due to stringent eligibility criteria imposed by financial institutions. This limited availability of financing options constrains their ability to participate in global trade networks.

**Solution:**

* **Smart Contracts for Automated Processes:** Smart contracts, self-executing contracts with the terms of the agreement directly written into code, can streamline various aspects of trade finance. By utilizing blockchain's immutable ledger and programmable features, smart contracts can automate processes such as LC issuance, verification of documents, and payment release upon fulfillment of contract terms. This automation reduces the need for manual intervention, minimizes errors, and accelerates transaction settlement.
* **Enhanced Security and Fraud Prevention:** Blockchain's decentralized nature and cryptographic security features make it highly resistant to fraud and unauthorized alterations. Each transaction recorded on the blockchain is cryptographically linked to the previous one, creating a transparent and tamper-proof audit trail. This transparency and immutability significantly reduce the risk of fraud, ensuring trust among all parties involved in trade finance transactions.
* **Supply Chain Traceability and Transparency:** Blockchain technology enables real-time tracking and traceability of goods throughout the supply chain. By recording every transaction related to the movement of goods on the blockchain, stakeholders can monitor the entire journey from production to delivery. This transparency enhances trust, reduces counterfeiting, and enables more efficient risk management in trade finance operations.
* **Cost Reduction and Efficiency:** Moving to a paperless trade environment facilitated by blockchain technology can lead to significant cost savings for businesses and financial institutions. Eliminating the need for physical documentation, manual processing, and intermediaries reduces overhead expenses and accelerates the transfer of documents and funds. This efficiency not only speeds up transaction cycles but also enhances the overall competitiveness of businesses engaged in global trade.
* **Global Accessibility and Inclusivity:** Blockchain technology has the potential to democratize access to trade finance by providing a more inclusive and accessible platform for SMEs and emerging market participants. Through blockchain-based trade finance solutions, smaller businesses can overcome traditional barriers to entry, such as stringent eligibility criteria and lack of credit history, and access financing options previously unavailable to them.
* **Regulatory Compliance and Standardization:** Blockchain-based trade finance platforms can facilitate regulatory compliance by providing a standardized framework for documenting and verifying trade transactions. By automating compliance checks and integrating KYC and AML procedures into smart contracts, blockchain solutions help ensure adherence to international regulations while reducing administrative burdens for banks and businesses.

**Features of the application:**

A letter of credit as an asset has the following parameters:

* Id is Letter of credit ID.
* Expirydate is the expire date of the letter of credit.
* Buyer is the buyer of the goods.
* Bank is the one who does the finance.
* Seller is the one who sells the goods.
* Amount is paid by the buyer to seller.
* Status is the status of letter of credit

1. Request a letter of credit

This function is used to request a letter of credit.

Input Parameters:

\*

\* @param ctx the transaction context

\* @param id is a Letter of credit ID

\* @param Expirydate is the expiry date of the letter of credit

\* @param Buyer is the buyer of the goods

\* @param Bank is the one who does the finance

\* @param Seller is the one who who sells the goods

\* @param Amount to be paid by the buyer to seller

\* @param Status of Letter of Credit

\* @return the created L/C

\*/

This function also checks the following:

The same LC with the same id does not exist already.

1. Issue the letter of credit

This function helps to issue a letter of credit to a seller by the buyer's bank.

Input Parameters:

\* @param ctx the transaction context

\* @param id the key

\* @return the Letter Of Credit with updated status

\*/

This function also checks the following:

* LC should be present in the ledger.

1. Accept the letter of credit

This function helps to accept the letter of credit.

Input Parameters:

\* @param ctx the transaction context

\* @param id the key

\* @return the Letter Of Credit with updated status

\*/

This function also checks the following:

* LC should be present in the ledger.

1. View the letter of credit

This function helps to retrieve the Letter of Credit details from the ledger.

Input Parameters

\* @param ctx the transaction context

\* @param id the key

\* @return the Letter Of Credit details

\*/

**Recommended technologies:**

1. IDE Tool: Eclipse
2. Chaincode Language: Java
3. Build Automation tool: Gradle
4. Blockchain: Hyperledger Fabric
5. Server: Test network

**Project development guidelines:**

* The project will be delivered within four sprints with every sprint delivering a minimal viable product.
* It is mandatory to do proper sprint planning with user stories to develop all the components of the project.
* The learner can use any technology from the above-mentioned technologies for different layers of the project.
* The learner has to maintain the version of the application over GitHub, and every new change should be sent to the repository.
* The learner should also deploy and host the application on any blockchain instance.