VAT Refund via Blockchain

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Background

Problems in VAT Refund Process

- Require a lot of documents.
- Require a lot of time.
- Difficult to understand process of each country

Why Blockchain?

- All countries should be equal.
- One country may not trust another.
- Create convenient payment system.

User Flow [1]

1. Tourist registers metamask wallet and get QR code of wallet address.
2. Tourist purchases goods, then Shop creates order and records as transaction. Shop can cancel order if they want to.
3. Government will approve or reject order based on the item inside whether it is refundable or not.

User Flow [2]

4. Tourist can ask Government of any country to confirm their orders are out of the country.
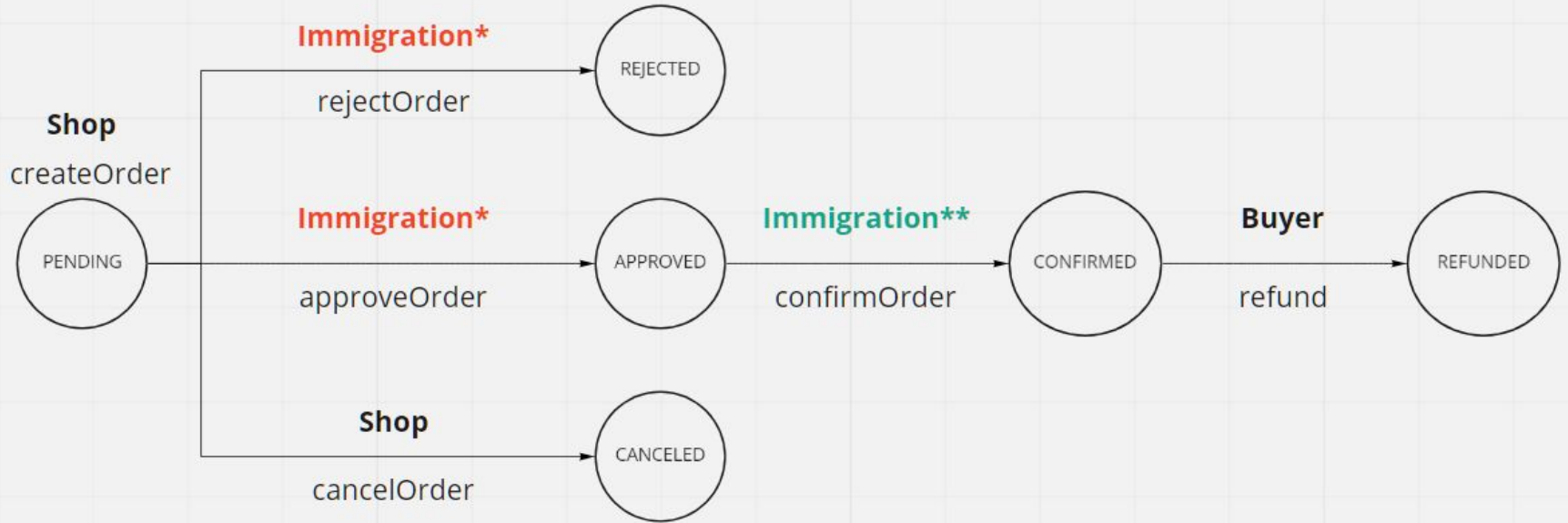5. Tourist can claim refund for all orders that are confirmed.

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5. Tourist can claim refund for all orders that are confirmed.

Implementation

- Frontend : React / Web3.js
- Smart Contract : Solidity / Hardhat
- Contract State :
    - Pending
    - Approved / Rejected / Cancelled
    - Confirmed
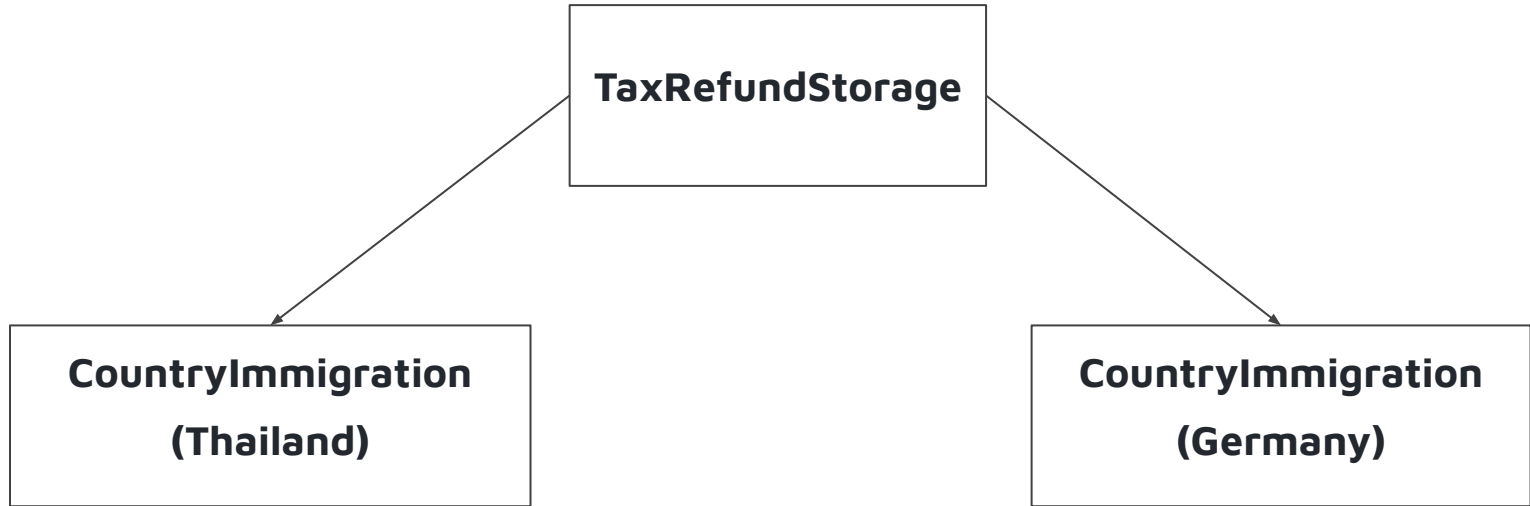   - Refunded

Order's State Diagram

Shop
createOrder

PENDING

Immigration*
rejectOrder → REJECTED

Immigration*
approveOrder → APPROVED

Shop
cancelOrder → CANCELED

Immigration**
confirmOrder → CONFIRMED

Buyer
refund → REFUNDED

***Immigration** is Immigration that has the same country as order
****Immigration** is a general Immigration

Smart Contract

refundAddress[countryCode]

Demo

- Government
  - Address 2-3
- Shop
  - Address 4, 6
- Tourist
  - Address 5, 7-20