# Class Diagram - Data Structure

**Notification**
- message: String
- timestamp: DateTime
- send(userId: String)

Real-time alerts

* alerts
1

**User**
- userId: String
- username: String
- password: String
- email: String
- register()
- login()
- viewPortfolio()

Represents system customers

1 places *

1 owns 1

**Order**
- orderId: String
- quantity: Integer
- limitPrice: Float
- status: Enum
- type: Enum (BUY/SELL)
- create()
- cancel()

Buy/Sell details

**Portfolio**
- holdings: Map<Stock, Integer>
- totalValue: Float
- calculateValue()

User's stock basket

1 generates
0..1

1 contains
*

**Transaction**
- txId: String
- price: Float
- timestamp: DateTime
- buyerId: String
- sellerId: String

**Stock**
- symbol: String
- price: Float
- volume: Long
- timestamp: DateTime
- updatePrice()

Price & availability info

Finalized trade info

* recorded in
1

**BlockchainLedger**
- blockHash: String
- prevHash: String
- recordTransaction(tx: Transaction)
- validate()

Immutable record on Private Blockchain