Crypto Exchange UML

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communicates

Exchange

- cryptoMap: Map<String, Crypto>
- cryptoReserves: Map<String, BigDecimal>

+ getAllCrytoSymbols()
+ getCryptoBySymbol(String)
+ reduceCryptoStock(String, BigDecimal)
+ showCryptoStock()
- initializeMarket()
- addCryptoToMarket(Crypto, BigDecimal, BigDecimal)
- startPriceFluctuation()
- fluctuatePrices()

updates

Wallet

- userId: int
- fiatBalance: BigDecimal
- cryptoBalance: Map<String, BigDecimal>

+ addFiat(BigDecimal)
+ deductFiat(BigDecimal)
+ addCrypto(Crypto, BigDecimal)
+ deductCrypto(Crypto, BigDecimal)
+ getFiatBalance()
+ getCryptoBalance()

manages

User

- userId: int
- name: String
- email: String
- password: String
- wallet: Wallet

+ getUserId()
+ getName()
+ getEmail()

places

Crypto

- symbol: String
- name: String
- marketPrice: BigDecimal

+ getSymbol()
+ getName()
+ getMarketPrice()
+ setMarketPrice(BigDecimal)

updates

OrderBook

- order: Order
- wallet: Wallet
- transaction: Transaction

+ matchOrders(Order)
- findMatch(Order)
- executeDeal(Order, Order)
- closeDeal(BuyOrder, SellOrder)
- registerDeal(int, String, BigDecimal, BigDecimal, String)

processes

Order

- orderId: int
- userId: int
- cryptoSymbol: String
- amount: BigDecimal
- date: Date

+ matches(Order)

registers

Bitcoin

Ethereum

Transaction

- cryptoSymbol: String
- amount: BigDecimal
- price: BigDecimal
- action: String
- timestamp: LocalDateTime

+ executeOrder(): void
+ validateOrder(): boolean

BuyOrder

- maxPrice: BigDecimal

+ getMaxPrice()
@Override
+ matches(Order)

SellOrder

- maxPrice: BigDecimal

+ getMinPrice()
@Override
+ matches(Order)