**Trade Aggregation**

**Problem Statement**

When a trade is submitted by a party, the system will validate the trade. And for validated trade, system will find all existing Unconfirmed trade and apply the aggregation logic to consolidate multiple trade into a single trade. During aggregation, if matched trade found then all the matched single trades are cancelled and final new aggregated trade created in system/

What needs to be done

Build a Swagger Based REST API which will deliver below functionality

API 1 -> Create a new trade, Trade Data will be consider as Input parameter (with version 0)

Ensure that Party and Counterparty must be a valid party

When trade is inputted, perform validations and if not valid reject the trade

If trade is valid save the trade and generate response with Trade Successfully created

Post the persistence, run an aggregation logic to find a all the respective UNCONFIRMED trade exists for Party and consolidate the trade into single based on matching criteria. If among 10 UNCONFIRMED trade, 3 are matched then the 3 matched trade set to CANCELLED and in place of that a single trade is created.

API 2 -> Search for a trade

By Party & Trade Reference Number => List the specific trade and matching score / counterparty & counterparty trade reference number

By Party & Trade Status => List all trade for respective party with the provided status

API 3 -> Provide an API which will take Institution ID as input parameter and run the aggregation logic

Which will find all unconfirmed trades, run the aggregation logic and if matched trades found then it will create a consolidated aggregated trade and cancelled the matched one. When trade aggregated, Notional Amount must be summed up. Version of Aggregation trade created by this process will always be 1. TRN must be updated with following format -> PartyID\_ddmmyyyy\_hhmiss

**Rules ->**

\*\* A static mapping file exists which contains set of valid Institution ID and its associated Party ID.

Party ID & Counterparty ID are Unique across the mapping file. Which means Party ID can be associated to only one Institution

An institution can have multiple party ids.

Enrich the Institution ID when a new trade is submitted or existing trade modified.

**Definition of Trade Data**

|  |  |  |  |
| --- | --- | --- | --- |
| Trade Details | |  |  |
| Column Name | Data Type | Null Constraint | Is used for grouping trade |
| TradeRefNum |  | Not Null - PK |  |
| Party | VARCHAR2(20) | Not Null – PK | Y |
| Counterpary | VARCHAR2(20) | Not Null | Y |
| PartyFullName | VARCHAR2(200) |  |  |
| CounterpartyFullName | VARCHAR2(200) |  |  |
| TradeDate | DATE | Not Null | Y |
| EffectiveDate | DATE | Not Null | Y |
| InstrumentId | VARCHAR2(40) | Not Null | Y |
| NotionalAmount | NUMBER | Not Null |  |
| MaturityDate | DATE | Not Null | Y |
| Currency | VARCHAR2(3) | Not Null | Y |
| Seller | VARCHAR2(20) | Not Null | Y |
| Buyer | VARCHAR2(20) | Not Null | Y |
| CreationTimeStamp | TIMESTAMP | Not Null |  |
| VersionTimeStamp | TIMESTAMP | Not Null |  |
| ConfirmationTimeStamp | TIMESTAMP |  |  |
| Version | NUMBER |  |  |
| Status | VARCHAR2(50) | Not Null  UNCONFIRMED  CONFIRMED  CANCELLED  EXIT |  |