**Trade Matching**

Problem Statement

When a trade is submitted by a party, the system will run a matching logic against all unconfirmed trades in system and find a best match (based on certain trade parameters match) with counterparty trade.

If a 100% match found, then Trade and respected counterparty match trade will move to Confirmed State.

If few trade found with < 100% matching score, then we need to create a link of trade & counterparty trade with their respective matching score.

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 a matching logic to find a matching trade in system and capture the matching score. (persist information in system to retrieve the trade details)

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 -> Update an existing Trade (must be the reflecting the current version)

Can be Updated with trade details, Cancelled. Exit will be trigged on Trade Maturity Date

**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 Matching Field | Match Weight |
| TradeRefNum | VARCHAR2(40) | Not Null - PK |  |  |
| Party | VARCHAR2(20) | Not Null – PK | Y |  |
| PartyInstitution | VARCHAR2(20) | Not Null |  |  |
| Counterpary | VARCHAR2(20) | Not Null | Y |  |
| CounterPartyInstitution | VARCHAR2(20) | Not Null |  |  |
| PartyFullName | VARCHAR2(200) |  |  |  |
| CounterpartyFullName | VARCHAR2(200) |  |  |  |
| TradeDate | DATE | Not Null | Y | 10% |
| EffectiveDate | DATE | Not Null | Y | 10% |
| InstrumentId | VARCHAR2(40) | Not Null | Y | 18% |
| NotionalAmount | NUMBER | Not Null | Y | 10% |
| MaturityDate | DATE | Not Null | Y | 8% |
| Currency | VARCHAR2(3) | Not Null | Y | 8% |
| Seller | VARCHAR2(20) | Not Null | Y | 18% |
|  |  |  |  |  |
| Buyer | VARCHAR2(20) | Not Null | Y | 18% |
| CreationTimeStamp | TIMESTAMP | Not Null |  |  |
| VersionTimeStamp | TIMESTAMP | Not Null |  |  |
| ConfirmationTimeStamp | TIMESTAMP |  |  |  |
| Version | NUMBER |  |  |  |
| Status | VARCHAR2(50) | Not Null  UNCONFIRMED  CONFIRMED  CANCELLED  EXIT |  |  |