Problem Statement

Sapient has won the contract to implement processing fee calculator for a major investment bank (henceforth referred as client). Client receives transactions from various external sources. These transactions are received in a pre-configured format, for example, CSV, EXCEL, XML or a simple pipe delimited format text file placed at a file location. The client needs to calculate the processing fees for the transaction and generate a report which can be sent for invoicing.

Objective

The objective of the system is:

- To read the transactions into the system. The various transaction attributes are listed below.
- To execute the processing rules (mentioned below) over input transactions
- To provide API to get the summary report in a particular format (format mentioned below)

Note: The code should handle csv format input, however the design should be extensible to support other formats as well in future.

Transaction Attributes:

Attribute Name	Attribute Description
External Transaction Id	Unique Identifier
Client Id	Unique Id for each client
Security Id	Unique Id for the security for example RELIND for reliance industries
Transaction Type	Buy, Sell, Deposit, Withdraw
Transaction Date	Date in MM/dd/yyyy
Market Value	The current market value of this transaction
Priority Flag	Value Y,N

Processing Rules:

1. **Intraday transactions:** Intra-day transactions are the ones where security (like IBM Equity) is bought & sold on the same day. Intra-day transactions will have two transactions having same

   Client Id, Security Id, & Transaction Date but opposite Transaction Type i.e. one transaction would be '**Sell**' '& other would be '**Buy**'. Each 'intra-day transaction should be charged $10 for both the Buy & Sell legs.

2. **Normal transactions**: A nominal fee is charged to process each transaction. Fee calculation is based on following rules:

   o $500 for a transaction with high priority (denoted by the priority field in the transaction) □ o $100 for a transaction with normal priority and Transaction Type is Sell and Withdraw o□□$50 for a transaction with normal priority and Transaction Type Code is Buy and Deposit $50 for a transaction with normal priority and Transaction Type Code is Buy and Deposit. □

Summary Report Definition:

The summary report should contain the processing fee to be charged from each client, for a particular transaction type, transaction date and priority. In other words, the processing fee should be grouped by client Id, transaction type, Transaction date, & priority flag. Report should further be sorted by the Client Id, Transaction Type, Transaction Date and Priority.

Client Id	Transaction Type	Transaction Date	Priority	Processing Fee