

Credit Suisse – IT DEV RISK

Problem: Categorize trades in a bank's portfolio

A bank has a portfolio of thousands of trades and they need to be categorized. A trade is a commercial negotiation between a bank and a client. A trade has many characteristics, including:

```
interface ITrade
{
    ...
    double Value { get; } //indicates the transaction amount in dollars
    string ClientSector { get; } //indicates the client's sector which can be "Public" or "Private"
    DateTime NextPaymentDate { get; } //indicates when the next payment from the client to the bank is expected
    ...
}
```

Currently, there are three categories (in order of precedence):

1. DEFAULTED: Trades whose next payment date is late by more than 30 days based on a reference date which will be given.
2. HIGHRISK: Trades with value greater than 1,000,000 and client from Private Sector.
3. MEDIUMRISK: Trades with value greater than 1,000,000 and client from Public Sector.

Question 1: Write a **C# console application** using object oriented design that classifies all trades in a given portfolio. Your design must be extensible because categories will be added/removed/modified in the future. The code can be sent in a text document (e.g. pdf, word, etc.), in the body of an email or a GitHub link.

Input

The first line of the input is the reference date. The second line contains an integer n , the number of trades in the portfolio. The next n lines contain 3 elements each (separated by a space). First a double that represents trade amount, second a string that represents the client's sector and third a date that represents the next pending payment. All dates are in the format mm/dd/yyyy.

Output

N lines with the category of each one of the n trades.

Sample input

```
12/11/2020
4
2000000 Private 12/29/2025
400000 Public 07/01/2020
5000000 Public 01/02/2024
3000000 Public 10/26/2023
```

Sample output

```
HIGHRISK
DEFAULTED
MEDIUMRISK
MEDIUMRISK
```

Question 2: A new category was created called PEP (politically exposed person). Also, a new bool property `IsPoliticallyExposed` was created in the `ITrade` interface. A trade shall be categorized as PEP if `IsPoliticallyExposed` is true. Describe in at most 1 paragraph what you must do in your design to account for this new category.