UBS – 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:

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

Question 1: Write a **C# <u>console</u> application** using object oriented design that classifies all trades in a given portfolio. Keep in mind that the real application may have dozens of categories, so your design must be extensible allowing those categories to be easily added/removed/modified in the future. The code can be sent in a GitHub link.

> **Input**
> As for this test, we can assume that all data entered by the user is correct and properly formatted.
> The first user input is the reference date. The second input contains an integer *n*, representing the number of trades in the portfolio. The next *n* inputted 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**
> ```
> MEDIUMRISK
> EXPIRED
> LOWRISK
> LOWRISK
> ```

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.