

**Task:**

Please design a decision engine which takes in personal code, loan amount, loan period in months and returns a decision (negative or positive) and the amount.

The idea of the decision engine is to determine what would be the maximum sum, regardless of the person requested loan amount. For example if a person applies for 4000 €, but we determine that we would approve a larger sum then the result should be the maximum sum which we would approve. Also in reverse, if a person applies for 4000 € and we would not approve it then we want to return the largest sum which we would approve, for example 2500 €. If a suitable loan amount is not found within the selected period, the decision engine should also try to find a new suitable period. In real life the solution should connect to external registries and compose a comprehensive user profile, but for the sake of simplicity this part can be mocked as a hard coded result for certain personal codes. As the scope of this solution you only need to support 4 different scenarios - a person has debt or a person falls under a different segmentation.

**For example :**

49002010965 - debt  
49002010976 - segment 1 (credit\_modifier = 100)  
49002010987 - segment 2 (credit\_modifier = 300)  
49002010998 - segment 3 (credit\_modifier = 1000)

If a person has debt then we do not approve any amount. If a person has no debt then we take the identifier and use it for calculating person's credit score taking into account the requested input.

**Constraints:**

Minimum input and output sum can be 2000 €  
Maximum input and output sum can be 10000 €  
Minimum loan period can be 12 months  
Maximum loan period can be 60 months

Scoring algorithm. For calculating credit score a really primitive algorithm should be implemented. You need to divide the credit modifier with the loan amount and multiply the result with the loan period in months. If the result is less than 1 then we would not approve such sum, if the result is larger or equal than 1 then we would approve this sum.

$$\text{credit score} = (\text{credit modifier} / \text{loan amount}) * \text{loan period}$$

As a result please provide working code with a single api endpoint and front-end application which uses the functionality. Also whenever possible share your thought process. If you have any additional questions, then please feel free to ask them.