STYLIGHT coding tasks for Java Developer

Please solve all questions in Java

1.Dice Game

We should check if we have a good chance of winning in a game with two dices. The values of the dices are added. We start the game with 50c. The profit is computed with the following table

Sum	Payback	Profit
12	4x input	+1,50 Euro
11	3x input	
10	2x input	+0,50 Euro
7,8,9	input back	+0,00 Euro
2,3,4,5,6	none	-0,50 Euro

Is it good to take part in this game? Try in a loop with 1000 iterations, if you lose or win in the long run. You can simulate the dices with random numbers.

2. Currency Converter

Implement a server-side Java currency converter, which converts Euro, Dollars and Yen in all directions. Please Expose your service in a RESTful API. Use a common framework for your business logic. Please use exchange rates from a publicly available API.

3. URL Lookup

Our website is using speaking URLs to give users and bots a good impression of what the page is about, e.g.

- http://www.stylight.com/Clothing/Women/
- http://www.stylight.com/Boat-Shoes/

All these combinations are mapped in a table with the following format:

from	to
/products	/Fashion/
/products?gender=female	/Women/
/products?gender=female&tag=1234	/Women/Shoes/
/products?tag=5678	/Boat-Shoes
/products?brand=123	/Adidas/
…	…

You can see it as key value map between combinations of parameters and speaking URLs.

Use cases for this mapping table are the lookup of a parameter combination as soon as you request a speaking URL and a reverse lookup of the speaking URL, whenever you are building a link.

Please implement a scaling and performant solution to lookup 200.000 URLs in both ways. The mapping table itself is stored in a database, the lookup should not request the database because of performance reasons.

Little extra:
If you have enough time add the following functionality: When you are building a link and you can't find an exact match, use the one that matches best.

Example:
You are building a link for the following parameter combination:
 ● /products?gender=female&tag=1234&tag=5678

The mapping table doesn't contain an exact match for it, so the best match would be:
 ● /Women/Shoes/?tag=5678