Exercise #1

Using BaseX, formulate the following queries with the help of FLWOR expressions.

1. In a `let` clause, initialize a variable with any string (e.g., "Hello World!"), and then display the variable's content in a `<result> </result>` XML element specified in the `return` clause.
2. In a new query, initialize two variables with numerical values and return their sum. Sample result:
```
<result>
    <a value="3" />
    <b value="2" />
    <sum value="5" />
</result>
```
3. Display the sum of all integer numbers from 1 to 10 in a `<sum> </sum>` XML element. Expected result: 55. Hint: use a `let` clause and the `sum()` aggregation function.
4. Display the multiplication table of *i* x *j* with *i*, *j* = 1..10. Each line of the multiplication table should be formatted as follows: `<result><i>2</i><j>3</j><p>6</p></result>` (here, *i* = 2 and *j* = 3). Hint: use a `for` clause.

Exercise #2

Import Labwork #2's `nutrition.xml` document into BaseX, and then formulate the following queries with the help of FLWOR expressions.

1. All daily values.
2. Name of all foodstuffs.
3. Same question, with result sorted by alphabetical order.
4. Name of all foodstuffs sorted by descending order of total calories. Indicate total calories in attribute to check whether the result is correct. Conclusion? Make it work!
5. Name of all foodstuffs sorted by descending total fat and ascending saturated fat.
6. Name and manufacturer (`mfr`) of all foodstuffs.
7. Name and position in document `nutrition.xml` of every foodstuff, under the format `<foodstuff pos=""> </foodstuff>`.
8. Name of foodstuffs with serving greater than 100.
9. Same question with units indicated in attribute.
10. Name of foodstuffs with total calories and fat over 100.
11. Foodstuffs (all characteristics) whose total fat is over 10% of the daily value.
12. Foodstuffs (all characteristics) for which any of the values (total fat, saturated fat, cholesterol, sodium, carbonate, fiber or protein) is over 10% of its daily value.

13. Name of foodstuffs with vitamin C greater or equal to 10 between `<high-in-vitaminC> </high-in-vitaminC>` tags, while other foodstuffs are tagged by `<low-in-vitaminC> </low-in-vitaminC>`. Indicate the rate of vitamin C in attribute for verification purposes.
14. Number of foodstuffs in document `nutrition.xml`.
15. Average value of all characteristics of food, from *serving* to iron (fe).
16. Same question, but include units as attributes whenever applicable. Has averaging serving values any sense?