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4. Numbers

In the Internet quiz “*Do you like numbers?*” the contestants get questions that should be answered with an integral number. The questions come from different topics (e.g. literature, mathematics, history, chemistry) and are worth 1 to 3 points depending on their difficulty. We know that the value of the answers for the questions is between 0 and 1 thousand million.

The organisers of the quiz store the questions in a data file. In the file each question is located in two lines. The first line contains the question and the second contains the correct answer, the points awarded for the correct answer and the naming of the topic separated by single spaces. The file does not contain letters with accents yet, e.g. instead of word “gyümölcsízű” word “gyumolcsizu” was entered into the file.

For example:

```
When was the Bane of Mohacs?  
1526 1 history
```

The question in the example is: When was the Bane of Mohacs? The correct answer is: 1526. The correct answer is worth 1 point and the question belongs into the topic of history.

The data file is only partially ready. Your task is to test this half-finished data file. The file contains at most 100 questions. It certainly contains questions from the topic of mathematics, history and geography, but there may be other topics as well.

Create a program that answers the following questions using the data in file *numberquest.txt*. Save the source code of the program as *numbers*. (You do not have to check the data of the read file and the validity of the user’s answers.)

Before displaying the result of exercises that require writing information on the screen display the number of the exercise part on the screen (for example: Exercise 3). If you request data from the user, also display the data type to be entered on the screen. Displays with or without accents are both accepted.

1. Read the data from file *numberquest.txt* and solve the following exercises using them.
2. How many questions does the data file contain? Display the answer on the screen.
3. Determine the number of mathematical questions in the data file and how many of these are worth 1, 2 and 3 points. Display the answer on the screen as a complete sentence.

For example:

```
The data file contains 20 mathematical questions, 10  
questions are worth 1 point(s), 6 questions are worth  
2 point(s), 4 questions are worth 3 point(s).
```

4. Find the range of the numerical values of the answers located in the file. Display the answer on the screen as a complete sentence.
5. Which topics are actually in the data file? Display the names of the topics on the screen so that each occurring topic is displayed exactly once.

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6. Request the name of a topic from the user and then select a question from this topic at random. Upon selecting pay attention to each question belonging into the given topic having a chance. (You may assume that the user gave the name of an existing topic correctly.) Display the question, request an answer from the user and then give the points awarded for the answer. (An incorrect answer is worth 0 point.) If the answer was incorrect, give the correct answer as well. The dialogue should be displayed in the following format:

For example:

```
Which topic would you like to receive a question from?
history
When was the Bane of Mohacs? 1514
The answer is worth 0 point(s).
The correct answer is: 1526
```

7. Generate a test consisting of 10 questions at random so that no question appears more than once in it. (However, pay attention to each question read having a chance of being selected.) Write the test into file *testquests.txt* in the following format. (The first number is the point awarded for the correct answer; it is followed by the correct answer and the question, both separated by a single space.) At the end of the file write the total score that can be awarded for the test.

For example:

```
...
1 1526 When was the Bane of Mohacs?
...
A total of 20 points can be awarded for the test.
```

45 marks

Sources:

1. Menu

http://g.virbcdn.com/_f/cdn_images/resize_640x640/3d/PageImage-477875-1676299-XL01_aff91cfbda74.jpg