HW 5

Read: summary file.

1) Compound interest (*liitintress*) is made up from the initial amount of money and the yearly interest. After every year the final sum is calculated from interest rate and initial amount of money.
   For example: if initial amount is 2200 and interest rate is 2.1%:
   1st year: interest is 2200*0.021= 46.2; total amount is 2246.2 (2200+46.2)
   2nd year: interest is 2246.2*0.021 = 47.17; total amount is 2246.2+47.17= 2293.3702
   ..
   Create the method that asks the initial amount of money, interest rate and years for keeping the money and calculates the final sum.

2) We kept 6 important id codes in a .txt file. At night someone made a prank and cut the id codes in half and put them into two separate files. All id codes were cut from a different position and we know that the total length of the id code has to be 11.
   For example: if first part of the file is with length 3, we know that the other part has to be with length 8 (11-3=8). Based on this try to restore the id codes back together. Create a new file where id codes are stored.
   Beginnings of the if code are in the first column, the endings are in a second column. Take codes from the first file and find matching endings (total length of the code is 11) from the second file. Each beginning has only one matching ending.

   Copy file contents and create corresponding text files in your computer.

Contents of the first file (beginnings of the id codes)	Contents of the second file (endings of the id codes)
378100151	810015233
3781001	79
37	015222
37810	0015190
3	7810015233
3781	5190

3) Write a method for returning a median (*mediaan*) and arithmetic mean (*aritmeetiline keskmine*) from a list of integers.
   Median is the middle value of the sorted list. If there are 2 middle values (even numbers of items in a list) the median is two middle numbers summed up and then divided by 2.
   Arithmetic mean is sum of all items divided by the amount of items.
   For example:
   {3, 3, 5, 9, 11} -> median is 5. Arithmetic mean is 6.2

{3, 5, 7, 9}-> median is 6; (5 + 7) / 2 = 6. Arithmetic mean is 6.

4) We are hired by a bank and need to write a piece of code that outputs the information about money. User can enter an amount of money (max 9 euros and 99 cents) in numbers and we have to output this information as text. NB! Grammatical correctness is important!
Example:
   • 207-> "2 eurot ja 7 senti"
   • 101-> "1 euro ja 1 sent" (NB! mitte "1 eurot ja 1 senti", ainsusel ja mitmusel tuleb vahet teha)
   • 95-> "95 senti" (st. ilma eurodeta)
   • 100-> "1 euro" (st. ilma sentideta)

5) Add option for changing channels to the class tv remote.

It has to have properties:

- Volume
- Channel number
- System status (on or off)

Methods for:

- Turning on the system
- Turning off the system
- Changing volume (adds +3 or -3 to previous volume value)
- Changing channel (adds +1 or -1 to previous channel)
- Changing channel (takes the value of the channel as a parameter)

Constraints:

*All methods have to print out what they are doing, for example "Changed the channel from 65 to 66"

*Channels and volume can be only changed when the TV is turned on.

*Minimum volume is 0 and max is 15, if maximum or minimum value is reached then display a notification and do not change the value.

*Minimum channel value is 0 and max is 100. If maximum or minimum value is reached then display a notification and do not change the value.