Exercises 9 Functions (cont.)

We offer you some exercises that involve multidimensional arrays.

Exercise 9.1 - Sum of squares

Write a function that calculates the sum of the first n squares $1^2 + 2^2 + \ldots + N^2$. The integer n is a parameter of the function.

Exercise 9.2 - Survey

A pollster wants to do a survey of voting intentions in a referendum. There are three possible intentions:
- Vote yes
- Vote no
- White vote or abstain

The institute wants to distinguish the voting intentions of men and women. The survey results will be given in the form of a array like this:

	yes	no	forbearance
men	12	37	25
women	9	47	13

This array means for example that 12 men would vote yes, 37 voting no, etc.. Java representation of such a table will be as follows:

	0	1	2
0	12	37	25
1	9	47	13

There is therefore an encoding where index 0 means an intention to vote yes, the index 1 for the non-index 2 for forbearance, and index 0 for men and 1 for women .
Write a program that reads the keyboard and this table has the following functions:
a function that calculates the number of women included in the survey.
a function that calculates the total number of people with voting intention data. The voting intention, as the table is a parameter of the function. It may be given as the index for this encoding.
a function that predicts the outcome of the vote. This result does not take into account the voters. Only votes cast shall be taken into account (in France).
a function that determines whether men and women are fairly represented in the survey.

Exercise 9.3 - Triangle (bis)

It provides a program that draws triangles made with stars

```
1  class Exo6_2{
2      public static void main(String[] args){
3          int taille, nbEt, nbEsp;
4          Terminal.ecrireString("Entrez la taille du triangle: ");
5          taille = Terminal.lireInt();
6          nbEsp = taille -1;
7          nbEt = 1;
8          for (int  i=1; i<=taille; i++){
9              // les espaces
10             for (int j=1; j<= nbEsp; j++){
11                 Terminal.ecrireChar(' ');
12             }
13             // les etoiles
14             for (int j=1; j<= nbEt; j++){
15                 Terminal.ecrireChar('*');
16             }
17             Terminal.sautDeLigne();
18             nbEsp = nbEsp -1;
19             nbEt = nbEt+2;
20         }
21     }
22 }
```

Question 9.3.1

Customize this program instead of displaying spaces and stars on the screen, put them in an array of characters in two dimensions. The array calculation will be done in a function that takes the size of the triangle as arameter.
Example array with dimension 3:

	0	1	2	3	4
0	' '	' '	'*'	' '	' '
1	' '	'*'	'*'	'*'	' '
2	'*'	'*'	'*'	'*'	'*'

Question 9.3.2

Ecrivez trois méthodes qui affichent un tableau contenant un triangle. La première doit afficher le triangle avec la pointe en haut. La deuxième doit afficher la pointe à droite et la troisième, la pointe en bas.

pointe en haut	pointe a droite	pointe en bas
	*	
*	**	*****
***	***	***
*****	**	*
	*	