

## 4. Body mass index

During the solution take the following into consideration.

- Whenever possible, use a formula, function or reference in the solution.
- There are parts in the exercise that use the results from a previous question. If you could not solve the previous part completely, use its solution as it is, or instead of a formula resulting in a number use a value between 15 and 35, or instead of a text use the words “I don’t know” or “normal” and work on with these values. This way you can receive marks for these exercise parts as well.

A research has been carried out among secondary school students, where the students’ height (in cm) and body mass (in kg) were recorded.

1. Source file *adatok.txt* contains the list of the names of the students of a class in alphabetical order as well as their body mass and height data. Open the data file using a worksheet processor, then save it in the format of the worksheet processor as *t1i*.
2. Sort the data into alphabetical order according to the names of the students.
3. Insert a column before column “Name” and number the students there.
4. In columns “Height” and “Mass” every value should be displayed with its unit (cm and kg, respectively)!
5. Calculate the average height of the class in centimetres and display it in cell C39 with an accuracy of two decimal digits. The text in cell B39 should be: “Average height:”!
6. Calculate the total mass of the class in cell D40. The text in cell C40 should be: “Total mass:”.
7. In the next column calculate the body mass index (BMI) of each student and display it with an accuracy of two decimal digits.

$$\text{BMI} = \frac{\text{mass}}{\text{height}^2} \quad (\text{Height should be substituted in metres!})$$

8. The heading of the column should be “BMI”!
9. Give a formula that also characterises the received value in words for each student. (30 and above: obese; 25–30: overweight; 18–25: normal; below 18: anorexia). For every category, the lower limit is included but the upper limit is not.) The characterising texts “anorexia”, “normal”, “overweight”, “obese” should appear in column F – “Build” – depending on the values of the previous column.

10. Rename the worksheet to “all data”.

11. Format the table using the example (alignment, borders, font style).

	<b>Name</b>	<b>Height</b>	<b>Mass</b>	<b>BMI</b>	<b>Build</b>
1.	Albert	170 cm	65 kg	22,49	normal
2.	Arany	165 cm	65 kg	23,88	normal
3.	Árva	155 cm	54 kg	22,48	normal
4.	Ázsok	175 cm	95 kg	31,02	obese
...					
35.	Vidak	162 cm	60 kg		
36.	Zala	178 cm	88 kg	27,77	obese
37.	Zsobó	180 cm	58 kg	17,90	anorexia
	Average height:	166,62 cm			
		Total mass:	2369 kg		

12. Set the font colour to blue for the cells calculated using a formula.

13. Calculate the number of students belonging to the different builds in the free space below the table.

14. Create – on a separate worksheet – a descriptive chart to show the ratio of the numbers of students belonging to the different builds.

15. List the students belonging to the obese build using a filter. Copy the data received through filtering (Name, Height, Mass, BMI) on a separate worksheet. Rename the worksheet to *obese*.

**30 marks**