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## Tartalomjegyzék

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## Exercises

### List first

Write a python function that returns the first element of a list, if there is any, and `None` if the list is empty. The function should be named `list_first` with one parameter: `l`, the list. the function should return the first element or a special `None` value.

### List end

Write a function that returns the last part of a list!

The function should be called `list_end`, with two parameters: `l` the list and `c` the number of elements to keep (at the end). If the list is shorter than `c` then return a `None` value. Otherwise return the list of the last `c` elements.

### Color code

The colors on your screen are usually stored as a combination of three components (primary colors): red, green and blue. All components are between 0 and 1 (real numbers). This triplet of numbers is the "http://wiki.math.bme.huRGB code" http://wiki.math.bme.hu.

Write a function that retrieves a given component from the RGB triplet. The function should be named `color_code`, it should have two parameters:

- `color`, a list of three numbers.
- `component`, a string which is either "http://wiki.math.bme.hured" http://wiki.math.bme.hu, "http://wiki.math.bme.hugreen" http://wiki.math.bme.hu or

"http://wiki.math.bme.hu/blue" http://wiki.math.bme.hu

- The function should return the corresponding color intensity value.

## Perfect numbers

Write a function which evaluates whether a number is perfect.

## Race numbers

We have a list of competitors in a competition and we wish to assign a unique race number to each of them. The numbers should start from 1 up to the number of competitors.

Write a function that has one parameter: the list of competitors and returns a list of corresponding race numbers. The function should be named `racenumbers`, with one parameter.

## Separate

Let  $L$  be a list of numbers, write a function that separates its elements into two lists: one for positive and one for non-positive elements. For example

```
L = [-1, 2, 5, -2, 3, -4, -5, 2, -2, 0, 5, 5, 6, 3, -3]
```

Then the result should be two lists.

## Argmax

Write a function that finds the largest value in a list and returns the index of that element.

The function should be called `argmax`, should have one parameter:  $l$  the list of numbers.

The function should return the index of the largest element. For example `[3, 2, 1]` should result 0.

## Multiply

We have two parameters: a list of numbers  $l$  and an additional number  $k$ . The output should be a list where every number is  $k$  times the corresponding number in  $l$ .

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