

Expected delivery of lab_07.zip must include:

- zipped project folder of the exercises 1 and 2
- this document compiled possibly in pdf format.

Slurm calories count!



Exercise 1)

We all know that Slurm is the best soda in the universe. But how many calories does a can of Slurm have? Professor Farnsworth analyzed the components and is trying to compute the exact amount.

Write a program in **ARM assembly** language to compute the total calories of a Slum can starting from the calories of the ingredient. Each ingredient has a different amount of calories per unit of mass. For example, you have the following lists:

```
Ingredient_calories    DCD 0x01, 30, 0x02, 70, 0x03, 200, 0x04, 42, 0x05, 81
                       DCD 0x06, 20

Ingredient_quantity    DCD 0x02, 50, 0x05, 3, 0x03, 10, 0x01, 5, 0x04
                       DCD 8, 0x06, 30

Num_ingredients        DCB 6
```

Ingredient_calories is a table where each entry consists of two integer values: the ID of the ingredient (4 bytes) and the calories of that ingredient for unit of mass (4 bytes).

Ingredient_quantity is a table where each entry consists of two integer values: the ID of the ingredient (4 bytes) and their quantity in units of mass in a can of soda (4 bytes).

Ingredient_quantity is a 1-byte constant and indicates the number of ingredients in the slum soda.

Compute the total calories of a soda can and store it in register R11.

Exercise 2)

Save in two separate vectors Calories_ordered and Quantity_ordered, the ID of the ingredients in descending order by calories and quantities, respectively.

The output will be, for example:

```
Calories_ordered      DCD 0x03, 0x05, 0x02, 0x04, 0x01, 0x06
Quantity_ordered      DCD 0x02, 0x06, 0x03, 0x04, 0x01, 0x05
```

Then, save in R11 the ID of the most caloric ingredient (the highest product between the calory and the quantity).