COS**132** Imperative Programming: Academic Year 2023: **8th Practical**. Topic: ***Pointers**

Because of the recently risen food prices on the farmers' market, *Antonio's* ***Pizzeria Italiana*** is no longer able to make business profits with the old fixed retail prices (for his base pizza, olives, onions, salami, and shrimps) from the beginning of this year.

What Antonio now really needs is a *more flexible billing system* which allows him to adapt and update his retail prices (depending on the current situation on the farmers' market) at the beginning of each new business week.

Moreover: Antonio does not want to set up only one weekly price list which will be applicable equally to every customer. Additionally, Antonio also wants a separate price list for "Mid-Week Special Offer" (applicable on Wednesdays) als well as also yet another separate price list for "Frequent Customers" with a loyalty card (such as Lindiwe and her friends Natasha and Vanessa).

For this purpose, Antonio consults a software engineer who suggests the following program design:

float-type array **normalDay**:

Base pizza price	Olives price	Onions price	Salami price	Shrimps price

float-type array **midWeek**:

Base pizza price	Olives price	Onions price	Salami price	Shrimps price

float-type array **loyaltyCard**:

Base pizza price	Olives price	Onions price	Salami price	Shrimps price

Moreover, the software engineers also suggests to introduce a pointer, **p**, which can be flexibly *re-directed* to the start places of any of the three above-mentioned arrays in the computer's memory.

As far as the price updating procedure is concerned, which Antonio is supposed to invoke at the beginning of every new business week, the software engineer suggests the following *algorithm:*

FOR counter growing (0 < array-size) **REPEAT**:

input from Antonio: **price** > 0 *// mind the constraint which may not be violated*
input from Antonio: 0 < **midWeekFactor** < 1 *// mind the constraint which may not be violated*
input from Antonio: 0 < **loyaltyFactor** < midWeekFactor *// mind the constraint which may not be violated*

re-direct pointer **p** to the memory place (**p+counter**) of **normalDay**
store **price** into that memory cell

re-direct pointer **p** to the memory place (**p+counter**) of **midWeek**
store (**price * midWeekFactor**) into that memory cell

re-direct pointer **p** to the memory place (**p+counter**) of **loyaltyCard**
store (**price * loyaltyFactor**) into that memory cell

YOUR TASK
Implement this program for Antonio's Pizzeria Italiana, *without violating* the Design Specifications which the software engineer has stipulated.
Submit your solution as a run-able C++ program (in a TXT file or in a CPP file) before the Deadline