# C++ OOP – Regular Exam – 20 April 2024

Submit your zip file here: <https://judge.softuni.org/Contests/Compete/Index/4740>

# 2. Farm Performance

You're developing an app, which an owner of farm requested from you.

The farm has three types of animals, which activity you must measure:

* **Cat: hunts X mice per day** and is active Y days per week
* **Dog:** **chases X cats per hour** and is active Y hours per day
* **Cow:** **gives X liters of milk per** **day**, every day

The first part of your input is the description of each animal, found in the farm. That pard ends with **"end"**. After the farm description, you get one single number: the number of weeks, for which you're supposed to calculate the total amount of activities, which will occur after that many weeks.

The skeleton of the task contains the functionality, which reads the farm animals from the input and all necessary methods to ensure the output, including the calculation of the totals of the activities. It also contains the base class **Animal**, as well as the implementation of **Cat**.

Your programming task is to study the skeleton's code and complete the program, so that you achieve the requested output.

## Input

This is an example of such input, which defines two cats, two dogs, and two cows, and you should output the activities, which will happen for 8 weeks.

|  |
| --- |
| **cat 4 2**  **dog 2 18**  **cat 5 5**  **cow 5**  **cow 12**  **dog 5 2**  **end**  **8** |

## Output

The summary for the farm's Weekly and Total activity.

Weekly: the whole farm, sorted by type (in each type the animals are in the order of appearance in the input). Pay attention how each class provides the description and the info for each object.

Total: the Total activity for all the weeks:

|  |
| --- |
| **Weekly:**  **Cats:**  **- Cat<4, 2> = 8**  **- Cat<5, 5> = 25**  **Dogs:**  **- Dog<2, 18> = 252**  **- Dog<5, 2> = 70**  **Cows:**  **- Cow<5> = 35**  **- Cow<12> = 84**  **Total for 8 weeks:**  **- Caught mice: 264**  **- Chased cats: 2576**  **- Produced milk: 952** |

## Example Input / Output

|  |  |
| --- | --- |
| ****Input**** | ****Output**** |
| **cat 4 2**  **dog 2 18**  **cat 5 5**  **cow 5**  **cow 12**  **dog 5 2**  **end**  **8** | **Weekly:**  **Cats:**  **- Cat<4, 2> = 8**  **- Cat<5, 5> = 25**  **Dogs:**  **- Dog<2, 18> = 252**  **- Dog<5, 2> = 70**  **Cows:**  **- Cow<5> = 35**  **- Cow<12> = 84**  **Total for 8 weeks:**  **- Caught mice: 264**  **- Chased cats: 2576**  **- Produced milk: 952** |

## Example Input / Output

|  |  |
| --- | --- |
| ****Input**** | ****Output**** |
| **cat 4 2**  **cat 2 18**  **dog 5 5**  **dog 5 1**  **dog 1 2**  **end**  **2** | **Weekly:**  **Cats:**  **- Cat<4, 2> = 8**  **- Cat<2, 18> = 36**  **Dogs:**  **- Dog<5, 5> = 175**  **- Dog<5, 1> = 35**  **- Dog<1, 2> = 14**  **Total for 2 weeks:**  **- Caught mice: 88**  **- Chased cats: 448** |