Some comments on the parts of assignments many of us got stuck with

HW04 (DATA PROCESSING AND DATABASE IN EVERYDAY LIFE)

- Question 01 - 04
    - For range check: the valid range apply regardless of values in other fields on that record.
    - For relation check: the valid range may be different based on the values in other fields on that record. (Type, in this case)

    So, the valid age for pet in general can be up to 80 years (max in parrot).

    - Oliver will be fine for range and relation, since he is a parrot and 25 years is valid for them.
    - Although Jazz pass range check (25 is less than 80), since he is a mouse (max age of 5), his age DOES NOT pass relation check (valid age change based on Type)
    - Spot, on the other hands, didn't pass either, since 500 is greater than pet's maximum age (80) and dog's maximum age (20) (I accept both answers)

LAB 06 (EXCEL 01) TAKE-HOME

- Checking for Correctness

    For a score cell to be correct, the value need to be no less than (greater than or equal, >=) AND no more than (less than or equal, <=) at the same time. Unless you use AND() or OR() function, you cannot validate that a score is correct using one IF() function.

    For example, if cell H3 is checking score cell C3, one IF() function:

    ```
    =IF(C3 >= 0, "More than or equal to zero", "less than zero")
    ```

    We can tell that, if the result of C3 >= 0 is false, the value is definitely incorrect, but it the result is true, we cannot be sure yet. 51 is no less than zero, but still incorrect, for example.

    Hence we need another nested IF on the "More than or equal to zero" part, to check that the cell value at C3 is also less than or equal to 50:

```
=IF(C3 >= 0, IF(C3 <= 50, "between 0 and 50", "more than fifty"), "less than zero")
```

And now, we can be sure that each result is either CORRECT, or INCORRECT, but not both:

```
=IF(C3 >= 0, IF(C3 <= 50, "CORRECT", "INCORRECT"), "INCORRECT")
```

- Grade Count

  This one's main concern is the type of reference you use, and what will happen when copy the formula and paste it to another cell.

  For example, if the grades are at the cell range F3 - F12 (F3:F12), if you use relative reference and count for A at cell D15:

  ```
  =COUNTIF(F3:F12, "A")
  ```

  It will work correctly, but when copy the formula and paste it at cell D16, and modify it to count for B. You might not notice that, since you paste down a row, the relative reference will also move down a row as well:

  ```
  =COUNTIF(F4:F13, "B")
  ```

  So this will no longer check the correct range of cells.

  To fix this, you can use absolute reference,

  ```
  =COUNTIF($F$3:$F$12, "A")
  ```

  which will not move when you copy-and-paste, at cell D16:

  ```
  =COUNTIF($F$3:$F$12, "B")
  ```