SE 113 – LAB#4 2023-2024 SPRING

Aim: Implementing conditional execution.

In this lab, we're designing a salary calculation system. For this purpose, create a Python project in which you have the following file: **lab4.py**.

1. Define a variable called `rank`. This variable holds information related to a worker's position. This variable can only take the values 1, 2, 3 or 4. A worker's rank determines the annual increase in that worker's salary. The information related to `rank` is given in the following table:

Value	**Name of position**	**Annual increase**
1	Software Engineer	%10
2	Senior Engineer	%15
3	Principal Engineer	%20
4	Distinguished Engineer	%30

Prompt the user for the rank information of a worker, store it in the variable `rank`. Then, prompt the user once again for his/her current salary, and store it in another variable called `salary`.

When both values (`rank` and `salary`) are provided, on the console, print the worker's position, and print what his/her salary is going to be next year.

SAMPLE OUTPUT (bold parts are entered by user):

```
What is the worker's rank? 2
What is the worker's current salary? 3500
The worker is a Senior Engineer.
The worker's salary is going to increase to 4025.0 next year.
```

2. Suppose that a worker is promoted every 5 years. Implement the following addition to your program:

After prompting the user for `rank`, also request the number of years for which the worker has stayed in that position (this has to be less than 5). Then, print the number of years in which the worker will be promoted.

SAMPLE OUTPUT (bold parts are entered by user):

```
What is the worker's rank? 2
For how many years has the worker been in that rank? 1
What is the worker's current salary? 3500
The worker is a Senior Engineer.
The worker is going to be promoted in 4 years' time.
The worker's salary is going to increase to 4025.0 next year.
```

TODO@HOME

Write a Python script which takes a real number x as input, and displays another real number y based on the following equation:

$$y = \begin{cases} x^3, & x \leq -1 \\ \frac{1}{x}, & -1 < x < 0 \\ 0, & x = 0 \\ \frac{1}{x}, & 0 < x < 1 \\ x^3, & x \geq 1 \end{cases}$$

You can (approximately) confirm your results by examining the graph below: