Programming Assignment 05
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Functions

Instructions

This programming assignment consists of **2 programming exercises**.
You have to:

1. **download** the empty Python files on NYU Classes
2. **edit** them according to the assignment
3. **verify** on your computer that it works
4. **upload** them back on NYU Classes (**do not change the filenames**)

Exercise 1 - Diamond function

Write the code for function `diamond` in the file `exercise1.py`.

The function `diamond`:

- takes one **parameter** `N` (type `int`), its value must be **odd** and in the **range** $[3, 99]$
- it draws a **square shape** made of integer values and spaces:
  - integer values are always printed with **2 digits** (for example, value `7` is printed `07`)
  - every line consists of integer values from `1` up to `N`, where some values have to be replaced by spaces instead
  - the **first** and **last row** are **full** (no space)
  - the **middle row** is **empty** except for values `1` and `N`,
  - each row from the first one to the middle one is increasingly empty from its center
  - each row from the middle one to the last one is increasingly full to its center

Below are a couple of example outputs when using the `diamond` function from the shell:

```
>>> diamond(5)
0102030405
0102  0405
01      05
0102  0405
0102030405
```

```
>>> diamond(15)
010203040506070809101112131415
01020304050607  09101112131415
010203040506      101112131415
0102030405          1112131415
01020304              12131415
010203                  131415
0102                      1415
01                          15
0102                      1415
010203                  131415
01020304              12131415
0102030405          1112131415
010203040506      101112131415
01020304050607  09101112131415
010203040506070809101112131415
```

Exercise 2 - Find a character in a given string

Write the code for function `find_character` in the file `exercise2.py`.

The function `find_character`:

- takes 2 parameters:
  1. `aString` → type `str`: the given string
  2. `aChar` → type `str`: the character to be found in the string
- returns the index of first occurrence of the specified character.
- returns -1 if the character is not found.

NOTE: You shall not use the method `.find()`

Below are a couple of example outputs when using the `find_character` function from the shell:

```
>>> a = find_character('hello World', 'o')
>>> print(a)
4
```

```
>>> a = find_character('hello World', 'p')
>>> print(a)
-1
```