

0 Star Starry Night ★

EXAMPLE:

```
3
*
**
***
```

1 Starry Starry Night ★

EXAMPLE:

```
3
*****
***
*
```

2 99 dan

Print out the following:

```
1 * 1 = 1
1 * 2 = 2
...
9 * 9 = 81
```

We *can* construct the string by concatenation like this:

```
str(8) + ' * ' + str(9) + ' = ' + str(72)
```

but there is a better way. [Google It!](#)

3 Lotto

Create and print a list of length 6, where each element is a random integer in range [1, 45].

```
lst = # Do Something
print(*lst)
```

To learn how to generate random numbers [Google It!](#) When we use *list comprehension*, we can do this with a single line of code.

4 Buying Lotto

Now, get input from user(us) *until* the user has correctly guessed the 7 numbers created above, to become a millionaire.

5 2nd

Create a list of 100 random numbers.

OUTPUT: the 2nd largest number from the list.

The following solution is pretty obvious, but try solving it *without* sorting the list.

```
print(sorted(lst)[-2])
```

6 Acronymizer

Given a series of words, print its acronym. An acronym should be all capital letters, with '.' in between the characters. *EXAMPLE*:

```
come late and start sleeping  
C.L.A.S.S.
```

7 esrever

In Python, we can create a reversed list(or any iterable), by *iterable[::-1]*. However, this can be memory inefficient as it creates a new iterable. Write a code that reverses a list without creating a new list.

hint: The following code swaps the value of two variables.

```
x = 0  
y = 1  
x, y = y, x  
print(x, y)
```

8 Fibonacci

The Fibonacci numbers are defined as following:

$$F_0 = 0, F_1 = 1$$

$$F_n = F_{n-1} + F_{n-2}, n > 1$$

Input: N, Output: N^{th} Fibonacci.

Check that this program also prints F_0 and F_1 well, for input 0 and 1.