

# Python Programming @ The department of Computer Science



## Compound Interest

### Requirements

Compound interest rates describe a mechanism whereby interest on some initial deposited sum is paid on the interest as it accumulates as well as the initial sum. The final sum obtained is calculated from the following well known equation:

$$amount = p \left( 1 + \left( \frac{r}{n} \right) \right)^{(n \times t)}$$

p = The initial (principal) deposited.

r = The annual rate of interest (as a decimal number, thus 4.5%=0.045).

t = The number of years the amount is to be deposited for.

n = The number of times the interest is payed (compounded) per year.

Produce a Python program that takes as input values for p, r, t and n and calculates and outputs the final sum obtained.

Example: p = 100, r = 0.045, t = 5 and n = 4 (quarterly).

$$amount = 100 \left( 1 + \left( \frac{0.045}{4} \right) \right)^{(4 \times 5)} = 100 (1 + 0.01125)^{20} = 125.075$$