# *Python Programming*
# For Loops Homework

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*Teaching, Training and Coaching since more than a decade!*

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# Homework 1: Printing X

- Read an Integer N, then print an X using * as following
  - N always odd

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/home/mous
7
*           *
  *       *
    *   *
      *
    *   *
  *       *
*           *
```

# Homework 2: Find Special Pairs

- Count How many X, Y numbers such that
  - X in range [50-300]
  - Y in range [70-400]
  - X < Y
  - (X+Y) divisible by 7
- Output
  - 8040
- After solving, think in minor optimizations

# Homework 3: Find all quadruples

- Count how many integer (a, b, c, d) with the following property:
  - 1 <= a, b, c, d <= 200
  - a + b = c + d
- Output:
  - 5333400
- Code it once using 4 loops  (very slow!)
- Code it once using 3 loops only
- In future: you can do it using 2 loops only!

# Homework 4: Is [Prime](#)?

- Read an integer N (< 500) and print YES if it is prime, otherwise NO
    - A prime number is greater than 1 AND cannot be formed by multiplying two smaller numbers.
        - In other words, number%whatever != 0
        - The first few prime numbers are 2, 3, 5, 7, 11, 13, 17, 19, 23, and 29.
- Input ⇒ Output
    - 13 ⇒ YES          (only 1 * 13)
    - 12 ⇒ NO           (E.g. 12 = 2 *6, so 12 can be divided by 2 or 6)

# Homework 5: Print Primes

- Read integer N (<500), then print all prime numbers <= N
- Input ⇒ Output
  - 18 ⇒ 2 3 5 7 11 13 17

# Homework 6: Digits sum in range

- Read three integers N, A, B.
- Print the summation of the numbers between 1 and N whose sum of digits is between A and B.
- Input ⇒ Output
  - 20 2 5 ⇒ 84
    - Numbers whose sums of digits are between 2 and 5, are: 2,3,4,5,11,12,**13**,14, 20.
      - E.g. digits sum of 13 is 4 : which is between (2, 5)
  - 10 1 2 ⇒ 13
  - 100 4 16 ⇒ 4554

"Acquire knowledge and impart it to the people."

"Seek knowledge from the Cradle to the Grave."