Python Programming
Selection Practice 1

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Teaching, Training and Coaching since more than a decade!

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Simple Calculator

- Given two **numbers** and a sign between them which will indicate if the user want the **addition, subtraction, float division or multiplication** of these two numbers, find the value of the answer.
    - Overall: + - * /
    - In case of division by zero: print NA
- Inputs ⇒ outputs
    - **7 + 55** ⇒ 62
    - 7 * 10 ⇒ 70
    - 5 / 0 ⇒ NA
- **Stop** the video for a few minutes, and sketch some code

Simple Calculator

```python
num1, operation, num2 = input().split()
num1, num2 = float(num1), float(num2)

if operation == '+':
    print(num1 + num2)
elif operation == '-':
    print(num1 - num2)
elif operation == '*':
    print(num1 * num2)
else:
    if num2 > 0:
        print(num1 / num2)
    else:
        print('NA')
```

```
/home/mou
20 / 5
4.0
```

Minimum of 2 numbers

- Read 2 **integers** and print the minimum one of them
    - Don't use min function from python
- Inputs ⇒ outputs
    - 10 20 ⇒ 10
    - 70 5 ⇒ 5
- Stop the video for a few minutes, and sketch some code

Minimum of 2 numbers

```python
num1, num2 = map(int, input().split())

if num1 < num2:
    print(num1)
else:
    print(num2)
```

if num1 < num2

Run: course ×

/home/moustafa/system-installs/anaconda3/
50 20
20

Minimum of 3 numbers

- Read 3 **numbers** and print the minimum one of them
- Inputs
  - 10.5 20 30 ⇒ 10.5
  - 70 5 15 ⇒ 5
- Stop the video for a few minutes:
  - Consider all cases that ensure your program is correct
  - Sketch the code. *There are many ways to code it!*

Min of 3 numbers: Way #1

```python
3
4    num1, num2, num3 = map(float, input().split())
5
6    if num1 < num2:   # Then either num1 or num3 is the answer
7        if num1 < num3:
8            print(num1)
9        else:
10           print(num3)
11
12   else:   # Then either num2 or num3 is the answer
13       if num2 < num3:
14           print(num2)
15       else:
16           print(num3)
17
```

Min of 3 numbers: Way #2

```python
num1, num2, num3 = map(float, input().split())

# just check if num less than all other choices one by one

if num1 <= num2 and num1 <= num3:
    print(num1)
elif num2 <= num1 and num2 <= num3:
    print(num2)
else:
    print(num3)

# What is the issue with this solution and previous one?
# They are correct. Think beyond correctness
```

Min of 3 numbers: Way #3

```python
num1, num2, num3 = map(float, input().split())

ans = num1

if ans > num2:
    ans = num2

if ans > num3:
    ans = num3

print(ans)

# This solution scales well
# If we have 10 numbers to get min
# we only add simple 10 if conditions

# scalability is an important industrial concept
# some website handles 10k users, another 10m, and third 2 billion
```

"Acquire knowledge and impart it to the people."

"Seek knowledge from the Cradle to the Grave."