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

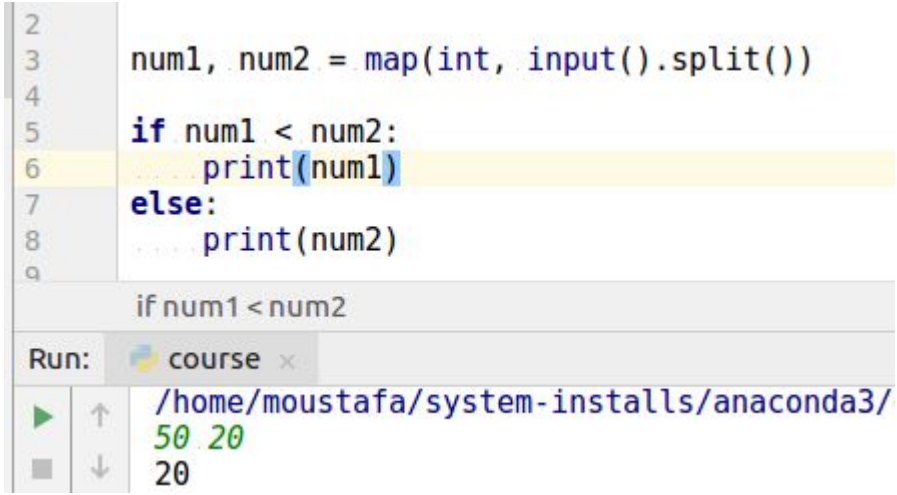
```
3   num1, operation, num2 = input().split()
4   num1, num2 = float(num1), float(num2)
5
6   if operation == '+':
7       print(num1 + num2)
8   elif operation == '-':
9       print(num1 - num2)
10  elif operation == '*':
11      print(num1 * num2)
12  else:
13      if num2 > 0:
14          print(num1 / num2)
15      else:
16          print('NA')
17
```

```
/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



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

```
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

```
4   num1, num2, num3 = map(float, input().split())
5
6   # just check if num less than all other choices one by one
7
8   if num1 <= num2 and num1 <= num3:
9       print(num1)
10  elif num2 <= num1 and num2 <= num3:
11      print(num2)
12  else:
13      print(num3)
14
15  # What is the issue with this solution and previous one?
16  # They are correct. Think beyond correctness
17
```

Min of 3 numbers: Way #3

```
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."