



Homework – solutions

Task 1

Read the Python programs below. They are almost identical, except for the fact that the program on the left uses consecutive **if** statements, whereas the program on the right uses a single **if, elif** statement.

1	<code>number = 13:</code>	<code>number = 13:</code>
2	<code>if number < 10:</code>	<code>if number < 10:</code>
3	<code> print("small")</code>	<code> print("small")</code>
4	<code>if number < 100:</code>	<code>elif number < 100:</code>
5	<code> print("medium")</code>	<code> print("medium")</code>
6	<code>if number < 1000:</code>	<code>elif number < 1000:</code>
7	<code> print("large")</code>	<code> print("large")</code>

Question 1

When the program on the left is executed, what will be displayed on the screen?

- A. `small`
- B. `medium`
- C. `large`
- D. `medium`
`large`

The correct answer is D: medium and large.

The program on the left uses consecutive **if** statements. **All** of the conditions will be checked. Two of them will be **True**, so two of the **print** statements will be executed. The possible branches are not mutually exclusive.

Question 2

When the program on the right is executed, what will be displayed on the screen?

- A. small
- B. medium
- C. large
- D. medium
large

The correct answer is B: medium.

The program on the right uses a single **if, elif** statement. The conditions will be checked, one by one, until the first one to be **True** is located. Only one of the **print** statements will be executed, since the possible branches are mutually exclusive.

Task 2

Rearrange the lines in the Python program below, so that you have a runnable program that simulates the rolling of two dice and displays a message that informs the user of the 'value' of the roll.

If the two dice reveal different faces, the value of the roll is the sum of the faces. Otherwise, the value of the roll is four times the (common) face.

```
1  if dice1 == dice2:
2  print(value)
3  dice1 = randint(1,6)
4  from random import randint
5  value = dice1 + dice2
6  value = 4 * dice1
7  dice2 = randint(1,6)
8  else:
```

Write your rearranged program below. You may also indent any of the lines, if you think that it is necessary.

```
4  from random import randint
3  dice1 = randint(1,6)
7  dice2 = randint(1,6)
1  if dice1 == dice2:
```

```

6     value = 4 * dice1           # indented
8 else:
5     value = dice1 + dice2       # indented
2 print(value)

```

Task 3

The **incomplete** program below is supposed to read two numbers that the user types on the keyboard and display the value of the largest one, or a message if they are equal.

```

1 print("Enter two integers:")
2 num1 = int(input())
3 num2 = int(input())
4 if num1 > num2:
5     print("The largest of the two is", num1)
6 elif num1 < num2:
7     print("The largest of the two is", num2)
8 elif num1 == num2:
9     print("These numbers are equal")

```

Step 1

Fill in the conditions in lines 4, 6, and 8 so that the program behaves as specified.

Step 2

Is it really necessary to check the condition in line 8 or could the **elif** statement be replaced with an **else** statement? Justify your answer.

No, the condition in line 8 is not necessary and the line could be replaced with an **else** statement. During program execution, if the conditions in lines 4 and 6 have been evaluated and found to be False, then we **know** that the only remaining possibility is for the numbers to be equal, and there is no need to check for this explicitly.

Resources are updated regularly — the latest version is available at: ncce.io/tcc.

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