

The weather

Task

The program below asks the user for a location and the weather in that location.

How would you **extend** this program to display advice to the user on how to dress, in the cases when the weather is "cloudy", "rainy", or "snowy", and also provide a generic message in any other case?

Important: Provide only a **rough outline** of the code. Do not concern yourself with syntax or details.

```
print("Where do you live?")  
location = input()  
print("Weather in", location, "now?")  
weather = input()
```

Example

The program displays a prompt and waits for keyboard input.

Where do you live?

The user types in a reply.

Nuuk

The program displays a prompt and waits for keyboard input.

Weather in Nuuk now?

The user types in a reply.

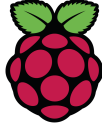
snowy

The program displays an appropriate message, depending on the weather.

Mittens and earmuffs for you

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People in space

Worked example Weather

This is an example of a Python program that you developed earlier. It prompts the user for the weather in a particular location and provides clothing advice accordingly.

```
1 print("What's the weather like?")
2 weather = input()
3 if weather == "cloudy":
4     advice = "No sunglasses"
5 elif weather == "rainy":
6     advice = "Get an umbrella"
7 elif weather == "snowy":
8     advice = "Mittens and earmuffs"
9 else:
10    advice = "No particular advice"
11 print(advice)
```

Syntax checklist

If you encounter an **error message**, read it and try to fix the problem. Use the list below to check for common errors (and tick ✓ if you find yours).

- misspelt `if` or `else` (this includes using capitals)
- forgot the colon `:` after the `if` condition or after `else`
- forgot to **indent** statements in the `if` block or the `else` block
- indented `if` or `else` by mistake
- used `=` instead of `==` in the condition for `if`, to check if two values are equal
- used quotes around the name of a variable

forgot to use quotes around a string literal (like "snowy")

Testing your program

Once you manage to run your program successfully, test it at least once for every possible **branch** of the `if`, `elif`, `else` statement.

Task People in space

Below is a short program that displays how many people are currently in space.

```
1 from space import people
2 number = people()
3 print(number, "people in space right now")
```

Line 1 imports the `people` function from the `space` module, in order to retrieve this information from an online service, so the number of people displayed will not always be the same. This is **not a standard Python component**; it has been created specifically to allow you to perform these tasks.

Step 1

Open this [Python program](https://ncce.io/py-space-40) (ncce.io/py-space-40) in your development environment and **extend** it, so that it asks the user to guess the number of people currently in space.

Example

Note: The number of people in space is retrieved from an online service through the `people` function. It is not always the same and the numbers shown here are just an example.

The program displays a prompt and waits for keyboard input.	How many people do you think are in space right now?
The user types in a reply.	5
The program displays the correct number.	8 people in space right now

Tip

Don't delete or modify any of the existing program statements, as you will need them. Simply insert any additional instructions.

Tip

Introduce a variable called `guess`, to refer to the number entered by the user.

Tip

Don't forget that the user's guess should be an integer. You will need to use `int`.

Tip

Before you proceed to the next step, make sure that you **run** your program, to verify that there are no errors.

Step 2

Extend the program so that it compares the number of people in space with the user's guess and displays an appropriate message.

Example

Note: The number of people in space is retrieved from an online service through the `people` function. It is not always the same and the numbers shown here are just an example.

The program displays a prompt and waits for keyboard input.	<code>How many people do you think are in space right now?</code>
---	---

The user types in a reply.	<code>8</code>
----------------------------	----------------

The program displays a message that the user's guess is correct.	<code>That's right! 8 people in space right now</code>
--	--

Example

Note: The number of people in space is retrieved from an online service through the `people` function. It is not always the same and the numbers shown here are just an example.

The program displays a prompt and waits for keyboard input.	<code>How many people do you think are in space right now?</code>
---	---

The user types in a reply.	<code>5</code>
----------------------------	----------------

The program displays a message that the user's guess is incorrect, along with the correct number.	<code>It's actually more than that 8 people in space right now</code>
---	---

Example

Note: The number of people in space is retrieved from an online service through the `people` function. It is not always the same and the numbers shown here are just an example.

The program displays a prompt and waits for keyboard input.	<code>How many people do you think are in space right now?</code>
---	---

The user types in a reply.	<code>9</code>
----------------------------	----------------

The program displays a message that the user's guess is incorrect, along	<code>It's actually fewer than that 8 people in space right now</code>
--	--

with the correct number.

Tip

There are three branches, so use multi-branch selection: `if`, `elif`, `else`.

Tip

Use `==` to compare if two values are equal.

Use `<` or `>` to compare if a value is less than or greater than another.

Explorer task Temperature

Open the [Python program below](https://ncce.io/py-temp-40) (ncce.io/py-temp-40) in your development environment.

```
from weather import temperature
print("Where do you live?")
location = input()
temp = temperature(location)
```

The program imports the `temperature` function from the `weather` module, to retrieve the current temperature at a specified location from an online service. This is **not a standard Python component**; it has been created specifically to allow you to perform these tasks.

Step 1

Extend the program so that it displays an appropriate message depending on the range that the current temperature is in.

Example

Note: The current temperature is retrieved from an online service. It is not always the same and the numbers shown here are just an example.

The program displays a prompt and waits for keyboard input.

Where do you live?

The user types in a reply.

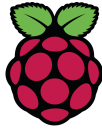
Nuuk

The program displays the current temperature and a message that depends on the temperature.

Current temperature in Nuuk is -5.0
It's freezing cold

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Homework

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 number = 13:
2 if number < 10:
3     print("small")
4 if number < 100:
5     print("medium")
6 if number < 1000:
7     print("large")
```

```
number = 13:
if number < 10:
    print("small")
elif number < 100:
    print("medium")
elif number < 1000:
    print("large")
```

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

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

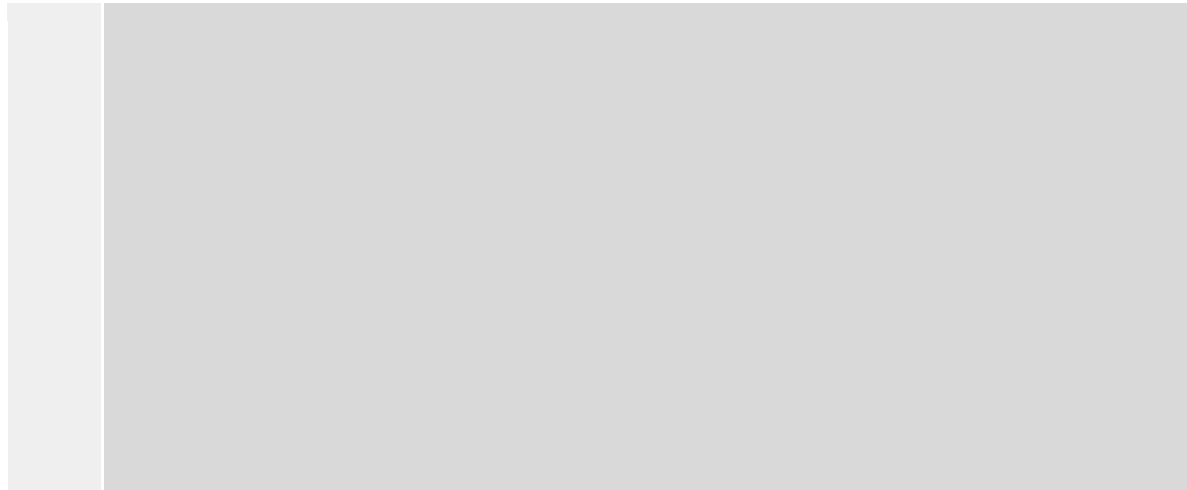
Task 2

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.



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 :
5     print("The largest of the two is", num1)
6 elif :
7     print("The largest of the two is", num2)
8 elif :
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.

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