

Animal Tracking and Variable Types

Textbook

Animal Tracking and Variable Types

Foundation

You may remember that some of the [variables](#) we created in previous sections had quotations around them. This is because not all variables are of the same data type.

Data types

[Data types](#) are [attributes](#) which tell the computer how you plan on using the variable. For example the name attribute is most likely going to hold a word, someone's name and not a number.

Below we will go through the different data types.



String

- [String](#): A string is a text value. By wrapping a variable's value in quotes, you create a string. Either single quotes 'Hello' or double quotes "Hello" can be used. Both are valid strings.

```
animal = "White Shark"
```

```
animal = 'White Shark'
```

```
1 animal = "White Shark"
2 bird = 'Laysan Albatross'
3
4 print(animal)
5 print(bird)
```

Try it!

Integer

- [int](#): This is short for integer and does not need quotation marks.

```
distance = 24
```

```
1 distance = 24
2
3 print(distance)
```

Try it!

Checkpoint

Tracking Animal Variable Types

Create two variables with different types: 1. A string variable. 2. An integer variable. Print each of these variables on separate lines of code.

Requirements:

- Declare and print a "string" variable
- Declare and print an "integer" variable

Questions (6)

1. Which is an example of an integer data type in Python?

MULTIPLE CHOICE

Choose the correct answer:

- A. 32
- B. "3"
- C. "three"
- D. true

2. Which examples are valid strings? Select all that apply.

SELECT MULTIPLE

Select all that apply:

- A. "goats are awesome"
- B. goats are awesome
- C. -goats are awesome-
- D. 'goats are awesome'

3. Debug the following code to set a variable:

DEBUG CODE

Code to Debug:

```
1 friends : 3
```

4. Debug the following code. Assume you are creating a variable and assign it to a string that says porcupine.

DEBUG CODE

Code to Debug:

```
1 pet = porcupine
```

5. Which of the following is an example of a string?

MULTIPLE CHOICE

Choose the correct answer:

- A. 42
- B. "Hello"
- C. True
- D. 3.14

6. In Python programming, what is int short for?

MULTIPLE CHOICE

Choose the correct answer:

- A. integer
- B. integrate
- C. integral
- D. integral

Challenges (3)

1. Temperature Variables

At times, you will want to track the temperature of the water where the marine animal was.

Create **3 variables** for different temperatures: `day1_temp` , `day2_temp` , and `day3_temp` .

Set each variable equal to a temperature value (In Celsius).

Print each variable in a separate print statement.

How might humans be contributing to the overall warming of the planet? [Here is a website for further research on global temperatures.](#)

Requirements:

- Create the three specified variables.
- Print each variable in a separate print statement.

2. Human Impact Variables

You are a scientist at a pacific marine biologist facility. You are interested in tracking specific marine animals to understand their patterns. Often, human behaviors affect animal patterns. How might human behaviors affect not only animal patterns, but global temperatures as well? You are looking for ways to find out how humans impact the earth.

Create **3 variables**: `human_impact1` , `human_impact2` , and `human_impact3` .

For each variable, assign it to a sentence of a different way that humans impact marine life.

Don't forget to wrap your sentence in quotation marks.

Print out each variable.

[Here is a resource to find out more about how humans impact the ocean:](#)

Requirements:

- Create 3 variables named "human_impact1", "human_impact2", and "human_impact3".
- Print out each of the variables.

3. Where do the animals return?

Pretend you are a scientist at a marine biology reserve. You are studying elephant seals and are trying to understand their patterns.

[Go this website.](#)

The red line and dots represent the movements of a single elephant seal over the course of a year. In the upper left hand corner is a tab that says **Data and Tools**. Select **Tracks**. Explore the different animals and try to see if there is a location where each animal returns to every year.

Create 4 variables named `laysan_albatross` , `bluefin_tuna` , `elephant_seal` , and `white_shark` .

Assign each value to a string that has a location where that animal returns to every year.

Why do you think these animals return to those locations? Is there a resource they need there?

Print the 4 variables in separate print statements.

Requirements:

- Create a variable named `laysan_albatross` and set it equal to a string.
- Create a variable named `bluefin_tuna` and set it equal to a string.
- Create a variable named `elephant_seal` and set it equal to a string.
- Create a variable named `white_shark` and set it equal to a string.
- Print each variable in a separate print statement.

Answer Keys & Solutions

Checkpoint Solutions

Tracking Animal Variable Types

```
1 animal = "Elephant Seal"
2 temperature = 30
3
4 print(animal)
5 print(temperature)
```

Questions

1. Which is an example of an integer data type in Python?

MULTIPLE CHOICE

Correct Answer:

- | | |
|------------|-------------|
| A. 32 | ✓ Correct |
| B. "3" | ✗ Incorrect |
| C. "three" | ✗ Incorrect |
| D. true | ✗ Incorrect |

2. Which examples are valid strings? Select all that apply.

SELECT MULTIPLE

Correct Answers:

- | | |
|------------------------|-------------|
| A. "goats are awesome" | ✓ Correct |
| B. goats are awesome | ✗ Incorrect |
| C. -goats are awesome- | ✗ Incorrect |
| D. 'goats are awesome' | ✓ Correct |

3. Debug the following code to set a variable:

DEBUG CODE

Incorrect Code:

```
1 friends : 3
```

Correct Solution:

```
1 friends = 3
```

Explanation:

Variables are assigned with an equals sign.

4. Debug the following code. Assume you are creating a variable and assign it to a string that says porcupine.

DEBUG CODE

Incorrect Code:

```
1 pet = porcupine
```

Correct Solution:

```
1 pet = "porcupine"
```

Explanation:

Strings can use either single or double quotation marks.

5. Which of the following is an example of a string?

MULTIPLE CHOICE

Correct Answer:

A. 42

✗ Incorrect

B. "Hello"

✓ Correct

C. True

✗ Incorrect

D. 3.14

✗ Incorrect

Explanation:

Strings are designated by quotation marks

6. In Python programming, what is int short for?

MULTIPLE CHOICE

Correct Answer:

A. integer

✓ Correct

B. integrate

✗ Incorrect

C. integral

✗ Incorrect

D. integral

✗ Incorrect

Explanation:

This is another word for number.

Challenges

1. Temperature Variables

Solution:

```
1 day1_temp = 12
2 day2_temp = 10
3 day3_temp = 15
4
5 print(day1_temp)
6 print(day2_temp)
7 print(day3_temp)
```

2. Human Impact Variables

Solution:

```
1 human_impact1 = "Humans throw trash into the ocean."
2 human_impact2 = "Commercial shipping can affect wildlife migrations."
3 human_impact3 = "Humans poach and overfish areas."
4
5 print(human_impact1)
6 print(human_impact2)
7 print(human_impact3)
```

3. Where do the animals return?

Solution:

```
1 laysan_albatross = "Hawaii"
2 bluefin_tuna = "Southern Mexico Peninsula"
3 elephant_seal = "California Coast"
4 white_shark = "South California Coast"
5
6 print(laysan_albatross)
7 print(bluefin_tuna)
```



```
8 print(elephant_seal)
9 print(white_shark)
```