

Adding to and Removing from Dictionaries

Textbook

Adding to and Removing from Dictionaries



Adding Items

You can add new items to the dictionary.

```
1 classmates = {
2     "Billy": 8,
3     "Vance": 15,
4     "Alice": 10
5 }
6
7 classmates["Lily"] = 6
8
9 print(classmates)
```

Try it!

This will print out `{'Billy': 8, 'Vance': 15, 'Alice': 10, 'Lily': 6}`. Notice that "Lily" has been added.

Keep in mind that you can also create an **empty dictionary** and add items to that as well.

```
1 friends = {}
2
3 friends["Lily"] = 6
4 friends["James"] = 10
5
6 print(friends)
```

Try it!

Removing Items

You can remove items from the dictionary by using the [pop method](#).

```
1 classmates = {
2     "Billy": 8,
3     "Vance": 15,
4     "Alice": 10,
5     "Lily": 6,
6     "Xavier": 12
7 }
8
9 print(classmates)
10
11 classmates.pop("Alice")
12
13 print(classmates)
14
15
```

Try it!

This will print out `{'Billy': 8, 'Vance': 15, 'Lily': 6, 'Xavier': 12}`. Notice that "Alice" has been removed.

Removing items with the del and key method

You can also use the del and key name to delete the item. This is shown below.

```
1 classmates = {  
2     "Billy": 8,  
3     "Vance": 15,  
4     "Alice": 10,  
5     "Lily": 6,  
6     "Xavier": 12  
7 }  
8  
9 print(classmates)  
10  
11 del classmates["Vance"]  
12  
13 print(classmates)
```

Try it!

Checkpoint

Adding to and Removing from Dictionaries

Practice what you learned in the lesson!

1. Consider the following dictionary:

```
friends = { "Shane" : 10, "Samantha" : 9, "Shiloh" : 12, "Sean" : 11 }
```

2. Add this key/value pair to the dictionary named friends.

```
"Sebastian" : 8
```

3. Pop off the key " **Shiloh** " from the dictionary.

4. Print the updated dictionary.

Requirements:

- Add this key/value pair to the dictionary named friends. **"Sebastian" : 8**
- Pop off the key **"Shiloh"** from the dictionary.
- Print the updated dictionary

Questions (8)

1. Which method can be used to remove an item from a dictionary?

MULTIPLE CHOICE

Choose the correct answer:

- A. pop()
- B. remove()
- C. drop()
- D. stop()

2. Debug the following code to add a value to this dictionary..

DEBUG CODE

Code to Debug:

```
1 friends = {  
2     "Billy": 8,  
3     "Betsy": 15,  
4     "Brian": 10,  
5 }  
6  
7 friends("Bethany") = 13  
8  
9 print(friends)
```

3. True or False: It is possible to add and remove items from a Python dictionary?

MULTIPLE CHOICE

Choose the correct answer:

- A. True
- B. False

4. Edit the text box below to debug (fix) the code:

DEBUG CODE

Code to Debug:

```
1 friends = {  
2     "Callie": 8,  
3     "Charly": 15,  
4     "Craig": 10,  
5     "Charity": 6,  
6     "Cami": 12  
7 }  
8  
9 pop("Craig")  
10  
11 print(friends)
```

5. How can you add new items to a dictionary?

Choose the correct answer:

- A. Using the "insert" method.
- B. Using the "add" method.
- C. Using the "pop" method.
- D. Using square brackets and the key assignment.

6. What will be the output of the following code?.

```
classmates = {"Billy": 8, "Vance": 15, "Alice": 10} classmates["Lily"] = 6 print(classmates)
```

Choose the correct answer:

- A. {'Billy': 8, 'Vance': 15, 'Alice': 10, 'Lily': 6}
- B. {'Billy': 8, 'Vance': 15, 'Alice': 10}
- C. {'Lily': 6}
- D. {'Alice': 6}

7. How do you remove an item from a dictionary using the "pop" method?

Choose the correct answer:

- A. `classmates.pop("Alice")`
- B. `classmates.remove("Alice")`
- C. `classmates.delete("Alice")`
- D. `classmates.popitem("Alice")`

8. What will be the output of the following code?

```
classmates = {"Billy": 8, "Vance": 15, "Alice": 10, "Lily": 6, "Xavier": 12} classmates.pop("Alice") print(classmates)
```

Choose the correct answer:

- A. {'Billy': 8, 'Vance': 15, 'Alice': 10, 'Lily': 6, 'Xavier': 12}
- B. {'Billy': 8, 'Vance': 15, 'Lily': 6, 'Xavier': 12}
- C. {'Billy': 8, 'Vance': 15, 'Lily': 6}
- D. {'Billy': 8, 'Vance': 15, 'Alice': None, 'Lily': 6, 'Xavier': 12}

Challenges (4)

1. Dictionary of Shapes

Consider the following dictionary: The number next to the shape is the height in inches.

```
shapes = {  
    "Triangle": 8,  
    "Circle": 15,  
    "Square": 10,  
    "Rectangle" : 12  
}
```

1. Create an **input** for a new shape.
2. Create an **input** for a new height.
3. Add the inputted shape and height to your dictionary.
4. Print the dictionary at the end.

For example:

Inputs: `Star` , `11`

Output: `{'Triangle': 8, 'Circle': 15, 'Square': 10, 'Rectangle': 12, 'Star': 11}`

Another example:

Inputs: `Diamond` , `6`

Output: `{'Triangle': 8, 'Circle': 15, 'Square': 10, 'Rectangle': 12, 'Diamond': 6}`

Reminder: Inputs need to match the output **exactly**! Check *spelling* and *capitalization*!

2. Arborist

An arborist is a tree expert. You are the arborist for your school! You are deciding which kinds of trees to plant. You currently have 6 kinds of trees on your list. The principal only wants 5 kinds. It's up to you to decide which variety of tree to remove from your dictionary.

Consider the following dictionary.

```
trees = { "aspen" : 75, "pine" : 82, "maple" : 60, "oak" : 65, "willow" : 80, "cottonwood" : 100 }
```

1. Create a program that asks the user which kind of tree they want to remove from the dictionary.
2. The program will then remove it from the dictionary.
3. Print the updated dictionary.

For example:

Input: `oak`

Output: `{'aspen': 75, 'pine': 82, 'maple': 60, 'willow': 80, 'cottonwood': 100}`

Another example:

Input: `aspen`

Output: `{"pine" : 82, "maple" : 60, "oak" : 65, "willow" : 80, "cottonwood" : 100, }`

Try using the `pop` method if the user enters the `cottonwood` tree.

3. Goals

You have a dictionary of goals you want to work on. Each goal has an amount of time you think should be dedicated per week to that goal.

Consider the following dictionary:

```
goals = { "piano" : 5, "run" : 3, "paint" : 2, "serve" : 7, "homework" : 7 }
```

You realize that you don't have time to do all of these goals, so you need to take one out of the dictionary.

1. Create a program that asks the user which goal they want to remove.
2. The program will then remove that goal.
3. Print the updated dictionary.

For example:

Input: `paint`

Output: `{'piano': 5, 'run': 3, 'serve': 7, 'homework': 7}`

For example:

Input: homework

Output: `{ 'piano' : 5, 'run' : 3, 'paint' : 2, 'serve' : 7 }`

4. Dinosaurs

1. Create an empty dictionary. Your program will consist of inputs that will enter your dictionary.
2. One input will be the name of your dinosaur and the other input will be the height of the dinosaur.

The program will continue to ask the user for these two inputs until the string "triceratops" is entered.

3. Be sure to include the key `triceratops` in your dictionary.
4. The program will then stop asking the user for more inputs.
5. Print the finished dictionary.

For example:

Inputs: `t rex` , `50` , `long neck` , `100` , `raptor` , `15` , `triceratops` , `30`

Output: `{'t rex': 50, 'long neck': 100, 'raptor': 15, 'triceratops': 30}`

Another example:

Inputs: `ankylosaurus` , `25` , `triceratops` , `50`

Output: `{'ankylosaurus': 25, 'triceratops': 50}`

Answer Keys & Solutions

Checkpoint Solutions

Adding to and Removing from Dictionaries

```
1 friends = {  
2     "Shane" : 10,  
3     "Samantha" : 9,  
4     "Shiloh" : 12,  
5     "Sean" : 11  
6 }  
7  
8  
9 friends["Sebastian"] = 8  
10  
11 print(friends)  
12  
13 friends.pop("Shiloh")  
14  
15 print(friends)
```

Questions

1. Which method can be used to remove an item from a dictionary?

MULTIPLE CHOICE

Correct Answer:

- | | |
|-------------|-------------|
| A. pop() | ✓ Correct |
| B. remove() | ✗ Incorrect |
| C. drop() | ✗ Incorrect |
| D. stop() | ✗ Incorrect |

Explanation:

Just like in lists, pop() is used to remove items.

2. Debug the following code to add a value to this dictionary..

DEBUG CODE

Incorrect Code:

```
1 friends = {  
2     "Billy": 8,  
3     "Betsy": 15,  
4     "Brian": 10,  
5 }  
6  
7 friends("Bethany") = 13  
8  
9 print(friends)
```

Correct Solution:

```
1 friends = {  
2     "Billy": 8,  
3     "Betsy": 15,  
4     "Brian": 10,  
5 }  
6  
7 friends["Bethany"] = 13  
8  
9 print(friends)
```

Explanation:

"Bethany" needs to be in square brackets

3. True or False: It is possible to add and remove items from a Python dictionary?

MULTIPLE CHOICE

Correct Answer:

A. True

✓ Correct

B. False

✗ Incorrect

Explanation:

Dictionaries can be changed.

4. Edit the text box below to debug (fix) the code:

DEBUG CODE

Incorrect Code:

```
1 friends = {  
2     "Callie": 8,  
3     "Charly": 15,  
4     "Craig": 10,  
5     "Charity": 6,  
6     "Cami": 12  
7 }
```

```
8
9 pop("Craig")
10
11 print(friends)
```

Correct Solution:

```
1 friends = {
2     "Callie": 8,
3     "Charly": 15,
4     "Craig": 10,
5     "Charity": 6,
6     "Cami": 12
7 }
8
9 friends.pop("Craig")
10
11 print(friends)
```

Explanation:

`.pop()` needs to be attached to the dictionary name

5. How can you add new items to a dictionary?

MULTIPLE CHOICE

Correct Answer:

- A. Using the "insert" method. ✗ Incorrect
- B. Using the "add" method. ✗ Incorrect
- C. Using the "pop" method. ✗ Incorrect
- D. Using square brackets and the key assignment. ✓ Correct

Explanation:

To add to a dictionary, just create a new key value pair.

6. What will be the output of the following code?.

MULTIPLE CHOICE

Correct Answer:

- A. `{'Billy': 8, 'Vance': 15, 'Alice': 10, 'Lily': 6}` ✓ Correct
- B. `{'Billy': 8, 'Vance': 15, 'Alice': 10}` ✗ Incorrect
- C. `{'Lily': 6}` ✗ Incorrect

D. `{'Alice': 6}`

✗ Incorrect

Explanation:

This code has added a new item to the dictionary

7. How do you remove an item from a dictionary using the "pop" method?

MULTIPLE CHOICE

Correct Answer:

A. `classmates.pop("Alice")`

✓ Correct

B. `classmates.remove("Alice")`

✗ Incorrect

C. `classmates.delete("Alice")`

✗ Incorrect

D. `classmates.popitem("Alice")`

✗ Incorrect

Explanation:

Use just the word `pop`

8. What will be the output of the following code?

MULTIPLE CHOICE

Correct Answer:

A. `{'Billy': 8, 'Vance': 15, 'Alice': 10, 'Lily': 6, 'Xavier': 12}`

✗ Incorrect

B. `{'Billy': 8, 'Vance': 15, 'Lily': 6, 'Xavier': 12}`

✓ Correct

C. `{'Billy': 8, 'Vance': 15, 'Lily': 6}`

✗ Incorrect

D. `{'Billy': 8, 'Vance': 15, 'Alice': None, 'Lily': 6, 'Xavier': 12}`

✗ Incorrect

Explanation:

Alice has been removed

Challenges

1. Dictionary of Shapes

Solution:

```
1 my_shape = input("What shape do you want to add?")
2 my_shape_height = int(input("How tall is your shape?"))
3
4
5 shapes = {
6     "Triangle": 8,
7     "Circle": 15,
8     "Square": 10,
9     "Rectangle" : 12,
10 }
11
12 shapes[my_shape] = my_shape_height
13
14
15 print(shapes)
```

2. Arborist

Solution:

```
1 name = input("Which tree do you want to remove?")
2
3 trees = {
4     "aspen" : 75,
5     "pine" : 82,
6     "maple" : 60,
7     "oak" : 65,
8     "willow" : 80,
9     "cottonwood" : 100,
10 }
11 }
12
13
14 trees.pop(name)
15
16 print(trees)
```

3. Goals

Solution:

```
1 plan = input("Which goal do you want to remove?")
2
3 goals = {
4     "piano" : 5,
5     "run" : 3,
6     "paint" : 2,
7     "serve" : 7,
8     "homework" : 7,
9 }
10
11
```

```
12 goals.pop(plan)
13
14 print(goals)
```

4. Dinosaurs

Solution:

```
1 new_dino = input("What dino do you want to add?")
2 dino_height = int(input("How tall is your dinosaur?"))
3
4 dinosaur = {
5
6 }
7
8 dinosaur[new_dino] = dino_height
9
10 while new_dino != "triceratops":
11     new_dino = input("What dino do you want to add?")
12     dino_height = int(input("How tall is your dinosaur?"))
13     dinosaur[new_dino] = dino_height
14
15
16 print(dinosaur)
```