

Removing from Lists in Python

Textbook

Removing from Lists in Python



Removing Items from a List

Removing items from a list can be done with the `remove()` method.

```
1 goats = ["Billy", "Frannie", "Leslie", "Barbara", "Scott"]
2
3 goats.remove("Frannie")
4
5 print(goats)
```

Try it!

This will take the value of "Frannie" out of the list.

What if there are multiple elements that are the same in the list? The `remove()` method will take out the first element that matches.

```
1 goats = ["Billy", "Frannie", "Bob", "Barbara", "Bob", "Scott"]
2
3 goats.remove("Bob")
```

```
4  
5 print(goats)
```

Try it!

Return a Value

Sometimes you will want to actually pull out an item from a list so that it will no longer be in the list, but you still want to use the item value. This is done with the `pop()` method.

```
1 goats = ["Billy", "Frannie", "Braden", "Barbara", "Scott"]  
2  
3 favorite = goats.pop(3)  
4  
5 print(favorite + " is my favorite goat")  
6  
7 print(goats)
```

Try it!

The value inside the `pop()` method is the index value you want to return. If you then print the list, you'll see that the value at index 3 was "Barbara" and it no longer appears in the list.

The del index method

You can also use `del` and the index value to remove items

```
1 goats = ["Billy", "Frannie", "Bob", "Barbara", "Bob", "Scott"]  
2  
3 del goats[2]  
4  
5 print(goats)
```

Try it!

This will print the following.

```
['Billy', 'Frannie', 'Barbara', 'Bob', 'Scott']
```

Challenge Help

To create a list of strings, use the following code:

```
my_list = input().split()
```

Remember that inputs are automatically accepted as strings.

The input should look like words separated by spaces. No commas, parentheses, or brackets are needed. For example: `apple banana strawberry` would be an acceptable input.

This would create a python list: `["apple", "banana", "strawberry"]`

These challenges may require putting a bunch of numbers as input into a list. To do this, use this code:

```
my_list = [int(n) for n in input().split()]
```

This code creates a list called `my_list` and the `input().split()` command breaks up the input into each individual integer. It uses a for loop to assign all the individual inputs to their index in the list.

For this code, put your input question right into the `input()` above. For example:

```
my_list = [int(n) for n in input("Input a list of numbers").split()]
```

The input should look like numbers separated by spaces. No commas, parenthesis, or brackets are needed. For example: `2 6 8 33 24 2` would be an acceptable input.

This would create a python list: `[2, 6, 8, 33, 24, 2]`

Checkpoint

Removing from a List

Consider the following list:

```
harvest = ["pumpkins", "apples", "corn", "squash", "carrots"]
```

Using what you learned in the lesson, do the following:

1. **Remove** " `squash` " from the list.
2. **Pop** off the value " `apples` "
3. **Print** the final list

Requirements:

- Remove "squash" from the list.
- Pop off the value "apples"
- Print the final list.

Questions (8)

1. Which method will return a value?

MULTIPLE CHOICE

Choose the correct answer:

- A. `remove()`
- B. `append()`
- C. `pop()`
- D. `extend()`

2. What happens when you use `remove()` on an item that appears multiple times in a list?

MULTIPLE CHOICE

Choose the correct answer:

- A. It will remove all instances of that item.
- B. It will throw an error.
- C. It will remove the first instance of that item.
- D. You cannot use `remove()` on an item that appears multiple times in a list.

3. What will the following code print out?

MULTIPLE CHOICE

```
insects = ["dragonfly", "bee", "butterfly", "katydid", "lacewing"] insects.remove("bee") print(insects)
```

Choose the correct answer:

- A. `['dragonfly', 'butterfly', 'katydid', 'lacewing']`
- B. `"bee"`
- C. `['dragonfly', 'bee']`
- D. `1`

4. Debug the following code: Assume you are trying to pop the value of "katydid" off

DEBUG CODE

Code to Debug:

```
1 insects = ["dragonfly", "bee", "butterfly", "katydid", "lacewing"]
2
3 favorite = insects.pop("katydid")
4
5 print(favorite)
```

5. What will the following code print out?

MULTIPLE CHOICE

```
insects = ["dragonfly", "bee", "butterfly", "katydid", "lacewing"] prize = insects.pop(1) print(prize)
```

Choose the correct answer:

- A. `["dragonfly", "bee", "butterfly", "katydid", "lacewing"]`
- B. `bee`
- C. `dragonfly`
- D. `["dragonfly", "butterfly", "katydid", "lacewing"]`

MULTIPLE CHOICE

6. What will the following code print out?

```
insects = ["dragonfly", "bee", "butterfly", "katydid", "lacewing"] prize = insects.pop(1) print(insects)
```

Choose the correct answer:

- A. ["dragonfly", "bee", "butterfly", "katydid", "lacewing"]
- B. ["dragonfly", "butterfly", "katydid", "lacewing"]
- C. dragonfly
- D. bee

DEBUG CODE

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

Code to Debug:

```
1 insects = ["dragonfly", "bee", "butterfly", "katydid", "lacewing"]
2
3 insect.pop(2)
```

DEBUG CODE

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

Code to Debug:

```
1 insects = ["dragonfly", "bee", "butterfly", "katydid", "lacewing"]
2
3 insects.pop[2]
```

Challenges (5)

1. Skills

Consider the following list:

```
skills = ["Piano", "Soccer", "Coding", "Cooking", "Writing"]
```

1. Create a program that will take a skill as an input.
2. Remove the inputted skill from the list.
3. Print the updated list.

For example:

Input: Soccer

Output: ['Piano', 'Coding', 'Cooking', 'Writing']

Another example:

Input: Writing

Output: ['Piano', 'Soccer', 'Coding', 'Cooking']

2. Bronze Medal

Create a program that will find out who got the bronze medal from a list of people. The program will take a list of names as an input.

See the Challenge Help section of the lesson for help to know how to do this.

The program will then take the third name out of the list and use it in the print statement:

```
"_____ got the bronze medal"
```

For example:

Inputs: Miguel Elizabeth Gabe Betty Alayna

Output: Gabe got the bronze medal

Another example:

Inputs: Dolores Ruth Irene Caroline

Output: Irene got the bronze medal

3. Beans

You are creating a list of different kinds of beans.

Here are some beans that you've thought of: `black pinto garbanzo string green jelly chili coffee cocoa garden kidney lima red soy`

Then you realize that you do not like lima beans!

1. Create a program that takes in a list of beans as an input.
2. If `lima` appears in the list, remove it.
3. Print the updated list.

For example:

Input: `black pinto garbanzo string green chili garden lima`

Output: `['black', 'pinto', 'garbanzo', 'string', 'green', 'chili', 'garden']`

Another example:

Input: `green lima string kidney`

Output: `['green', 'string', 'kidney']`

4. Remove the Center Number

1. Create a program that will remove the center item! The program will take a list of strings as an input.
2. If the list has an odd number of items, the program will remove the center item.
3. If the list has an even number of items, the program will remove the center two items.
4. Print the updated list.

For example:

Input: `red orange yellow green blue`

Output: `['red', 'orange', 'green', 'blue']`

Another example:

Input: `grass tree shrub hedge`

Output: `['grass', 'hedge']`

Hint: You will learn this later but this challenge is a little preview.

You can find the length of a list using `len(my_list)` . Try it out!

Hint: You can use a modulus to find out if the list has an odd or even number of items in it.

Answer Keys & Solutions

Checkpoint Solutions

Removing from a List

```
1 harvest = ["pumpkins", "apples", "corn", "squash", "carrots"]
2
3
4 harvest.remove("squash")
5
6
7
8 apple = harvest.pop(1)
9
10
11 print(harvest)
```

Questions

1. Which method will return a value?

MULTIPLE CHOICE

Correct Answer:

- A. remove() ✗ Incorrect
- B. append() ✗ Incorrect
- C. pop() ✓ Correct
- D. extend() ✗ Incorrect

Explanation:

Remove will take out a value. Append adds a value to the end. Extend adds a list to another list.

2. What happens when you use remove() on an item that appears multiple times in a list?

MULTIPLE CHOICE

Correct Answer:

- A. It will remove all instances of that item. ✗ Incorrect

B. It will throw an error.

✗ Incorrect

C. It will remove the first instance of that item.

✓ Correct

D. You cannot use remove() on an item that appears multiple times in a list.

✗ Incorrect

Explanation:

The first instance will be removed first.

3. What will the following code print out?

MULTIPLE CHOICE

Correct Answer:

A. ['dragonfly', 'butterfly', 'katydid', 'lacewing']

✓ Correct

B. "bee"

✗ Incorrect

C. ['dragonfly', 'bee']

✗ Incorrect

D. 1

✗ Incorrect

Explanation:

.remove takes out the value

4. Debug the following code: Assume you are trying to pop the value of "katydid" off

DEBUG CODE

Incorrect Code:

```
1 insects = ["dragonfly", "bee", "butterfly", "katydid", "lacewing"]
2
3 favorite = insects.pop("katydid")
4
5 print(favorite)
```

Correct Solution:

```
1 insects = ["dragonfly", "bee", "butterfly", "katydid", "lacewing"]
2
3 favorite = insects.pop(3)
4
5 print(favorite)
```

Explanation:

`.pop()` takes an index value in the parentheses

5. What will the following code print out?

MULTIPLE CHOICE

Correct Answer:

- A. `["dragonfly", "bee", "butterfly", "katydid", "lacewing"]` ✗ Incorrect
- B. `bee` ✓ Correct
- C. `dragonfly` ✗ Incorrect
- D. `["dragonfly", "butterfly", "katydid", "lacewing"]` ✗ Incorrect

Explanation:

`.pop()` will return the value of the index value given

6. What will the following code print out?

MULTIPLE CHOICE

Correct Answer:

- A. `["dragonfly", "bee", "butterfly", "katydid", "lacewing"]` ✗ Incorrect
- B. `["dragonfly", "butterfly", "katydid", "lacewing"]` ✓ Correct
- C. `dragonfly` ✗ Incorrect
- D. `bee` ✗ Incorrect

Explanation:

What variable is being printed?

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

DEBUG CODE

Incorrect Code:

```
1 insects = ["dragonfly", "bee", "butterfly", "katydid", "lacewing"]
2
```

```
3 insect.pop(2)
```

Correct Solution:

```
1 insects = ["dragonfly", "bee", "butterfly", "katydid", "lacewing"]
2
3 insects.pop(2)
```

Explanation:

Check the variable names closely.

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

[DEBUG CODE](#)

Incorrect Code:

```
1 insects = ["dragonfly", "bee", "butterfly", "katydid", "lacewing"]
2
3 insects.pop[2]
```

Correct Solution:

```
1 insects = ["dragonfly", "bee", "butterfly", "katydid", "lacewing"]
2
3 insects.pop(2)
```

Explanation:

pop uses parentheses

Challenges

1. Skills

Solution:

```
1 choice = input("What skill do you want to remove?")
2
3 skills = ["Piano", "Soccer", "Coding", "Cooking", "Writing"]
4
5 skills.remove(choice)
6
7 print(skills)
```

2. Bronze Medal

Solution:

```
1 my_list = input().split()
2
3 print(my_list.pop(2) + " got the bronze medal")
```

3. Beans

Solution:

```
1 my_list = input().split()
2
3 if "lima" in my_list:
4     my_list.remove("lima")
5 print(my_list)
```

4. Remove the Center Number

Solution:

```
1 my_list = input().split()
2
3
4 center = int(len(my_list)/2)
5
6 if len(my_list) % 2 == 1:
7     my_list.pop(center)
8 else:
9     my_list.pop(center)
10    my_list.pop(center-1)
11
12 print(my_list)
```