Solutions - Chapter 4

4-1: Pizzas

Think of at least three kinds of your favorite pizza. Store these pizza names in a list, and then use afor loop to print the name of each pizza.

* Modify your for loop to print a sentence using the name of the pizza instead of printing just the name of the pizza. For each pizza you should have one line of output containing a simple statement like *I like pepperoni pizza.*
* Add a line at the end of your program, outside the for loop, that states how much you like pizza. The output should consist of three or more lines about the kinds of pizza you like and then an additional sentence, such as *I really love pizza!*

favorite\_pizzas **=** ['pepperoni', 'hawaiian', 'veggie']

*# Print the names of all the pizzas.*

**for** pizza **in** favorite\_pizzas:

**print**(pizza)

**print**("\n")

*# Print a sentence about each pizza.*

**for** pizza **in** favorite\_pizzas:

**print**("I really love " **+** pizza **+** " pizza!")

**print**("\nI really love pizza!")

Output:

pepperoni

hawaiian

veggie

I really love pepperoni pizza!

I really love hawaiian pizza!

I really love veggie pizza!

I really love pizza!

4-3: Counting to Twenty

Use a for loop to print the numbers from 1 to 20, inclusive.

numbers **=** list(range(1, 21))

**for** number **in** numbers:

**print**(number)

Output:

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

4-5: Summing a Million

Make a list of the numbers from one to one million, and then use min() and max() to make sure your list actually starts at one and ends at one million. Also, use the sum() function to see how quickly Python can add a million numbers.

numbers **=** list(range(1, 1000001))

**print**(min(numbers))

**print**(max(numbers))

**print**(sum(numbers))

Output:

1

1000000

500000500000

4-7: Threes

Make a list of the multiples of 3 from 3 to 0. Use a for loop to print the numbers in your list.

threes **=** list(range(3, 31, 3))

**for** number **in** threes:

**print**(number)

Output:

3

6

9

12

15

18

21

24

27

30

4-8: Cubes

A number raised to the third power is called a *cube*. For example, the cube of 2 is written as 2\*\*3in Python. Make a list of the first 10 cubes (that is, the cube of each integer from 1 through 10), and use a for loop to print out the value of each cube.

cubes **=** []

**for** number **in** range(1, 11):

cube **=** number**\*\***3

cubes**.**append(cube)

**for** cube **in** cubes:

**print**(cube)

Output:

1

8

27

64

125

216

343

512

729

1000

4-9: Cube Comprehension

Use a list comprehension to generate a list of the first 10 cubes.

cubes **=** [number**\*\***3 **for** number **in** range(1,11)]

**for** cube **in** cubes:

**print**(cube)

Output:

1

8

27

64

125

216

343

512

729

1000

4-11: My Pizzas, Your Pizzas

Start with your program from Exercise 4-1 (page 60). Make a copy of the list of pizzas, and call itfriend\_pizzas. Then, do the following:

* Add a new pizza to the original list.
* Add a different pizza to the list friend\_pizzas.
* Prove that you have two separate lists. Print the message, *My favorite pizzas are:*, and then use a for loop to print the first list. Print the message, *My friend’s favorite pizzas are:*, and then use a for loop to print the second list. Make sure each new pizza is stored in the appropriate list.

favorite\_pizzas **=** ['pepperoni', 'hawaiian', 'veggie']

friend\_pizzas **=** favorite\_pizzas[:]

favorite\_pizzas**.**append("meat lover's")

friend\_pizzas**.**append('pesto')

**print**("My favorite pizzas are:")

**for** pizza **in** favorite\_pizzas:

**print**("- " **+** pizza)

**print**("\nMy friend's favorite pizzas are:")

**for** pizza **in** friend\_pizzas:

**print**("- " **+** pizza)

Output:

My favorite pizzas are:

- pepperoni

- hawaiian

- veggie

- meat lover's

My friend's favorite pizzas are:

- pepperoni

- hawaiian

- veggie

- pesto

4-13: Buffet

A buffet-style restaurant offers only five basic foods. Think of five simple foods, and store them in a tuple.

* Use a for loop to print each food the restaurant offers.
* Try to modify one of the items, and make sure that Python rejects the change.
* The restaurant changes its menu, replacing two of the items with different foods. Add a block of code that rewrites the tuple, and then use a for loop to print each of the items on the revised menu.

menu\_items **=** (

'rockfish sandwich', 'halibut nuggets', 'smoked salmon chowder',

'salmon burger', 'crab cakes',

)

**print**("You can choose from the following menu items:")

**for** item **in** menu\_items:

**print**("- " **+** item)

menu\_items **=** (

'rockfish sandwich', 'halibut nuggets', 'smoked salmon chowder',

'black cod tips', 'king crab legs',

)

**print**("\nOur menu has been updated.")

**print**("You can now choose from the following items:")

**for** item **in** menu\_items:

**print**("- " **+** item)

Output:

You can choose from the following menu items:

- rockfish sandwich

- halibut nuggets

- smoked salmon chowder

- salmon burger

- crab cakes

Our menu has been updated.

You can now choose from the following items:

- rockfish sandwich

- halibut nuggets

- smoked salmon chowder

- black cod tips

- king crab legs