In [38]:
```
# I Grocery List

# Creates dictionary with food name and number of each food desired
groceries = {
    "Banana": 5,
    "Pizza": 2,
    "Eggs": 3,
    "Milk": 4,
    "Water": 12,
}

# Converts dictionary into list
grocery_list = list(groceries)
# Creates loop that prints every item in range on list
for food in range(len(grocery_list)):
    print(grocery_list[food])

# Finds max/min number found in grocery dictionary
grocery_max = max(groceries.values())
grocery_min= min(groceries.values())
# Finds sum of all numbers
grocery_total = sum(groceries.values())

# Prints max/min number and tells the user what it is
print(f"The smallest quantity is {grocery_min}.")
print(f"The largest quantity is {grocery_max}.")
print(f"The total amount of items is {grocery_total}.")

# Sorts groceries in ascending order and prints them
sorted_groceries = sorted(groceries)
print(sorted_groceries)

# Checks the data type and prints it for the user
type_groceries = type(sorted_groceries)
print(f"This is a {type_groceries}.")

# Converts all characters to upper/lowercase in groceries
lowercase = {food.lower(): quantity for food, quantity in groceries.items()}
uppercase = {food.upper(): quantity for food, quantity in groceries.items()}

# Shows user the difference
print(f'This is the list in uppercase: {uppercase}.')
print(f'This is the list in lowercase: {lowercase}.')

# Convert values to floats from groceries and prints it
groceries_float = {food: float(quantity) for food, quantity in groceries.items
print(groceries_float)

# Creates dictionary with store names and their order
stores = {
    "Walmart #1": "First Store",
    "Tesco #2": "Second Store",
    "Target #3": "Third Store",
    "Aldi #4": "Fourth Store",
}

# Splits number from store name and prints new information
```

```
split_stores = {store.split()[0]: additional_info for store, additional_info i
print(split_stores)

# Asks if user has any questions
question = input("Is there a certain module/object you need help with?: ")
# If the user says no in upper/lowecase it will not search anything
if question == "no":
    print("Okay.")
elif question == "No":
    print("Okay.")
else:
    # If the user says anything else it will search it in help
    print(help(question))
```

```
Banana
Pizza
Eggs
Milk
Water
The smallest quantity is 2.
The largest quantity is 12.
The total amount of items is 26.
['Banana', 'Eggs', 'Milk', 'Pizza', 'Water']
This is a <class 'list'>.
This is the list in uppercase: {'BANANA': 5, 'PIZZA': 2, 'EGGS': 3, 'MILK':
4, 'WATER': 12}.
This is the list in lowercase: {'banana': 5, 'pizza': 2, 'eggs': 3, 'milk':
4, 'water': 12}.
{'Banana': 5.0, 'Pizza': 2.0, 'Eggs': 3.0, 'Milk': 4.0, 'Water': 12.0}
{'Walmart': 'First Store', 'Tesco': 'Second Store', 'Target': 'Third Store',
'Aldi': 'Fourth Store'}
Is there a certain module/object you need help with?: no
Okay.
```

In [14]:
```
#II Part A
# Imports datetime module
# Creates script that tells you the current date and time and
# tells you what the date will be a week from the current date
import datetime

# Shows current time
time = datetime.datetime.now().time()
print(f"Right now the time is {time}.")

# Shows current date
date = datetime.date.today()
print(f"Today's date is {date}.")

# Shows current date and time
today = datetime.datetime.now()
print(f"Right now it is {today}.")

# Uses timedelta to print the date in a week
week = date + datetime.timedelta(days=7)
print(f"The date a week from {date} will be {week}")
```

```
Right now the time is 07:49:56.049571.
Today's date is 2024-04-15.
Right now it is 2024-04-15 07:49:56.050570.
The date a week from 2024-04-15 will be 2024-04-22
391
```

In [29]:
```
#II Part B
# Creates a script that randomly generates a number and a food item
# And tells you how many of each food you should try to eat that day
import random

# Defines number variable as a randomly generated integer between 1 and 1000
number = random.randint(2, 5)
# Creates list and randomly chooses an item
food = ["apples", "bananas", "cherries", "pineapples", "oranges", "dragonfruit
random_food = random.choice(food)

# Combines randomly generated integer and randomly selected food item
print(f'Today you should eat {number} {random_food}.')
```

```
Today you should eat 3 oranges.
```

In [55]:
```
#II Part C
# Imports re library
import re

# Creates list of pet names
animals = [
    "Dog: Nathan",
    "Dog: Spot",
    "Cat: McGee",
    "Cat: Fluffy",
    "Cat: Sparkles",
    "Dog: Honey",
    "Parrot: Polly",
]

# Uses compile to create pattern that checks only cat names
# (\w+) used to record words after Cat:
pattern = re.compile('Cat: (\w+)')

# Uses findall to find all cat names from animals list
cat_names = pattern.findall(' '.join(animals))

# Prints cat names
print("Cat names:", cat_names)

# Uses search to see if the first name is a cats from animals list
# Uses pattern defined above to check for cat names in animals list
first_cat = pattern.search(' '.join(animals))
# Will print the first cat name found
print("First cat name:", first_cat.group(1))

# Checks whether the first item in a list is a cat
# Defining first_animal variable as the first item in list
first_animal = animals[0]
# Checks to see if the first value of the list defines the pattern defined abo
match = pattern.match(first_animal)
if match:
    # If the name is a cat, this will be printed
    print("The first item is a cat name")
else:
    # If the name is not a cat, this will be printed
    print("The first item is not a cat name")
```

```
Cat names: ['McGee', 'Fluffy', 'Sparkles']
First cat name: McGee
The first item is not a cat name
```

In [69]:
```
# III
# A) enumerate() is the function and this can be used to count and record
# the order of items in a list
print("Example One:")
students = ["James", "Fred", "Anna","Craig","Jake","Ally"]
for index, name in enumerate(students):
    print(index, name)
# B) filter() is the function and this is used to only select items that
# meet a specific condition
print("Example Two:")
def function(x):
    return x > 3
numbers = [1, 2, 3, 4, 5, 6]

over_3 = filter(function, numbers)

print(list(over_3))

# C) datetime.now() is the function you would use for this, displays the curre
# date and time
# Example of displaying date and time
print("Example Three:")
import datetime
date_and_time = datetime.datetime.now()
print(f"The current date and time are {date_and_time}.")
# D) time.time() is the function you would use for this, displays the
# current time from a defined start point
print("Example Four:")
import time

input("Press enter to start timer")

start = time.time()

input("Press enter to stop the timer")

end = time.time()

# Calculate the elapsed time
total = end - start

print(f"Seconds passed: {total}")
# E) random.choice() is the function you would use for this, this function
# randomly picks an item from a list
print("Example Five:")
import random
names = ["James", "Fred", "Anna", "Craig", "Jake", "Ally"]
winner = random.choice(names)
print(f"The winner is: {winner}!!")
```

```
Example One:
0 James
1 Fred
2 Anna
3 Craig
4 Jake
5 Ally
Example Two:
[4, 5, 6]
Example Three:
The current date and time are 2024-04-16 12:36:41.484836.
Example Four:
Press enter to start timer
Press enter to stop the timer
Seconds passed: 0.17319130897521973
Example Five:
The winner is: James!!
```