User input and while loops

Python basics

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Learning outcomes

1. how the input() function works
2. while loops (text and numerical inputs)
3. using while loop with lists and dictionaries
4. control the flow of a while loop by setting an active flag, using the break statement, and using the continue statement
5. using a while loop to move items from one list to another and to remove all instances of a value from a list.

input() function

```
message = input("Please enter your full name: ")
print(message)
```

```
print(f"\nHello, {message}!")
```

if/else + input

```
age = input("May i know your age, please?")
age = int(age)

if age <=12 or age >= 65 :
    print("\nYou can enter the zoo for free")

else:
    print("\nYou'll have to pay 45CAD for a 90 minutes visit")
```

```
May i know your age, please?6556

You can enter the zoo for free
```

Modulo operator

provides the remainder after division

```
4%3
```

```
1
```

```
5 % 2
```

```
1
```

while Loops

```
# counting (1 to 5)
current_number = 1
while current_number <=5:
    print(current_number)
    current_number += 1
```

```
1
2
3
4
5
```

```
# infinite loop which stops with quit message
prompt = "\nTell me something and I will repeat it back to you:"
prompt += "\n Enter 'quit' to end the program. "
message = ""
while message != 'quit':
    message = input(prompt)
    print(message)
```

```
Tell me something and I will repeat it back to you:
 Enter 'quit' to end the program. I'm doing great!
I'm doing great!

Tell me something and I will repeat it back to you:
 Enter 'quit' to end the program. keep on playing with this game until you get tired
keep on playing with this game until you get tired

Tell me something and I will repeat it back to you:
 Enter 'quit' to end the program. quit
quit
```

While loops + Flag

- description- when flag conditions are true, the program continues to run. Else, it stops.
- benefits over while loop- can be used to execute several conditions. Contrary to while loop, which uses only one condition

```
prompt = "\n Tell me something, and I will repeat it back to you:"
prompt += "\n Enter 'quit' to end the program. "

active = True
while active :
    message = input(prompt)

    if message == 'quit':
        active = False
```

```
    else:
        print(message)
```

```
 Tell me something, and I will repeat it back to you:
 Enter 'quit' to end the program. I'm doing good today!
I'm doing good today!

 Tell me something, and I will repeat it back to you:
 Enter 'quit' to end the program. quit
```

```
prompt = "\nPlease enter the name of a city you have visited:"
prompt += "\n(Enter 'quit' when you are finished.)"

while True:
    city = input(prompt)

    if city == "quit":
        break
    else:
        print(f"I'd like to visit {city.title()}!")
```

```
Please enter the name of a city you have visited:
(Enter 'quit' when you are finished.)Dubai
I'd like to visit this Dubai!

Please enter the name of a city you have visited:
(Enter 'quit' when you are finished.)Thailand
I'd like to visit this Thailand!

Please enter the name of a city you have visited:
(Enter 'quit' when you are finished.)Switzerland
I'd like to visit this Switzerland!

Please enter the name of a city you have visited:
(Enter 'quit' when you are finished.)Mexico
I'd like to visit this Mexico!

Please enter the name of a city you have visited:
(Enter 'quit' when you are finished.)Thailand
I'd like to visit this Thailand!
```

```
Please enter the name of a city you have visited:
(Enter 'quit' when you are finished.)Pataya
I'd like to visit this Pataya!

Please enter the name of a city you have visited:
(Enter 'quit' when you are finished.)Cuba
I'd like to visit this Cuba!

Please enter the name of a city you have visited:
(Enter 'quit' when you are finished.)Vancouver
I'd like to visit this Vancouver!

Please enter the name of a city you have visited:
(Enter 'quit' when you are finished.)quit
```

using continue in a loop

```python
# print list of odd numbers upto 10
current_number = 0
while current_number < 10:
    current_number += 1
    if current_number % 2== 0:
        continue
    print(current_number)
```

```
1
3
5
7
9
```

```python
# print list of even numbers upto 20
current_even_n = 0
while current_even_n < 21:      #upto 20 gets printed
    current_even_n += 1
    if current_even_n % 2 == 1:
        continue
    print(current_even_n)
```

```
2
4
6
8
10
12
14
16
18
20
```

```python
number = 1

while number <= 10:
    square = number * number
    print(f"The square of {number} is {square}")
    number += 1
```

```python
x = 1

while x <= 10:
    square = x * x
    print(f"The square of {x} is {square}")
    x += 1  # prevents infinite loop
```

```
The square of 1 is 1
The square of 2 is 4
The square of 3 is 9
The square of 4 is 16
The square of 5 is 25
The square of 6 is 36
The square of 7 is 49
The square of 8 is 64
The square of 9 is 81
The square of 10 is 100
```

Using while loop with lists and dictionaries

```
unconfirmed_users = ['raghav', 'britany', 'solance', 'aisha']
confirmed_users = []

while unconfirmed_users :
    current_user = unconfirmed_users.pop()

    #moving

    print(f"Verifying user: {current_user.title()}")
    confirmed_users.append(current_user)

    #displaying

    print("\nThe following users have been confirmed:")
    for confirmed_user in confirmed_users:
        print(confirmed_user.title())
```

```
Verifying user: Aisha

The following users have been confirmed:
Aisha
Verifying user: Solance

The following users have been confirmed:
Aisha
Solance
Verifying user: Britany

The following users have been confirmed:
Aisha
Solance
Britany
Verifying user: Raghav

The following users have been confirmed:
Aisha
Solance
Britany
Raghav
```

Removing specific values from the list

```
pets = ['dog', 'cat', 'cheetah', 'beer', 'rabbit', 'lion']
print(pets)

while 'cat' in pets:
    pets.remove('cat')    #remove method

print(pets)
```

```
['dog', 'cat', 'cheetah', 'beer', 'rabbit', 'lion']
['dog', 'cheetah', 'beer', 'rabbit', 'lion']
```

Filling a dictionary with user input

```
responses = {}         #initializing empty dictionary


polling_active = True  # setting flag indicator to True

while polling_active:
    name = input("\nWhat is your name?")
    response = input("Which mountain would you like to climb someday?")

    #storing the response in a dictionary
    responses[name] = response  #where name is the key, and response is the value

    #finding out if we want to store more keys and variables in responses
    repeat = input("Would you like to let another person respond? (yes/no)")
    if repeat == 'no':
        polling_active = False

#polling complete; show the results
print("\n_______Poll Results_____________")
for name,response in responses.items():              #for loop iterates for key, value pai
    print(f"{name.title()} would like to climb {response.title()}.")
```

```
What is your name?sunita
Which mountain would you like to climb someday?valdavid
```

```
Would you like to let another person respond? (yes/no)no

_______Poll Results_____________
Sunita would like to climb Valdavid.
```

```
# callling the dictionary
print(responses)
```

```
{'sunita': 'valdavid'}
```

Writing the same code with break loop

- new dictionary is responses_new

```
responses_new = {}          #initializing empty dictionary




while True:
    name = input("\nWhat is your name?")
    response = input("Which mountain would you like to climb someday?")

    #storing the response in a dictionary
    responses_new[name] = response  #where name is the key, and response is the value

    #finding out if we want to store more keys and variables in responses
    repeat = input("Would you like to let another person respond? (yes/no)")
    if repeat.lower() != 'yes':
        break  #exits the loop if response in not 'yes'

#polling complete; show the results
print("\n_______Poll Results_____________")
for name,response in responses_new.items():              #for loop iterates for key, value
    print(f"{name.title()} would like to climb {response.title()}.")
```

```
What is your name?kk
Which mountain would you like to climb someday?tatata
Would you like to let another person respond? (yes/no)yes
```

```
What is your name?paula
Which mountain would you like to climb someday?tatal
Would you like to let another person respond? (yes/no)no

_______Poll Results_____________
Kk would like to climb Tatata.
Paula would like to climb Tatal.
```

```
print(responses_new)
```

```
{'kunal': 'kanchunjunga', 'sushil': 'peu importe'}
```

```
# Dream vacation

vacation = {}

while True:
    key = input("\nWhat is your name?")
    value = input("If I ask you to visit one place in the world, where would you go?")

    vacation[key]= value

    repeat = input("Next person in line, if there is one? ('yes/no')")
    if repeat.lower() != 'yes':
        break

#polling complete, show results
print("______Poll_results")
for key,value in vacation.items():
    print(f"{key.title()} would like to go {value.title()}.")
```

```
What is your name?kunal
If I ask you to visit one place in the world, where would you go?dubai
Next person in line, if there is one? ('yes/no')yes

What is your name?martina
If I ask you to visit one place in the world, where would you go?new brunswick
Next person in line, if there is one? ('yes/no')yes

What is your name?kathy
```

```
If I ask you to visit one place in the world, where would you go?québec city
Next person in line, if there is one? ('yes/no')no
______Poll_results
Kunal would like to go Dubai.
Martina would like to go New Brunswick.
Kathy would like to go Québec City.
```