

# **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

```
# 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

```
# 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

```
number = 1

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

```
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 pair
    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.

```
# calling 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 is 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.