**More Control Flow**

**Exercise:**

1. Write a program that asks the user if he/she likes python. Print “awesome” if the answer is ‘yes’ and print “wrong answer, try again” if the answer is ‘no’

answer = input(“Do you Like Python? (yes/no)”)

if answer == ‘yes’:

print(“awesome”)

elif answer == ‘no’:

print(“wrong answer”)

else:

print(“please choose between ‘yes’ and ‘no’ ”)

1. Write a program that requires the user to input a letter, if the letter is ‘a’ or ‘A’, print ‘awesome’, otherwise print “I was thinking about ‘a’/ ‘A’ ”

answer = input(“please enter a letter”)

if answer == ‘a’ or answer == ‘A’:

print(“awesome”)

else:

print(“I was thinking about ‘a’ / ‘A’ ”)

1. Let the user choose from a, b, c and print the letter the user chose. For example, if the user choose letter a, the program should print: you chose a. if the user input an invalid letter, print: the letter is invalid. Write this program using if-else statement. (hint: you might want to add elif in there)

choice = input(“please choose a letter from ‘a’, ‘b’, ‘c’ ”)

if choice == ‘a’:

print(‘you chose ‘a’ ’)

elif choice == ‘b’

print(“you chose ‘b’”)

elif choice == ‘c’

print(“you chose ‘c’ ”)

else:

print(‘The letter is invalid’)

**Litte interactive game:**

#1. Return the length of the input string, if input = quit, break

while True:

s = input('Enter something : ')

if s == 'quit':

break

print('Length of the string is', len(s))

print('Done')

#2. Return the length of an input string if input = quit, break. If length of string less than 3, give feedback and continue

while True:

s = input('Enter something : ')

if s == 'quit':

break

if len(s) < 3:

print('Too small')

continue

print('Length of the string is', len(s))

print("Done")

#3. Input a number and gives feedback. Ex. if number = 30 and guess is 23, feedback = ‘little lower’, if guess is 20, feedback = ‘little higher’, if guess = 30, feedback = “congrats”. Upgrade: 10 chances? Check range(1-100)?

number = 23

running = True

while running:

guess = int(input('Enter an integer : '))

if guess == number:

print('Congratulations, you guessed it.')

running = False

elif guess < number:

print('No, it is a little higher than that.')

else:

print('No, it is a little lower than that.')

Upgraded:

while running:

guess = int(input('Enter an integer : '))

if guess <1 or guess >100:

print('please enter a number between 1 to 100')

continue

elif guess == number:

print('Congratulations, you guessed it.')

running = False

chances = chances - 1

print('chances remaining', chances)

if chances <1:

print("You have used up your chances, the correct number is ", number)

running = False

elif guess < number:

print('No, it is a little higher than that.\n')

else:

print('No, it is a little lower than that.\n')

**For Loop**

A **for loop** is used for iterating over a sequence (that is either a list, a tuple, a dictionary, a set, or a string).

**Example:**

Print each fruit in a fruit list:

fruits = ["apple", "banana", "cherry"]  
for x in fruits:  
  print(x)

**Looping Through a String**

Even strings are iterable objects, they contain a sequence of characters:

**Example:**

Loop through the letters in the word "banana":

for x in "banana":  
  print(x)

**The break Statement**

With the **break** statement, we can stop the loop before it has looped through all the items:

**Example:**

Exit the loop when x is "banana":

fruits = ["apple", "banana", "cherry"]  
for x in fruits:  
  print(x)   
  if x == "banana":  
    break

**Example:**

Exit the loop when x is "banana", but this time the break comes before the print:

fruits = ["apple", "banana", "cherry"]  
for x in fruits:  
  if x == "banana":  
    break  
  print(x)

**The continue Statement**

With the **continue** statement we can stop the current iteration of the loop, and continue with the next:

**Example:**

Do not print banana

fruits = ["apple", "banana", "cherry"]  
for x in fruits:  
  if x == "banana":  
    continue  
  print(x)

**The range() Function**

To loop through a set of code a specified number of times, we can use the **range()**function, the **range()** function returns a sequence of numbers, starting from 0 by default, and increments by 1 (by default), and ends at a specified number.

**Example:**

Using the range() function

for x in range(6):  
  print(x)

Notice: the range(6) is not the values of 0 to 6 but the values 0 to 5.

**Example:**

Using the start parameter

for x in range(2, 6):  
  print(x)

**Example:**

Increment the sequence with 3 (default is 1)

for x in range(2, 30, 3):  
  print(x)

**Example:**

Don’t know how many elements in the list

genre = ['pop', 'rock', 'jazz']

# iterate over the list using index

for i in range(len(genre)):

print("I like", genre[i])

**Nested Loops**

A nested loop is a loop inside a loop.

The "inner loop" will be executed one time for each iteration of the "outer loop":

**for** [first iterating variable] **in** [outer loop]: # Outer loop

[do something] # Optional

**for** [second iterating variable] **in** [nested loop]: # inner loop

[do something]

**Example**

Print each adjective for every fruit:

adj = ["red", "big", "tasty"]  
fruits = ["apple", "banana", "cherry"]  
  
for x in adj:  
  for y in fruits:  
    print(x, y)

**Examples:**

1. # Program to find the sum of all numbers stored in a list

# List of numbers

numbers = [6, 5, 3, 8, 4, 2, 5, 4, 11]

# variable to store the sum

sum = 0

# iterate over the list

for num in numbers:

sum = sum+num

# Output: The sum is 48

print("The sum is", sum)

1. #get elements from the list\_of\_lists

list\_of\_lists = [['hammerhead', 'great white', 'dogfish'],[0, 1, 2],[9.9, 8.8, 7.7]]

for list in list\_of\_lists:

print(list)

for list in list\_of\_lists:

for item in list:

print(item)

1. #print every word with a letter ‘a’ in the list

words = [‘apple’, ‘banana’, ‘polemo’,’dog’,’cat’, ’bird’]

for word in words:

if ‘a’ in word:

print(word)

**GAME:**

def guessing\_word():

word = 'candy'

running = True

count = 0

while running:

guess = int(input("Enter an integer:"))

if guess == len(word):

print('Yes, the word contains',len(word),'letters')

while True:

guess\_letter = input('Enter a letter:')

if guess\_letter in word:

print('Yes, the word contains', guess\_letter)

count = count+1

if count >= len(word)/2:

final\_guess = input('Do you want to guess what the word is? (y/n) \n')

if final\_guess == 'y':

final\_guess\_word = input('What the word?\n')

if final\_guess\_word == word:

print('Congratulations, you are correct!')

break

else:

print('No, the word is not',final\_guess\_word)

else:

print('Keep guessing letters\n')

else:

print('No,', guess\_letter,'is not in the word')

running = False

elif guess < len(word):

print("No, it is a litter higher than that.")

else:

print("No, it is a litter lower than that.")

Exercise:

1. using for loop to print the number from 1 to 10
2. using for loop to print number from 2 to 20 by 2. Ex: 2, 4, 6,8
3. a = [‘cat’, ‘dog’, ‘zebra’] b = [1, 2, 3] print each combination. Ex: (cat,1), (cat, 2), (cat,3), (dog ,1)…