**For – Loops Python**

Here are four examples of for loops categorized by increasing complexity:

**1. Beginning Example: Basic Iteration**

This example demonstrates a simple loop that prints numbers from 0 to 4.

for x in range(5):

print(x)

**2. Medium Example: Iterating Over a List**

This example iterates over a list of fruits and prints each fruit.

fruits = ['apple', 'banana', 'cherry']

for fruit in fruits:

print(fruit)

**3. Advanced Example: Nested Loops**

This example uses a nested loop to create a multiplication table.

for i in range(1, 6): # Outer loop for rows

for j in range(1, 6): # Inner loop for columns

print(i \* j, end=' ') # Print product without a new line

print() # New line after each row

**4. Expert Example: Dictionary Iteration with Condition**

This example iterates over a dictionary and prints keys and values that meet a specific condition.

scores = {'Alice': 90, 'Bob': 75, 'Charlie': 85, 'Diana': 95}

for name, score in scores.items(): # Iterate over key-value pairs

if score >= 85: # Condition to filter scores

print(f"{name} has a score of {score}.")

**While – Loops Python**

**1. Beginning Example: Basic While Loop**

This example demonstrates a simple while loop that prints numbers from 0 to 4.

x = 0

while x < 5: # Continues as long as x is less than 5

print(x)

x += 1 # Increment x by 1

**2. Medium Example: While Loop with User Input**

This example continues to prompt the user for input until they enter 'exit'.

user\_input = ''

while user\_input != 'exit':

user\_input = input("Type 'exit' to quit: ")

**3. Advanced Example: While Loop with Condition**

This example counts down from 5 to 1.

count = 5

while count > 0: # Continue until count is not greater than 0

print(count)

count -= 1 # Decrement count by 1

**4. Expert Example: While Loop to Find a Number**

This example prompts the user to guess a predefined number until they get it right.

secret\_number = 7

guess = None

while guess != secret\_number:

guess = int(input("Guess the secret number (between 1 and 10): "))

print("Congratulations! You've guessed the number.")