Python Code Examples For Beginners Pdf

Exercise 1: Temperature Classification

Write a Python program that classifies temperature based on user input.

Conditions:

- If the temperature is above 30°C, print “Hot.”
- If the temperature is between 20°C and 30°C, print “Warm.”
- If the temperature is below 20°C, print “Cold.”

Solution:

```
temperature = float(input("Enter the temperature: "))

if temperature > 30:

    print("Hot")

elif 20 <= temperature <= 30:

    print("Warm")

else:

    print("Cold")
```

Exercise 2: Sum of Numbers

Write a Python program to calculate the sum of numbers from 1 to n using a for loop.

Solution:

```
n = int(input("Enter a number: "))
total = 0

for i in range(1, n+1):
```

```
    total += i

print(f"The sum of numbers from 1 to {n} is {total}")
```

Exercise 3: Multiplication Table Generator

Write a Python program that prints the multiplication table of any number provided by the user.

Solution:

```
num = int(input("Enter a number: "))

for i in range(1, 11):

    print(f"{num} x {i} = {num*i}")
```

Exercise 4: Even and Odd Numbers Classification

Write a Python program that takes a list of numbers and classifies them as even or odd.

Solution:

```
numbers = [10, 15, 22, 33, 42, 55, 60]

for number in numbers:
    if number % 2 == 0:
        print(f"{number} is even")
    else:
        print(f"{number} is odd")
```

Exercise 5: Find Prime Numbers >> If-Else and For Loop

Write a Python program that finds all prime numbers between 1 and 100.

Solution:

```
for num in range(2, 101):
    is_prime = True
    for i in range(2, int(num**0.5) + 1):
        if num % i == 0:
            is_prime = False
            break
    if is_prime:
        print(num)
```

Exercise 6: Fibonacci Sequence Generator

Write a Python program that generates the first n Fibonacci numbers.

Solution:

```
n = int(input("Enter the number of Fibonacci terms: "))
a, b = 0, 1
count = 0

while count < n:
    print(a)
    a, b = b, a + b
    count += 1
```

Exercise 7: Grading System Based on Scores

Create a Python program that takes student scores and assigns grades based on the following criteria:

- Score >= 90: Grade A
- Score >= 80: Grade B
- Score >= 70: Grade C
- Score >= 60: Grade D
- Score < 60: Grade F

Solution:

```
score = int(input("Enter your score: "))



if score >= 90:

    print("Grade A")

elif score >= 80:

    print("Grade B")

elif score >= 70:

    print("Grade C")

elif score >= 60:

    print("Grade D")

else:

    print("Grade F")
```

Visualizing Python Loop Execution

Diagram of Loop Control Flow

```
graph TD;

    Start --> Condition{"Condition Met?"};
```

```
    Condition -->|Yes| Process("Execute Code Block");

    Condition -->|No| End;

    Process --> Repeat("Return to Condition");

    Repeat --> Condition;

    End --> Stop;
```

This diagram represents the flow of control in a for loop. As long as the condition is met, the loop will continue executing the code block. Once the condition fails, the loop terminates.

Exercise 8: Factorial Calculation Using For Loop

The factorial of a number is the product of all positive integers less than or equal to that number. Write a Python program to calculate the factorial of a given number using a for loop.

Solution:

```
num = int(input("Enter a number: "))

factorial = 1



if num < 0:

    print("Factorial is not defined for negative numbers.")

elif num == 0:

    print("The factorial of 0 is 1.")

else:

    for i in range(1, num + 1):

        factorial *= i
```

```
print(f"The factorial of {num} is {factorial}.")
```

Exercise 9: Reverse a String Using a For Loop

Write a Python program that takes a string as input and reverses it using a `for` loop.

Solution:

```
string = input("Enter a string: ")

reversed_string = ""



for char in string:

    reversed_string = char + reversed_string



print(f"The reversed string is: {reversed_string}")
```

Exercise 10: Find the Maximum Number in a List

Write a Python program to find the largest number in a list without using the `max()` function.

Solution:

```
numbers = [3, 41, 12, 9, 74, 15]

max_number = numbers[0]

for number in numbers:

    if number > max_number:
```

```
        max_number = number


print(f"The largest number in the list is: {max_number}")
```

Exercise 11: Count Vowels in a String

Create a Python program to count the number of vowels (a, e, i, o, u) in a given string using a for loop.

Solution:

```
string = input("Enter a string: ")

vowels = "aeiouAEIOU"

count = 0

for char in string:

    if char in vowels:

        count += 1

print(f"The number of vowels in the string is: {count}")
```

Exercise 12: Check for Palindrome

A palindrome is a word, number, phrase, or other sequences of characters that reads the same forward and backward (ignoring spaces, punctuation, and capitalization). Write a Python program to check if a given string is a palindrome.

Solution:

```
string = input("Enter a string: ")

string = string.lower().replace(" ", "")  # Convert to lowercase and remove spaces

if string == string[::-1]:
```

```
    print("The string is a palindrome.")

else:

    print("The string is not a palindrome.")
```

Exercise 13: Generate a List of Squares

Write a Python program that takes an integer `n` as input and generates a list of squares of numbers from 1 to `n`.

Solution:

```
n = int(input("Enter a number: "))

squares = []

for i in range(1, n + 1):

    squares.append(i ** 2)

print(f"The list of squares from 1 to {n} is: {squares}")
```

Exercise 14: Sum of Digits of a Number

Write a Python program that takes a number as input and calculates the sum of its digits using a `for` loop.

Solution:

```
number = input("Enter a number: ")

sum_of_digits = 0

for digit in number:

    sum_of_digits += int(digit)
```

```
print(f"The sum of the digits is: {sum_of_digits}")
```

Exercise 15: FizzBuzz Problem

The FizzBuzz problem is a popular coding interview question. Write a Python program that prints the numbers from 1 to 100. However, for multiples of 3, print “Fizz” instead of the number, and for multiples of 5, print “Buzz.” For numbers that are multiples of both 3 and 5, print “FizzBuzz.”

Solution:

```
for i in range(1, 101):
    if i % 3 == 0 and i % 5 == 0:
        print("FizzBuzz")
    elif i % 3 == 0:
        print("Fizz")
    elif i % 5 == 0:
        print("Buzz")
    else:
        print(i)
```

Exercise 16: Find Common Elements in Two Lists

Write a Python program that takes two lists and finds the common elements between them.

Solution:

```
list1 = [1, 2, 3, 4, 5]
list2 = [3, 4, 5, 6, 7]
```

```
common_elements = []


for element in list1:
    if element in list2:
        common_elements.append(element)


print(f"The common elements are: {common_elements}")
```

Exercise 17: Find the Largest Even Number in a List

Write a Python program that finds the largest even number in a list. If there is no even number, it should display a message accordingly.

Solution:

```
numbers = [3, 7, 12, 43, 18, 29]

largest_even = None


for number in numbers:
    if number % 2 == 0:
        if largest_even is None or number > largest_even:
            largest_even = number


if largest_even:
    print(f"The largest even number is: {largest_even}")
```

```
else:
    print("There is no even number in the list.")
```

Exercise 18: Find Divisors of a Number

Write a Python program that takes a number as input and finds all its divisors using a for loop.

Solution:

```
num = int(input("Enter a number: "))

divisors = []



for i in range(1, num + 1):
    if num % i == 0:
        divisors.append(i)



print(f"The divisors of {num} are: {divisors}")
```

Exercise 19: Count Words in a Sentence

Write a Python program to count the number of words in a given sentence.

Solution:

```
sentence = input("Enter a sentence: ")

words = sentence.split()

word_count = len(words)



print(f"The number of words in the sentence is: {word_count}")
```

Exercise 20: Calculate the Sum of Odd Numbers

Write a Python program to calculate the sum of odd numbers from 1 to n, where n is provided by the user.

Solution:

```
n = int(input("Enter a number: "))

sum_odd = 0



for i in range(1, n + 1):

    if i % 2 != 0:

        sum_odd += i



print(f"The sum of odd numbers from 1 to {n} is: {sum_odd}")
```

Exercise 21: Find the Length of the Longest Word in a Sentence

Write a Python program to find the longest word in a sentence and its length.

Solution:

```
sentence = input("Enter a sentence: ")

words = sentence.split()

longest_word = max(words, key=len)



print(f"The longest word is '{longest_word}' with {len(longest_word)} characters.")
```

Exercise 22: Calculate Power Using a For Loop

Write a Python program that calculates the power of a number using a for loop. The program should take two inputs: the base and the exponent.

Solution:

```
base = int(input("Enter the base: "))

exponent = int(input("Enter the exponent: "))

result = 1



for _ in range(exponent):

    result *= base



print(f"{base} to the power of {exponent} is {result}")
```

Exercise 23: Find Numbers Divisible by Both 3 and 5

Write a Python program that finds all numbers between 1 and 100 that are divisible by both 3 and 5.

Solution:

```
for i in range(1, 101):

    if i % 3 == 0 and i % 5 == 0:

        print(i)
```

Exercise 24: Count the Occurrence of a Character in a String

Write a Python program that takes a string and a character as inputs and counts how many times the character appears in the string.

Solution:

```
string = input("Enter a string: ")

char = input("Enter a character to count: ")

count = 0



for c in string:

    if c == char:

        count += 1



print(f"The character '{char}' appears {count} times in the string.")
```

Exercise 25: Find the Sum of the First n Natural Numbers Using a Formula

Write a Python program to find the sum of the first n natural numbers using the formula n(n + 1) / 2.

Solution:

```
n = int(input("Enter a number: "))

sum_n = n * (n + 1) // 2
```

```
print(f"The sum of the first {n} natural numbers is {sum_n}")
```

Exercise 26: Count the Number of Digits in a Number

Write a Python program to count how many digits a given number has.

Solution:

```
num = input("Enter a number: ")

print(f"The number {num} has {len(num)} digits.")
```

Exercise 27: Calculate the Product of a List of Numbers

Write a Python program that calculates the product of all the numbers in a given list.

Solution:

```
numbers = [2, 3, 4, 5]

product = 1

for number in numbers:

    product *= number



print(f"The product of the list is: {product}")
```

Exercise 28: Remove Duplicates from a List

Write a Python program that removes duplicate elements from a list.

Solution:

```
numbers = [1, 2, 3, 2, 4, 5, 1, 6]

unique_numbers = []



for number in numbers:

    if number not in unique_numbers:

        unique_numbers.append(number)



print(f"The list without duplicates: {unique_numbers}")
```

Exercise 29: Find the Second Largest Number in a List

Write a Python program to find the second largest number in a list.

Solution:

```
numbers = [12, 45, 78, 23, 89, 67]

largest = second_largest = float('-inf')

for number in numbers:

    if number > largest:

        second_largest = largest

        largest = number

    elif number > second_largest and number != largest:

        second_largest = number



print(f"The second largest number is: {second_largest}")
```

Exercise 30: Find Palindromic Numbers Between 1 and 1000

Write a Python program that prints all palindromic numbers between 1 and 1000. A palindromic number is a number that reads the same forward and backward.

Solution:

```
for num in range(1, 1001):

    if str(num) == str(num)[::-1]:

        print(num)
```

Again, these exercises will help you get a grip on loops and conditions and along the way provide more coding experience. Keep up with There are always different variations and challenges to keep growing your Python skills.