

Python Exercises: If-Else, For Loop, and `range()`

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In this exercise set, you will practice using if-else statements, for loops, and the `range()` function in Python. Write your solutions in Python and provide the code for each exercise.

Submission Requirements

Each question should be submitted as a separate Python file. The file names should be descriptive and indicate the question number and the purpose of the code. For example, "question1_positive_negative_zero.py", "question2_fizzbuzz.py", and so on.

Additionally, please submit a report in a separate document, explaining the code you have written. The report should be around 200 words and should provide a clear explanation of your approach and the logic behind the code. I attached a report template at the end.

Exercise 1

Write a Python program that checks whether a given number is positive, negative, or zero. The program should print the appropriate message based on the number.

Example Output:

Input: 5 Output: The number is positive

Input: -3 Output: The number is negative

Input: 0 Output: The number is zero

Exercise 2

Write a Python program that prints all the numbers from 1 to 20, but 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".

Example Output: 1 2 Fizz 4 Buzz Fizz 7 8 Fizz Buzz 11 Fizz 13 14 FizzBuzz 16 17 Fizz 19 Buzz

Exercise 3

Write a Python program that calculates the sum of all the numbers in a given list. The program should return the sum.

Example Output:

Input: [1, 2, 3, 4, 5] Output: 15

Input: [10, -5, 7, 2, 9] Output: 23

Exercise 4

Write a Python program that finds the maximum number in a given list. The program should return the maximum number.

Example Output:

Input: [1, 6, 3, 9, 2] Output: 9

Input: [4, -1, 8, 3, 0] Output: 8

Exercise 5

Write a Python program that prints all the odd numbers from 1 to 50 using a for loop and the `range()` function.

Example Output:

1 3 5 7 9 11 ... 45 47 49

Good luck with the exercises!

Report: Python Exercises Explanation

Exercise 1

In this exercise, I wrote a Python program to check whether a given number is positive, negative, or zero. The program takes user input and uses an if-else statement to determine the category of the number. If the number is greater than 0, it prints "The number is positive". If the number is less than 0, it prints "The number is negative". If the number is equal to 0, it prints "The number is zero".

Exercise 2

For this exercise, I implemented a Python program to print numbers from 1 to 20 with certain conditions. I used a for loop and the `range()` function to iterate through the numbers. Within the loop, I used if-elif-else statements to check if a number is divisible by 3, 5, or both. If a number is divisible by 3, I printed "Fizz". If it is divisible by 5, I printed "Buzz". If it is divisible by both 3 and 5, I printed "FizzBuzz". Otherwise, I printed the number itself.

Exercise 3

In this exercise, I created a Python program to calculate the sum of all the numbers in a given list. The program takes a list as input and uses a for loop to iterate through the elements. I initialized a variable called "sum" to 0 and added each element to the sum during each iteration. Finally, the program returns the sum.

Exercise 4

For this exercise, I implemented a Python program to find the maximum number in a given list. The program takes a list as input and uses a for loop to iterate through

the elements. I initialized a variable called "max_num" to hold the maximum number and updated its value if a higher number is found during each iteration. Finally, the program returns the maximum number.

Exercise 5

In this exercise, I wrote a Python program to print all the odd numbers from 1 to 50. I used a for loop and the range() function to iterate through the numbers. Within the loop, I used an if statement to check if a number is odd. If it is, I printed the number.