

# Day 6: While Loop

## Assignment Questions:

1. Write a Python program to reverse a number using a while loop.
2. Write a Python program to check whether a number is palindrome or not?
3. Write a Python program to find a given number's factorial using a while loop.
4. Accept numbers using input() function until the user enters 0. If the user inputs 0 then break the while loop and display the sum of all the numbers.

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# while loop Assignment Questions:

# 1. Write a Python program to reverse a number using a while loop.

n = int(input("Enter a number: "))
#initialize a variable with zero
reversed_num = 0
while n>0:
    digit = n%10                                #Extracts the last digit
    reversed_num = reversed_num * 10 + digit    #Add it to reversed_num
    shifted to the left
    n = n//10                                    #Removes the last digit
from n
print(reversed_num)                             #prints result
print("-----")

# 2. Write a Python program to check whether a number is palindrome or
not.

def is_palindrome(num):
    # Step 1: Negative numbers are not palindromes
    if num < 0:
        return False

    # Step 2: Reverse the number
    original = num
    reversed_num = 0
    while num > 0:
        digit = num % 10 # Extract the last digit
        reversed_num = reversed_num * 10 + digit # Add digit to
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reversed number
    num = num // 10 # Remove last digit

# Step 3: Check if the reversed number matches original
return original == reversed_num

# Example
print("The number 121 is Palindrome",is_palindrome(121)) # Output: True
print("The number -121 is Palindrome",is_palindrome(-121)) # Output:
False
print("The number 123 is Palindrome",is_palindrome(123)) # Output:
False

# 3. Write a Python program finding the factorial of a given number
using a while loop.
def is_factorial(n1):
    f = 1
    i = 1
    while(i<=n1):
        f = f*i
        i+=1
    print(f"factorial of {n1} is {f}")
n1 = int(input("Enter a number: "))
is_factorial(n1)

# 4. Accept numbers using the input() function until the user enters 0.
If the user inputs 0 then break the while loop and display the sum of
all the numbers.
def check_num():
    total_sum = 0 # Initialize sum
    while True: # Infinite loop will break on user input 0
        try:
            numbers = int(input("Enter a number (0 to stop): "))
            if numbers == 0: # Break condition
                break
            elif numbers > 0: # Adds positive numbers to sum
                total_sum += numbers
            else:
                print("Please enter a positive number.")
        except ValueError: # Handles non-integer inputs
            print("Invalid input. Please enter a valid number.")

    print(f"The sum of all entered numbers is: {total_sum}")

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# Call the function
check_num()
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Output:

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Enter a number: 12345
54321
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The number 121 is Palindrome True
The number -121 is Palindrome False
The number 123 is Palindrome False
Enter a number: 5
factorial of 5 is 120
Enter a number (0 to stop): 1
Enter a number (0 to stop): 2
Enter a number (0 to stop): 3
Enter a number (0 to stop): 34
Enter a number (0 to stop): 4
Enter a number (0 to stop): 45
Enter a number (0 to stop): 5
Enter a number (0 to stop): 650
Enter a number (0 to stop): 0
The sum of all entered numbers is: 744
>>>
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