Add Binary

Given two binary strings a and b, return their sum as a binary string.

a and b consist only of '0' or '1' characters.

Each string does not contain leading zeros except for the zero itself.

CODE:

def add\_binary(a, b):

# Ensure both strings have the same length by padding with zeros

max\_len = max(len(a), len(b))

a = a.zfill(max\_len)

b = b.zfill(max\_len)

carry = 0

result = []

for i in range(max\_len - 1, -1, -1):

bit\_sum = int(a[i]) + int(b[i]) + carry

result.append(str(bit\_sum % 2))

carry = bit\_sum // 2

if carry:

result.append(str(carry))

return ''.join(result[::-1])

# Example usage:

binary\_str1 = input("Enter the first binary string: ")

binary\_str2 = input("Enter the second binary string: ")

result = add\_binary(binary\_str1, binary\_str2)

print("Sum in binary:", result)

OUTPUT:

Enter the first binary string: 11

Enter the second binary string: 1

Sum in binary: 100

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