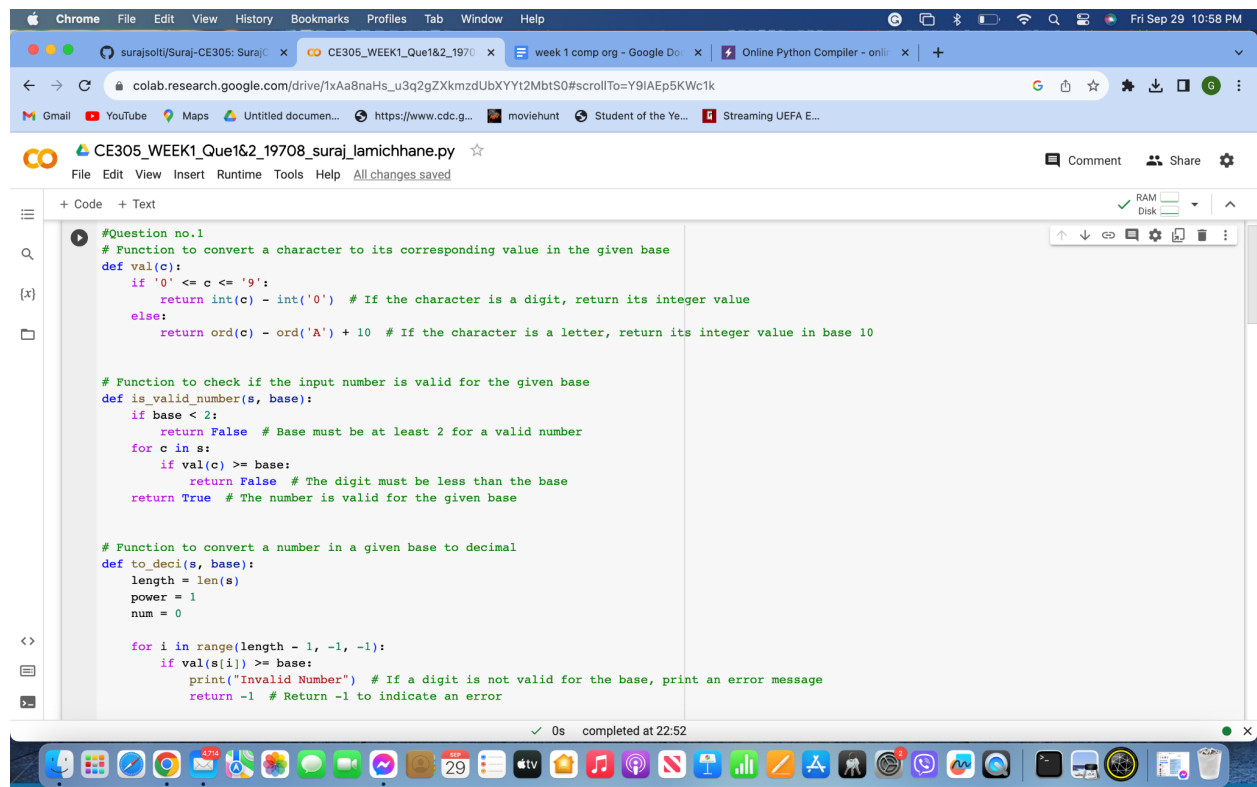


Qno.1)



The screenshot shows a web browser window with the address bar displaying a Google Drive link. The browser tabs include 'surajsoltj/Suraj-CE305: Suraj', 'CE305\_WEEK1\_Que1&2\_1970', 'week 1 comp org - Google Do...', and 'Online Python Compiler - onlin...'. The main content area shows a Python script titled 'CE305\_WEEK1\_Que1&2\_19708\_suraj\_lamichhane.py'. The script contains three functions: 'val(c)' for converting a character to its corresponding value in a given base, 'is\_valid\_number(s, base)' for checking if an input number is valid for a given base, and 'to\_deci(s, base)' for converting a number in a given base to decimal. The script is executed, and the output shows '0s' and 'completed at 22:52'.

```
#Question no.1
# Function to convert a character to its corresponding value in the given base
def val(c):
    if '0' <= c <= '9':
        return int(c) - int('0') # If the character is a digit, return its integer value
    else:
        return ord(c) - ord('A') + 10 # If the character is a letter, return its integer value in base 10

# Function to check if the input number is valid for the given base
def is_valid_number(s, base):
    if base < 2:
        return False # Base must be at least 2 for a valid number
    for c in s:
        if val(c) >= base:
            return False # The digit must be less than the base
    return True # The number is valid for the given base

# Function to convert a number in a given base to decimal
def to_deci(s, base):
    length = len(s)
    power = 1
    num = 0

    for i in range(length - 1, -1, -1):
        if val(s[i]) >= base:
            print("Invalid Number") # If a digit is not valid for the base, print an error message
            return -1 # Return -1 to indicate an error
```

Chrome File Edit View History Bookmarks Profiles Tab Window Help

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CE305\_WEEK1\_Que1&2\_19708\_suraj\_lamichhane.py ☆

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+ Code + Text

```
num += val[s[i]] * power
power *= base

return num # Return the decimal equivalent of the number

# Function to convert a decimal number to a given base
def to_base(decimal, target_base):
    result = []
    while decimal > 0:
        remainder = decimal % target_base
        if remainder < 10:
            result.append(chr(remainder + ord('0'))) # If the remainder is a digit, store it as a character
        else:
            result.append(chr(remainder - 10 + ord('A'))) # If the remainder is a letter, store it as a character
        decimal //= target_base

    print("Result:", end=" ")
    for c in reversed(result):
        print(c, end=" ") # Print the result in reverse order
    print()

def main():
    str_input = input("Enter the number to convert: ")
    from_base = int(input("Enter the base of the input number: "))
    target_base = int(input("Enter the base to convert to: "))

    if is_valid_number(str_input, from_base):
```

0s completed at 22:52

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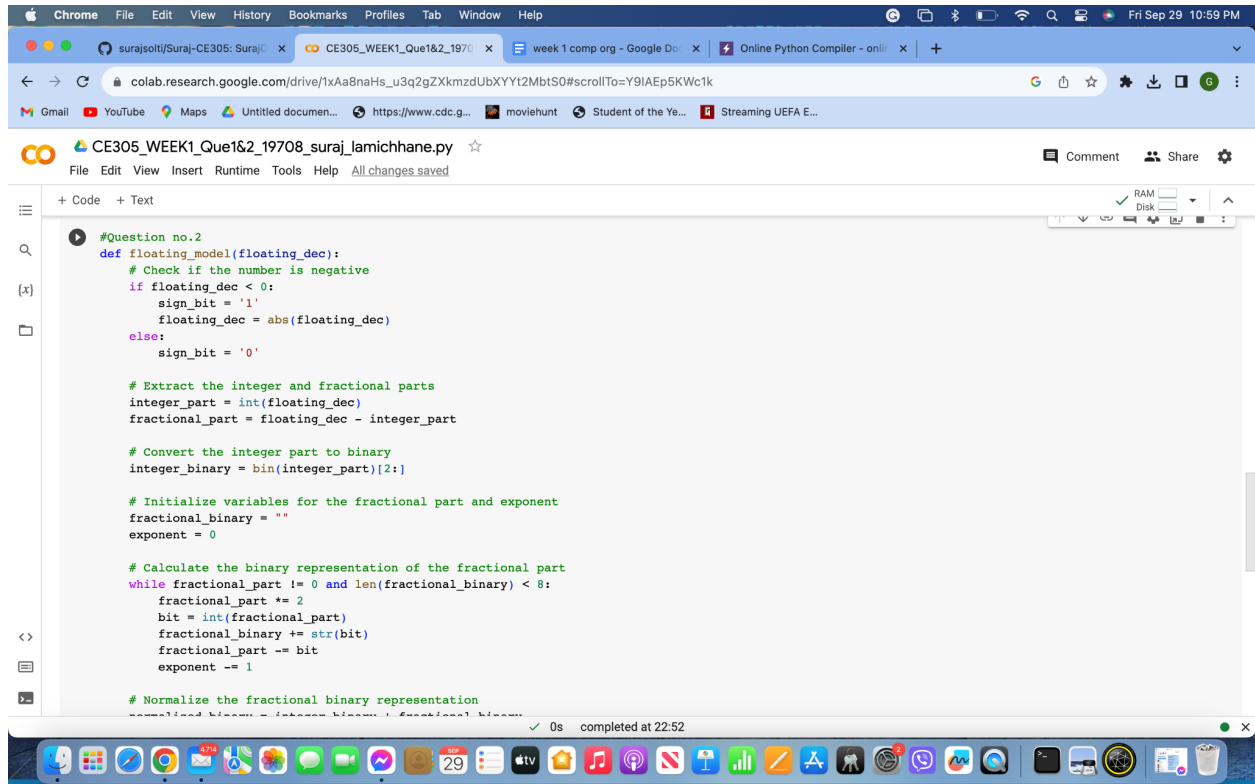
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```
decimal = to_deci(str_input, from_base)
if decimal != -1:
    print("Decimal equivalent:", decimal)
    to_base(decimal, target_base)
else:
    print("Error: Invalid input")

if __name__ == "__main__":
    main()
```

Enter the number to convert: 1234  
Enter the base of the input number: 10  
Enter the base to convert to: 2  
Decimal equivalent: 1234  
Result: 10011010010

Qno.2)



The screenshot shows a web browser window with the address bar displaying a Google Drive link. The browser tabs include 'surajsoliti/Suraj-CE305: Suraj', 'CE305\_WEEK1\_Que1&2\_1970', 'week 1 comp org - Google Do...', and 'Online Python Compiler - onli...'. The main content area shows a file named 'CE305\_WEEK1\_Que1&2\_19708\_suraj\_lamichhane.py' with a menu bar (File, Edit, View, Insert, Runtime, Tools, Help) and a toolbar. The code editor contains the following Python code:

```
#Question no.2
def floating_model(floating_dec):
    # Check if the number is negative
    if floating_dec < 0:
        sign_bit = '1'
        floating_dec = abs(floating_dec)
    else:
        sign_bit = '0'

    # Extract the integer and fractional parts
    integer_part = int(floating_dec)
    fractional_part = floating_dec - integer_part

    # Convert the integer part to binary
    integer_binary = bin(integer_part)[2:]

    # Initialize variables for the fractional part and exponent
    fractional_binary = ""
    exponent = 0

    # Calculate the binary representation of the fractional part
    while fractional_part != 0 and len(fractional_binary) < 8:
        fractional_part *= 2
        bit = int(fractional_part)
        fractional_binary += str(bit)
        fractional_part -= bit
        exponent += 1

    # Normalize the fractional binary representation
    normalized_binary = integer_binary + fractional_binary
```

The status bar at the bottom indicates '0s completed at 22:52'. The macOS dock is visible at the bottom of the screen.

Chrome File Edit View History Bookmarks Profiles Tab Window Help

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```
normalized_binary = integer_binary + fractional_binary

# Pad or trim the significand to 8 bits
significand = normalized_binary[1:9].ljust(8, '0')

# Calculate the 5-bit binary exponent
exponent_binary = bin(exponent + 16)[2:].rjust(5, '0')

# Combine all the parts to form the 14-bit representation
result = sign_bit + exponent_binary + significand

return result

# Test the function with the example -26.625
floating_dec = -26.625
binary_representation = floating_model(floating_dec)
print(binary_representation)
```

10110110101010

0s completed at 22:52

Mac OS dock with various application icons.