

AI Assisted Coding

Assignment-3.5

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Batch-02

Question:01

Zero-Shot Prompting (Leap Year Check)

```
sample1.py
1 #Assignment 3.5
2 #2303A51089
3 #date:22/1/2026
```

Prompt given for copilot

➤ A working Python program generated with Copilot assistance

```
#write a zero-short prompt to generate python function that checks whether a given year is a leap year or not
def is_leap_year(year):
    if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
        return True
    else:
        return False
year = int(input("Enter a year to check if it is a leap year: "))
if is_leap_year(year):
    print(f"{year} is a leap year.")
else:
    print(f"{year} is not a leap year.")
```

➤ Sample input/output screenshots

```
Enter a year to check if it is a leap year: 1900
1900 is not a leap year.
PS C:\Users\Rishi\Documents\Naga Rishik\AI assisted> & C:/Users/Rishi/anaconda/python.exe "c:/Users/Rishi/Documents/Naga Rishik/AI assisted/sample1.py"
Enter a year to check if it is a leap year: 2000
2000 is a leap year.
PS C:\Users\Rishi\Documents\Naga Rishik\AI assisted> & C:/Users/Rishi/anaconda/python.exe "c:/Users/Rishi/Documents/Naga Rishik/AI assisted/sample1.py"
Enter a year to check if it is a leap year: 2024
2024 is a leap year.
PS C:\Users\Rishi\Documents\Naga Rishik\AI assisted> |
```

Activate Windows
Go to Settings to activate Windows

Question-02

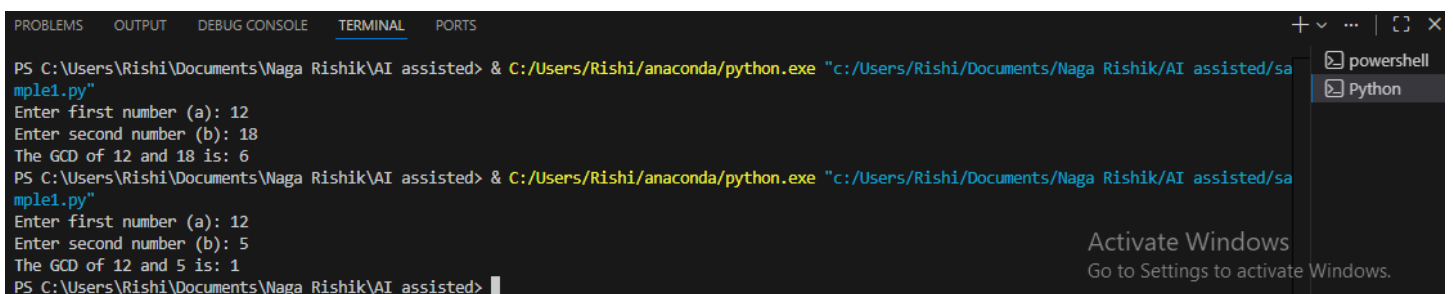
➤ One-Shot Prompting (GCD of Two Numbers)

A working Python program generated with Copilot assistance



```
sample1.py > ...
1  #2303A51089
2
3  '''
4  a=12
5  b=18
6  display the values of a and b as 6
7  '''
8
9  a=int(input("Enter first number (a): "))
10 b=int(input("Enter second number (b): "))
11 def gcd(x, y):
12     while(y):
13         x, y = y, x % y
14     return x
15 result = gcd(a, b)
16 print("The GCD of", a, "and", b, "is:", result)
17
```

➤ Screenshot(s) showing: Input/Output



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\Rishi\Documents\Naga Rishik\AI assisted> & C:/Users/Rishi/anaconda/python.exe "c:/Users/Rishi/Documents/Naga Rishik/AI assisted/sample1.py"
Enter first number (a): 12
Enter second number (b): 18
The GCD of 12 and 18 is: 6
PS C:\Users\Rishi\Documents\Naga Rishik\AI assisted> & C:/Users/Rishi/anaconda/python.exe "c:/Users/Rishi/Documents/Naga Rishik/AI assisted/sample1.py"
Enter first number (a): 12
Enter second number (b): 5
The GCD of 12 and 5 is: 1
PS C:\Users\Rishi\Documents\Naga Rishik\AI assisted>
```

side by side comparison

Zero-Shot:

```
sample1.py > ...
1  #2303A51089
2
3  #write a python to generate gcd of two numbers using function
4  def gcd(a, b):
5      while b:
6          a, b = b, a % b
7      return a
8  num1 = int(input("Enter first number: "))
9  num2 = int(input("Enter second number: "))
10 print(f"The GCD of {num1} and {num2} is {gcd(num1, num2)}")
11
```

One-Shot:

```
sample1.py > ...
1  #2303A51089
2
3  ...
4  a=12
5  b=18
6  display the values of a and b as 6
7  ...
8
9  a=int(input("Enter first number (a): "))
10 b=int(input("Enter second number (b): "))
11 def gcd(x, y):
12     while(y):
13         x, y = y, x % y
14     return x
15 result = gcd(a, b)
16 print("The GCD of", a, "and", b, "is:", result)
17
```

Question-03

Few-Shot Prompting (LCM Calculation)

Code given by copilot :

```
sample1.py > ...
2
3     '''
4     a=4,b=5
5     display the least common multiple of a and b as 12
6     a=5,b=10
7     display the least common multiple of a and b as 10
8     a=7,b=3
9     display the least common multiple of a and b as 21
10    '''
11    def gcd(a, b):
12        while b:
13            a, b = b, a % b
14        return a
15    def lcm(a, b):
16        return a * b // gcd(a, b)
17    a = int(input("Enter first number (a): "))
18    b = int(input("Enter second number (b): "))
19
20    result = lcm(a, b)
21    print(f"The least common multiple of {a} and {b} is: {result}")
```

➤ Sample input/output screenshots

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

File "c:\Users\Rishi\Documents\Naga Rishik\AI assisted\sample1.py", line 8, in <module>
    a=7,b=3

ValueError: invalid literal for int() with base 10: '& C:/Users/Rishi/anaconda/python.exe "c:/Users/Rishi/Documents/Naga Rishik/
mple1.py"'
PS C:\Users\Rishi\Documents\Naga Rishik\AI assisted> & C:/Users/Rishi/anaconda/python.exe "c:/Users/Rishi/Documents/Naga Rishik/
mple1.py"
Enter first number (a): 5
Enter second number (b): 10
The least common multiple of 5 and 10 is: 10
PS C:\Users\Rishi\Documents\Naga Rishik\AI assisted> 
```

Question 4:

Zero-Shot Prompting (Binary to Decimal Conversion)

Prompt:

Code given by copilot :

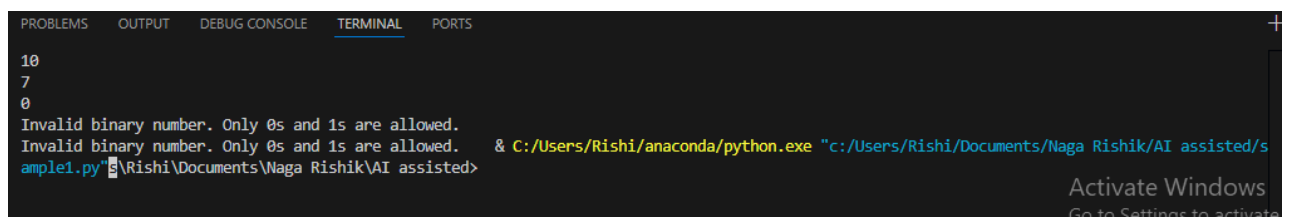
```
def binary_to_decimal(binary_str):
    # Validation: ensure only 0s and 1s are present
    if not all(ch in '01' for ch in binary_str):
        raise ValueError("Invalid binary input. Only 0s and 1s are allowed.")

    decimal_number = 0
    binary_str = binary_str[::-1] # Reverse to process from least significant bit
    for index, digit in enumerate(binary_str):
        if digit == '1':
            decimal_number += 2 ** index
    return decimal_number

# Testing with valid inputs
print(binary_to_decimal("1010")) # 10
print(binary_to_decimal("111")) # 7
print(binary_to_decimal("0")) # 0

# Testing with invalid inputs
try:
    print(binary_to_decimal("1021")) # Invalid
except ValueError as e:
    print(e)
try:
    print(binary_to_decimal("abc")) # Invalid
except ValueError as e:
    print(e)
```

➤ Sample input/output screenshots



```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
10
7
0
Invalid binary number. Only 0s and 1s are allowed.
Invalid binary number. Only 0s and 1s are allowed. & C:/Users/Rishi/anaconda/python.exe "c:/Users/Rishi/Documents/Naga Rishik/AI assisted/s
ample1.py"
Activate Windows
Go to Settings to activate
```

Question 5:

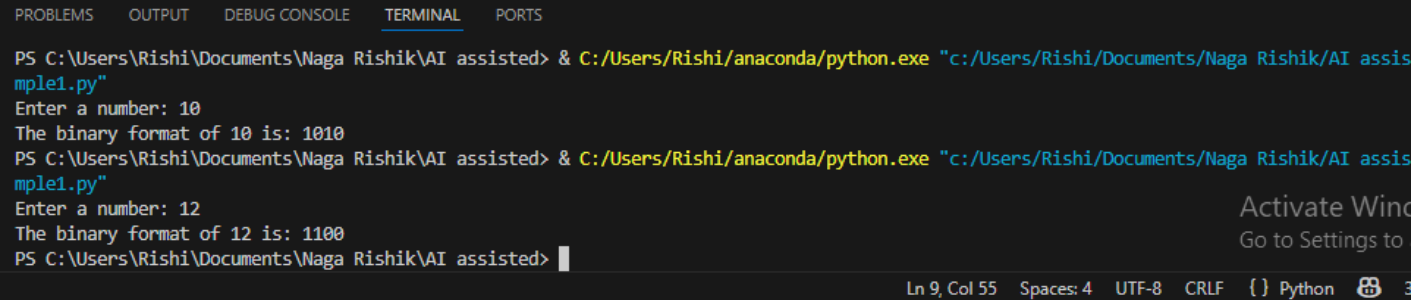
One-Shot Prompting (Decimal to Binary Conversion)

Prompt:

Code given by copilot :

```
sample1.py > ...
1  #2303A51089
2
3  ...
4  a=10
5  display a as 1010 in binary format
6  ...
7  a = int(input("Enter a number: "))
8  binary_format = bin(a)[2:] #convert to binary and remove '0b' prefix
9  print(f"The binary format of {a} is: {binary_format}")
```

➤ Sample input/output screenshots



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\Rishi\Documents\Naga Rishik\AI assisted> & C:/Users/Rishi/anaconda/python.exe "c:/Users/Rishi/Documents/Naga Rishik/AI assisted/mple1.py"
Enter a number: 10
The binary format of 10 is: 1010
PS C:\Users\Rishi\Documents\Naga Rishik\AI assisted> & C:/Users/Rishi/anaconda/python.exe "c:/Users/Rishi/Documents/Naga Rishik/AI assisted/mple1.py"
Enter a number: 12
The binary format of 12 is: 1100
PS C:\Users\Rishi\Documents\Naga Rishik\AI assisted> |
```

Activate Windows
Go to Settings to activate Windows.

Ln 9, Col 55 Spaces: 4 UTF-8 CRLF {} Python 3

Question 6:

Few-Shot Prompting (Harshad Number Check)

Code given by copilot :

```
sample1.py > ...
1  #2303A51089
2
3  ...
4  a=18
5  display the value of a as harshad number
6  a=21
7  display the value of a as harshad number
8  a=19
9  display the value of a as harshad number
10 ...
11
12 a=int(input("Enter a number:"))
13 sum=0
14 temp=a
15 while temp>0:
16     digit=temp%10
17     sum+=digit
18     temp//=10
19 if a%sum==0:
20     print(f"{a} is a Harshad number")
21 else:
22     print(f"{a} is not a Harshad number")
23
```

➤ Sample input/output screenshots

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

Enter a number:19
19 is not a Harshad number
PS C:\Users\Rishi\Documents\Naga Rishik\AI assisted> & C:/Users/Rishi/anaconda/python.exe "c:/Users/Rishi/Code/Python/sample1.py"
Enter a number:21
21 is a Harshad number
PS C:\Users\Rishi\Documents\Naga Rishik\AI assisted> |
```

Ln 23, Col 5 Spa