Question 1:

Please write a program using generator to print the numbers which can be divisible by 5 and 7 between 0 and n in comma separated form while n is input by console.

Example:  
If the following n is given as input to the program:

100

Then, the output of the program should be:

0,35,70

def divisible\_by\_5\_and\_7(n):

for i in range(n + 1):

if i % 5 == 0 and i % 7 == 0:

yield str(i)

# Read input from console

n = int(input("Enter a number: "))

# Generate the divisible numbers

numbers = divisible\_by\_5\_and\_7(n)

# Print the numbers in comma-separated form

print(','.join(numbers))

Question 2:

Please write a program using generator to print the even numbers between 0 and n in comma separated form while n is input by console.

Example:  
If the following n is given as input to the program:

10

Then, the output of the program should be:

0,2,4,6,8,10

def even\_numbers(n):

for i in range(n + 1):

if i % 2 == 0:

yield str(i)

# Read input from console

n = int(input("Enter a number: "))

# Generate the even numbers

numbers = even\_numbers(n)

# Print the numbers in comma-separated form

print(','.join(numbers))

Question 3:

The Fibonacci Sequence is computed based on the following formula:

f(n)=0 if n=0  
f(n)=1 if n=1  
f(n)=f(n-1)+f(n-2) if n>1

Please write a program using list comprehension to print the Fibonacci Sequence in comma separated form with a given n input by console.

Example:  
If the following n is given as input to the program:

7

Then, the output of the program should be:

0,1,1,2,3,5,8,13

def fibonacci\_sequence(n):

sequence = [0, 1] # Initialize the sequence with the first two numbers

while len(sequence) < n: # Generate the sequence up to the desired length

sequence.append(sequence[-1] + sequence[-2]) # Compute the next number

return sequence

# Read input from console

n = int(input("Enter a number: "))

# Generate the Fibonacci sequence

sequence = fibonacci\_sequence(n)

# Print the sequence in comma-separated form

print(','.join(map(str, sequence)))

Question 4:

Assuming that we have some email addresses in the "[username@companyname.com](mailto:username@companyname.com)" format, please write program to print the user name of a given email address. Both user names and company names are composed of letters only.

Example:  
If the following email address is given as input to the program:

[john@google.com](mailto:john@google.com)

Then, the output of the program should be:

john

def extract\_username(email):

username = email.split('@')[0]

return username

# Read input from console

email = input("Enter an email address: ")

# Extract the username from the email address

username = extract\_username(email)

# Print the username

print(username)

Question 5:

Define a class named Shape and its subclass Square. The Square class has an init function which takes a length as argument. Both classes have a area function which can print the area of the shape where Shape's area is 0 by default.

class Shape:

def \_\_init\_\_(self):

self.area = 0

def calculate\_area(self):

return self.area

class Square(Shape):

def \_\_init\_\_(self, length):

super().\_\_init\_\_()

self.length = length

def calculate\_area(self):

self.area = self.length \*\* 2

return self.area