

Python Basic Programming Assignment - 15

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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.

```
def divisible_by_5_and_7(n):
    for i in range(n+1):
        if i % 5 == 0 and i % 7 == 0:
            yield i

# get the generator object
generator = divisible_by_5_and_7(100)

# print the numbers in a comma separated form
print(", ".join(str(x) for x in generator))
```

0, 35, 70

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.

```
def even_numbers(n):
    for i in range(n+1):
        if i % 2 == 0:
            yield i

n = int(input("Enter a number: "))
print(", ".join(str(i) for i in even_numbers(n)))
```

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Enter a number: 10
0, 2, 4, 6, 8, 10

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

```
def fibonacci_sequence(n):
    # Initialize the first two numbers in the sequence
    a, b = 0, 1

    # Create a list of the Fibonacci sequence up to n
    fibonacci_sequence = [a, b] + [a + b for i in range(2, n)]

    # Convert the list to a string and separate each element with a comma
    return ", ".join(map(str, fibonacci_sequence))

# Get n from the user
n = int(input("Enter a number: "))

# Print the Fibonacci sequence up to n
print(fibonacci_sequence(n))
```

Enter a number: 10
0, 1, 1, 1, 1, 1, 1, 1, 1, 1

4. Assuming that we have some email addresses in the "[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.

```
def extract_username(email):
    # find the index of the @ symbol
    at_index = email.index('@')
```

```
# return the portion of the string before the @ symbol
return email[:at_index]

# test the function
print(extract_username("johnsmith@gmail.com")) # prints "johnsmith"
print(extract_username("jane.doe@yahoo.com")) # prints "jane.doe"

johnsmith
jane.doe
```

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 area(self):
        return 0

class Square(Shape):
    def __init__(self, length):
        self.length = length

    def area(self):
        return self.length ** 2

s = Shape()
print(s.area())

sq = Square(5)
print(sq.area())
```

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