1.Write a program which will find all such numbers which are divisible by 7 but are not a multiple of 5, between 2000 and 3200 (both included). The numbers obtained should be printed in a comma-separated sequence on a single line.

```
numbers = [str(i) for i in range(2000, 3201) if i % 7 == 0 and i % 5 !
= 0]
print(",".join(numbers))
```

```
2002,2009,2016,2023,2037,2044,2051,2058,2072,2079,2086,2093,2107,2114,
2121,2128,2142,2149,2156,2163,2177,2184,2191,2198,2212,2219,2226,2233,
2247,2254,2261,2268,2282,2289,2296,2303,2317,2324,2331,2338,2352,2359,
2366,2373,2387,2394,2401,2408,2422,2429,2436,2443,2457,2464,2471,2478,
2492,2499,2506,2513,2527,2534,2541,2548,2562,2569,2576,2583,2597,2604,
2611,2618,2632,2639,2646,2653,2667,2674,2681,2688,2702,2709,2716,2723,
2737,2744,2751,2758,2772,2779,2786,2793,2807,2814,2821,2828,2842,2849,
2856,2863,2877,2884,2891,2898,2912,2919,2926,2933,2947,2954,2961,2968,
2982,2989,2996,3003,3017,3024,3031,3038,3052,3059,3066,3073,3087,3094,
3101,3108,3122,3129,3136,3143,3157,3164,3171,3178,3192,3199
```

2.Write a program that accepts a sentence and calculate the number of letters and digits and count the occurrence of the characters and store them in dictionary.

```
sentence = input("Enter a sentence: ")

letters = 0
digits = 0
char_count = {}

for char in sentence:
    if char.isalpha():
        letters += 1
    elif char.isdigit():
        digits += 1
    if char in char_count:
        char_count[char] += 1
    else:
        char_count[char] = 1

print("Letters:", letters)
print("Digits:", digits)
print("Character Occurrences:", char_count)
```

```
Enter a sentence:  chethancheth63@gmail.com

Letters: 20
Digits: 2
Character Occurrences: {'c': 3, 'h': 4, 'e': 2, 't': 2, 'a': 2, 'n':
1, '6': 1, '3': 1, '@': 1, 'g': 1, 'm': 2, 'i': 1, 'l': 1, '.': 1,
'o': 1}
```

1. Use a list comprehension to square each odd number in a list. The list is input by a sequence of comma-separated numbers.

```
numbers = input("Enter comma-separated numbers: ")
nums = [int(x) for x in numbers.split(",")]
odds = [x for x in nums if x % 2 != 0]
squared_odds = [x**2 for x in odds]

print("Odd numbers:", odds)
print("Squares of odd numbers:", squared_odds)
```

```
Enter comma-separated numbers:  1,2,3,4,5,6,7,8,9

Odd numbers: [1, 3, 5, 7, 9]
Squares of odd numbers: [1, 9, 25, 49, 81]
```

1. Define a function which can generate a list where the values are squre of numbers between 1 and 20 (both included). Then the function needs to print the last 5 elements in the list

```
def print_last_five_squares():
    squares = [i**2 for i in range(1, 21)]
    print(squares[-5:])

print_last_five_squares()
```

```
[256, 289, 324, 361, 400]
```

1. Write a program which can map() and filter() to make a list whose elements are squre of even number in [6,9,10,12,15,30,25,81,100]

```
def square_even():
    numbers = [6,9,10,12,15,30,25,81,100]
    even_numbers = list(filter(lambda x: x % 2 == 0, numbers))
    squared = list(map(lambda x: x ** 2, even_numbers))
    print(squared)

square_even()
```

```
[36, 100, 144, 900, 10000]
```