1. Write a Python program to find those numbers which are divisible by 7 and multiple of 5, between 1500 and 2700 (both included)

```
numbers = []
for num in range(1500, 2701):
    if num % 7 == 0 and num % 5 == 0:
        numbers.append(num)
print("Numbers divisible by 7 and multiple of 5 between 1500 and 2700:")
print(numbers)
```

2. Write a Python program that prints all the numbers from 0 to 6 except 3 and 6.
Note : Use 'continue' statement.
Expected Output : 0 1 2 4 5

```
for num in range(7):
    if num == 3 or num == 6:
        continue
    print(num, end=" ")
print()
```

3. Write a Python program which iterates the integers from 1 to 50. For multiples of three print "Fizz" instead of the number and for the multiples of five print "Buzz". For numbers which are multiples of both three and five print "FizzBuzz".
Sample Output :
fizzbuzz
1
2
fizz
4
Buzz

```
for num in range(1, 51):
    if num % 3 == 0 and num % 5 == 0:
        print("FizzBuzz")
    elif num % 3 == 0:
        print("Fizz")
    elif num % 5 == 0:
        print("Buzz")
    else:
        print(num)
```

4. Write a Python program to check a triangle is equilateral, isosceles or scalene.
Note :

An equilateral triangle is a triangle in which all three sides are equal.
A scalene triangle is a triangle that has three unequal sides.
An isosceles triangle is a triangle with two equal sides.
Expected Output:
Input lengths of the triangle sides:
x: 6
y: 8
z: 12
Scalene triangle

```
x = int(input("x: "))
y = int(input("y: "))
z = int(input("z: "))

if x == y == z:
    print("Equilateral triangle")
elif x == y or y == z or z == x:
    print("Isosceles triangle")
else:
    print("Scalene triangle")
```

OR

```
x = float(input("Input length of the first side (x): "))
y = float(input("Input length of the second side (y): "))
z = float(input("Input length of the third side (z): "))
if x == y == z:
    print("Equilateral triangle")
elif x != y != z != x:
    print("Scalene triangle")
else:
    print("Isosceles triangle")
```

5. Write a Python program to calculate the sum and average of n integer numbers (input from the user). Input 0 to finish

```
sum = 0
count = 0
while True:
    num = int(input("Enter an integer number (enter 0 to finish): "))
    if num == 0:
        break
    sum += num
    count += 1
average = sum / count if count > 0 else 0
```

```
print("Sum:", sum)
print("Average:", average)
```

OR

```
numbers = []
while True:
    num = int(input())
    if num == 0:
        break
    numbers.append(num)

print("Sum: ", sum(numbers))
print("Average: ", sum(numbers)/len(numbers))
```

6. Write a Python program to construct the following pattern, using a nested loop number.

1
22
333
4444
55555
666666
7777777
88888888
999999999

```
for i in range(1, 10):
    for j in range(i):
        print(i, end="")
    print()
```

OR

```
for i in range(1, 10):
    print(str(i) * i)
```

7. Write a Python program that counts the number of elements within a list that are greater than 30.

```
lst = [42,29,40,19,10,60]
count = sum(1 for i in lst if i > 30)
print(count)
```

8. Take values of length and breadth of a rectangle from user and check if it is square or not.

```
length = int(input("Length: "))
breadth = int(input("Breadth: "))
if length == breadth:
    print("Square")
else:
    print("Rectangle")
```

9. A shop will give discount of 10% if the cost of purchased quantity is more than 1000.
Ask user for quantity
Suppose, one unit will cost 100.
Judge and print total cost for user.

```
unit_cost = 100
discount_threshold = 1000
discount_rate = 0.1
quantity = int(input("Enter the quantity: "))
total_cost = quantity * unit_cost
if total_cost > discount_threshold:
    discount = total_cost * discount_rate
    total_cost -= discount
print("Total cost: Rupees", total_cost)
```

OR

```
quantity = int(input("Enter quantity: "))
cost_per_unit = 100
total_cost = quantity * cost_per_unit

if total_cost > 1000:
    total_cost *= 0.9
print("Total cost:", total_cost)
```

10. A company decided to give bonus of 5% to employee if his/her year of service is more than 5 years.
Ask user for their salary and year of service and print the net bonus amount.

```
salary = float(input("Enter salary: "))
years_of_service = int(input("Enter years of service:"))
if years_of_service > 5:
    bonus = salary * 0.05
    print("Net bonus amount:", bonus)
else:
    print("No bonus.")
```

11. A school has following rules for grading system:
a. Below 25 - F
b. 25 to 45 - E
c. 45 to 50 - D
d. 50 to 60 - C
e. 60 to 80 - B
f. Above 80 - A
Ask user to enter marks and print the corresponding grade.

```
marks = int(input("Enter marks: "))

if marks < 25:
    grade = "F"
elif marks < 45:
    grade = "E"
elif marks < 50:
    grade = "D"
elif marks < 60:
    grade = "C"
elif marks < 80:
    grade = "B"
else:
    grade = "A"

print("Grade:", grade)
```

12. A student will not be allowed to sit in exam if his/her attendence is less than 75%.
Take following input from user Number of classes held
Number of classes attended.
And print percentage of class attended
Is student is allowed to sit in exam or not.

```
classes_held = int(input("Enter the number of classes held: "))
classes_attended = int(input("Enter the number of classes attended: "))
attendance_percentage = (classes_attended / classes_held) * 100
print("Percentage of classes attended:", attendance_percentage)
if attendance_percentage >= 75:
    print("The student is allowed to sit in the exam.")
else:
    print("The student is not allowed to sit in the exam.")
```

13. Take 10 integers from keyboard using loop and print their average value on the screen.

```
numbers = [int(input()) for _ in range(10)]
average = sum(numbers) / len(numbers)
print("Average: ", average)
```

14. Print multiplication table of 24, 50 and 29 using loop.

```
for i in [24, 50, 29]:
    for j in range(1, 11):
        print(i, "x", j, "=", i*j)
```

15. Take integer inputs from user until he/she presses q (Ask to press q to quit after every integer input). Print average and product of all numbers.

```
total_sum = 0
product = 1
count = 0
while True:
    num = input("Enter an integer (q to quit): ")
    if num.lower() == 'q':
        break
    num = int(num)
    total_sum += num
    product *= num
    count += 1
if count > 0:
    average = total_sum / count
    print("Average:", average)
    print("Product:", product)
else:
    print("No numbers entered.")
```

16. Take inputs from user to make a list. Again take one input from user and search it in the list and delete that element, if found. Iterate over list using for loop.

```
my_list = input("Enter elements of the list (separated by spaces): ").split()
element_to_delete = input("Enter element to delete: ")
if element_to_delete in my_list:
    my_list.remove(element_to_delete)
```

```
print("Updated list:", my_list)
```

17. Using **range(1,101)**, make three list,
    1. one containing all even numbers
    2. one containing all odd numbers
    3. One containing only prime numbers..

```
even = [i for i in range(1, 101) if i % 2 == 0]
odd = [i for i in range(1, 101) if i % 2 != 0]
prime = [i for i in range(2, 101) if all(i % j != 0 for j in range(2, int(i ** 0.5) + 1))]
print("Even: ", even)
print("Odd: ", odd)
print("Prime: ", prime)
```

18. From the two list obtained in previous question, make new lists, containing only numbers which are divisible by 4, 6, 8, 10, 3, 5, 7 and 9 in separate lists.

```
divisible_by_4 = [i for i in even if i % 4 == 0]
divisible_by_6 = [i for i in even if i % 6 == 0]
divisible_by_8 = [i for i in even if i % 8 == 0]
divisible_by_10 = [i for i in even if i % 10 == 0]

divisible_by_3 = [i for i in odd if i % 3 == 0]
divisible_by_5 = [i for i in odd if i % 5 == 0]
divisible_by_7 = [i for i in odd if i % 7 == 0]
divisible_by_9 = [i for i in odd if i % 9 == 0]
```

19. From a list containing ints, strings and floats, make three lists to store them separately

```
lst =  [1, "apple", 3.14, "banana", 42, 7.5, "cherry"]
ints = [i for i in lst if type(i) == int]
strings = [i for i in lst if type(i) == str]
floats = [i for i in lst if type(i) == float]
```

20.You are given with a list of integer elements. Make a new list which will store square of elements of previous list.

```
original_list = [2, 3, 5, 7, 11]
squared_list = [num ** 2 for num in original_list]
print("Original list:", original_list)
print("Squared list:", squared_list)
```