ASSIGNMENT 2 (conditional and loops) MANEESH S SHETTY

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

```
nl = []
for x in range(1500, 2701):
    if (x % 7 == 0) and (x % 5 == 0):
        nl.append(str(x))
print(','.join(nl))
```

```
1505,1540,1575,1610,1645,1680,1715,1750,1785,1820,1855,1890,1925,1960,1995,2030,2065,2100,2135,2170,2205,2240,2275,2310,
2345,2380,2415,2450,2485,2520,2555,2590,2625,2660,2695
```

**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 x in range(6):
    if (x == 3 or x == 6):
        continue
    print(x, end=' ')
print("\n")
```

```
0 1 2 4 5
```

**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".

```
fizzbuzz
1
2
fizz
4
Buzz
for fizzbuzz in range(51):
    if fizzbuzz % 3 == 0 and fizzbuzz % 5 == 0:
        print("fizzbuzz")
        continue
    elif fizzbuzz % 3 == 0:
        print("fizz")
        continue
    elif fizzbuzz % 5 == 0:
        print("buzz")
        continue
    print(fizzbuzz)
```

```
fizzbuzz
1
2
fizz
4
buzz
fizz
7
8
fizz
```

**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.

```
print("Input lengths of the triangle sides: ")
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")
```

```
y: 3
z: 5
Scalene triangle
PS C:\Users\manee\Dow
Users/manee/Downloads,
Input lengths of the
x: 4
y: 4
z: 4
Equilateral triangle
PS C:\Users\manee\Dow
Users/manee/Downloads,
Input lengths of the
x: 5
y: 5
z: 3
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

```
print("Input some integers to calculate their sum and average. Input 0 to exit.")
count = 0
sum = 0.0
number = 1

while number != 0:
    number = int(input(""))
    sum = sum + number
    count += 1
if count == 0:
    print("Input some numbers")
else:
    print("Average and Sum of the above numbers are: ", "average :",sum / (count-1),"SUM",
sum)
```

```
Input some integers to calculate their sum and average. Input 0 to exit.
5
4
6
3
5
0
Average and Sum of the above numbers are:  average : 4.6 SUM 23.0
```

**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(0,10):
    print(str(i)*i)
```

```
1
22
333
4444
55555
666666
7777777
88888888
999999999
```

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

```
def count_range_in_list(li, min):
```

```
    ctr = 0
    for x in li:
        if min <= x :
            ctr += 1
    return ctr
list1 = [10, 20, 30, 40, 50, 60, 70, 80, 99]
print(count_range_in_list(list1, 30))
```

```
Users/manee/Downloads/python conditional/question 7.py"
7
```

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

```
length =int(input("enter the length :"))
breadth =int(input("enter the breadth :"))
if length == breadth:
    print("Square.")
else:
    print("Not a Square.")
```

```
enter the length20
enter the breadth20
Square.
```

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.

```
price=int(input("enter the price of the item: \n"))
quantity=int(input("enter the quantity of the item: \n"))
total=price*quantity
if (total>1000):
    discount=total*0.1
    final_price=total-discount
    print("the original price is:",total)
    print("the discounted price is: ",final_price)
else:
    print("total price:",total)
```

```
enter the price of the item:
500
enter the quantity of the item:
4
the original price is: 2000
the discounted price is:  1800.0
```

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 your salary: "))
year_of_service = float(input("Enter years of service: "))
if year_of_service > 5:
    bonus = 0.05 * salary
    print("Congratulations! You are eligible for a 5% bonus.")
```

```
    print("Net bonus amount:", bonus)
else:
    print("No bonus. You need more than 5 years of service.")
```

```
Enter your salary: 20000
Enter years of service: 6
Congratulations! You are eligible for a 5% bonus.
Net bonus amount: 1000.0
```

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.

```
try:
    marks = float(input("Enter the marks: "))

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

    print(f"Grade: {grade}")
except ValueError:
    print("Please enter a valid numerical value for marks.")
```

```
Enter the marks: 100
Grade: A
```

12. A student will not be allowed to sit in exam if his/her attendence is less than 75%.

```
held=int(input("enter the no. of classes held: \n"))
attended=int(input("enter the no. of classes attended: \n"))
attendance=(attended/held)*100
print("your attendance:",attendance,"%")
if (attendance>75):
    print("you are allowed to write the exam")
else:
    print("you are not allowed to write the exam")
```

```
enter the no. of classes held:
100
enter the no. of classes attended:
50
your attendance: 50.0 %
you are not allowed to write the exam
```

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

```
n=int(input("enter the number of value"))
val=[]
print(f"enter the {n} values")
for i in range(n):
    a=int(input())
    val.append(a)
print(val)
sum1=int(sum(val))
print(sum1)
avg=sum1/n
print(f"average of {n} numbers are :",avg)
```

```
enter the number of value10
enter the 10 values
23
45
65
86
98
65
45
98
34
23
[23, 45, 65, 86, 98, 65, 45, 98, 34, 23]
582
average of 10 numbers are : 58.2
```

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

```
def print_multiplication_table(number):
    print(f"--- Multiplication Table of {number} ---")
    for i in range(1, 11):
        product = number * i
        print(f"{number} * {i:2} = {product}")
print(" ENter a number to get the multiplication table")
num=int(input())
print_multiplication_table(num)
```

```
 ENter a number to get the multiplication table
24
--- Multiplication Table of 24 ---
24 *  1 = 24
24 *  2 = 48
24 *  3 = 72
24 *  4 = 96
24 *  5 = 120
24 *  6 = 144
24 *  7 = 168
24 *  8 = 192
24 *  9 = 216
24 * 10 = 240
```

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.

```
numbers = []
total_sum = 0
product = 1
while True:
    user_input = input("Enter an integer (or 'q' to quit): ")
    if user_input.lower() == 'q':
        break
    else:
        try:
            number = int(user_input)
            numbers.append(number)
            total_sum += number
            product *= number
        except ValueError:
            print("Invalid input! Please enter a valid integer or 'q'.")
if numbers:
    average = total_sum / len(numbers)
    print("\n--- Results ---")
    print(f"Numbers entered: {numbers}")
    print(f"Average of all numbers: {average:.2f}")
    print(f"Product of all numbers: {product}")
else:
    print("\nNo numbers were entered.")
```

```
Enter an integer (or 'q' to quit): 43
Enter an integer (or 'q' to quit): 5
Enter an integer (or 'q' to quit): h
Invalid input! Please enter a valid integer or 'q'.
Enter an integer (or 'q' to quit): 43
Enter an integer (or 'q' to quit): q

--- Results ---
Numbers entered: [43, 5, 43]
Average of all numbers: 30.33
Product of all numbers: 9245
```

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.

```
def main():
    try:
        n = int(input("How many items will the list have? "))
    except ValueError:
        print("Invalid number. Exiting.")
        return

    items = []
    for i in range(1, n + 1):
        items.append(input(f"Enter item {i}: "))

    target = input("Enter the item to search and delete: ")

    if target in items:
        items.remove(target)
        print(f"'{target}' found and deleted.")
    else:
        print(f"'{target}' not found in the list.")

    print("Final list (iterated with a for loop):")
    for it in items:
        print(it)

if __name__ == '__main__':
    main()
```

```
How many items will the list have? 3
Enter item 1: 54
Enter item 2: ef
Enter item 3: 43
Enter the item to search and delete: 54
'54' found and deleted.
Final list (iterated with a for loop):
ef
43
```

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

```
import math

def is_prime(n):
    if n <= 1:
        return False
    for i in range(2, int(math.sqrt(n)) + 1):
        if n % i == 0:
            return False
    return True
even_numbers = [x for x in range(1, 101) if x % 2 == 0]
odd_numbers = [x for x in range(1, 101) if x % 2 != 0]
prime_numbers = [x for x in range(1, 101) if is_prime(x)]
print("Even numbers:", even_numbers)
print("Odd numbers:", odd_numbers)
print("Prime numbers:", prime_numbers)
```

```
Even numbers: [2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70
4, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100]
Odd numbers: [1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69,
 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99]
Prime numbers: [2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97]
```

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.

```
even_numbers = [x for x in range(1, 101) if x % 2 == 0]
odd_numbers = [x for x in range(1, 101) if x % 2 != 0]
numbers = even_numbers + odd_numbers

divisors = [4, 6, 8, 10, 3, 5, 7, 9]

for d in divisors:
    divisible = [x for x in numbers if x % d == 0]
    print(f"Numbers divisible by {d}:", divisible)
```

```
Numbers divisible by 4: [4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 92, 96, 100]
Numbers divisible by 6: [6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84, 90, 96]
Numbers divisible by 8: [8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96]
Numbers divisible by 10: [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
Numbers divisible by 3: [6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84, 90, 96, 3, 9, 15, 21, 27, 33, 39, 45, 51, 57, 63, 69, 75, 81, 87, 93,
Numbers divisible by 5: [10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 5, 15, 25, 35, 45, 55, 65, 75, 85, 95]
Numbers divisible by 7: [14, 28, 42, 56, 70, 84, 98, 7, 21, 35, 49, 63, 77, 91]
Numbers divisible by 9: [18, 36, 54, 72, 90, 9, 27, 45, 63, 81, 99]
```

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

```
mixed = [1, 'apple', 2.5, 'banana', 3, 4.0, 'cherry', 7]
ints = [x for x in mixed if isinstance(x, int) ]
floats = [x for x in mixed if isinstance(x, float)]
strings = [x for x in mixed if isinstance(x, str)]

print("Original list:", mixed)
print("Integers:", ints)
print("Floats:", floats)
print("Strings:", strings)
```

```
Original list: [1, 'apple', 2.5, 'banana', 3, 4.0, 'cherry', 7]
Integers: [1, 3, 7]
Floats: [2.5, 4.0]
Strings: ['apple', 'banana', 'cherry']
```

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

```
nums = [1, 2, 3, 4, 5]
squares = [x * x for x in nums]
print("Original list:", nums)
print("Squared list:", squares)
```

```
Original list: [1, 2, 3, 4, 5]
Squared list: [1, 4, 9, 16, 25]
```