

Day 1

1. Write a program that takes a year as input. Determine if the year is a leap year.

```
In [32]: year = int(input("Enter the year:"))
if year % 4 == 0:
    if year % 100 == 0:
        if year % 400 == 0:
            print(f"{year} is leap year")
        else:
            print(f"{year} is not leap year")
    else:
        print(f"{year} is leap year")
else:
    print(f"{year} is not leap year")

2023 is not leap year
```

2. Write a program that takes an integer as input and checks if "The number is divisible by 3 only."

```
In [10]: num = int(input("Enter a integer:"))
if num % 3 == 0:
    print(f"{num} is divisible by 3")
else:
    print(f"{num} is not divisible by 3")

22 is not divisible by 3
```

3. Write a program that takes two numbers as input and prints the smaller of the two

```
In [18]: A = int(input("Enter first number:"))
B = int(input("Enter seconde number:"))
if A<B:
    print(f"{B} is smaller value")
elif A == B:
    print("Both are equal")
else:
    print(f"{A} is smaller value")

25 is smaller value
```

4. Write a program that takes two numbers as input and prints the larger of the two

```
In [20]: A = int(input("Enter first number:"))
B = int(input("Enter seconde number:"))
if A>B:
    print(f"{A} is larger value")
elif A ==B:
    print("Both are equal values")
else:
    print(f"{B} is larger value")

65 is larger value
```

5. Write a program that takes a single letter as input. Determine if it's a vowel (a, e, i, o, u - consider both uppercase and lowercase) or a consonant.

```
In [27]: letter = input("Enter a letter")
if len(letter) == 1:
    if letter in("a","e","i","o","u","A","E","I","O","U"):
        print(f"{letter} is vowel")
    else:
        print(f"{letter} is consonant")
else:
    print("Please enter the invalid letter in single letter")

A is vowel
```

6. Write a program that takes a person's age as input and prints their age category: "Child" (0-12), "Teenager" (13-19), "Adult" (20-64), or "Senior" (65 and above)

```
In [29]: age = int(input("Enter age of an person:"))
if age in range(0,12):
    print("child")
elif age in range(13,19):
    print("Teenager")
elif age in range(20,64):
    print("Adult")
else:
    print("Senior")

child
```

7. Write a program that takes a password as input. If the length of the password is 8 or more characters, print "Strong password"; otherwise, print "Weak password."

```
In [31]: password = input("Enter the password")
if len(password) >= 8:
    print("Strong password")
else:
    print("Weak password")

Strong password
```

Day2

1. What is a for loop in Python, and when would you typically use it?

```
In [ ]: >>> for loop in python : used to iterating over sequences until it meet with the condition that we wants to operate
we use typically in sequences like list,tuple,range(),string
```

2. Explain the syntax of a basic for loop in Python

```
In [ ]: # Syntax of for loop:
var = " " # variable to declare
for i in var: # for condition where (i) = temporary variable to identify, (var) = variable that we declared
    print(" ") # operation we to pass in for loop
```

3. What is an iterable? Give a few examples of built-in iterables in Python that are commonly used with for loops.

```
In [ ]: >>> An iterable is any Python object capable of returning its elements one at a time
Built-in iterables in python are - list,set,range(),tuple,string,dictionary
```

4. How can you iterate through the characters of a string using a for loop?

```
In [2]: names = ["Raman","Ramesh","Ganesh","Suresh"]
for char in names:
    print(char)

Raman
Ramesh
Ganesh
Suresh
```

5. What is the purpose of the range() function when used with a for loop? Give a simple example

```
In [3]: # The range() function generates a sequence of numbers,which is especially useful for repeating actions a specific number of times using a for loop.
# EX:
for i in range(1,10): #range(start,steps to be jump)
    print(i)

1
2
3
4
5
6
7
8
9
```

6. Can you have a for loop inside another for loop? If so, what is this called?

```
In [ ]: ## yes we can use and it is called (nested for loop)
for condition:
    for condition1:
```

7. What is a while loop in Python, and when would you typically use it?

while loop in python is The loop which will keep running as long as the condition is True.

The moment the condition becomes False, the loop stops. we use in list,tuple,string,set,dictionary

8. Explain the syntax of a basic while loop in Python. What is the condition?

```
In [ ]: # Syntax:
while condition: # conditions like comparison
    print(" ") # operation that we want to repeat # operation like increment or decrement etc.
```

9. What is an infinite loop? How can you accidentally create one with a while loop, and how can you prevent it?

infinite loop is a loop where loop will not stop and it will keep going iterating to the unlimited, we can accidentally create one with while loop

```
In [1]: num = 5
while num > 0:
    print(f"next number is:{num}")
    num -= 1 # (num += 1) for infinite loop

next number is:5
next number is:4
next number is:3
next number is:2
next number is:1
```

```
In [ ]: # we can prevent it by using break statement
num = 5
while num > 0:
    print(f"next number is:{num}")
    num += 1
    break
```

10. How do the break and continue statements work within a while loop?

```
In [1]: # break statement in while loop
i = 15
while i >= 0:
    print(f"The number is {i}")
    i -= 1
    if i == 10:
        break

The number is 15
The number is 14
The number is 13
The number is 12
The number is 11
```

```
In [1]: # continue statement in while loop
num = 10
while num >= 0:
    print(num)
    num -= 1
    if num == 5:
        continue
    print("Numbers are: ")

10
9
8
7
6
5
4
3
2
1
0
```

Day 3

Question:1: Write a program that takes a sentence as input. Capitalize the first letter of the sentence and print the modified sentence.

```
In [7]: line = input(" ")
print(line.capitalize())

Tell me your name?

Question:2: Write a program that takes a string as input. Convert the entire string to lowercase and print it.
```

```
In [8]: line = "Hi how Are you?"
print(line.lower())

hi how are you?

Question:3: Write a program that takes a string as input. Convert the entire string to uppercase and print it
```

```
In [11]: line = "I am 2024 Passout Student"
print(line.upper())

I AM 2024 PASSOUT STUDENT

Question:4: Write a program that takes a sentence as input. Convert the sentence to title case (where the first letter of each word is capitalized) and print it
```

```
In [12]: line = "I got certified as data analyst from Bsaant Technology"
print(line.title())

I Got Certified As Data Analyst From Bsaant Technology

Question:4: Write a program that takes a string with leading spaces as input. Remove the leading spaces and print the stripped string.
```

```
In [15]: line = "      hi "
line1 = line.strip()
print(line1)
print("Before removing spaces:",line)
print("After removing spaces:",line1)

Before removing spaces:      hi
After removing spaces: hi

Question:5: Write a program that takes a string with trailing spaces as input. Remove the trailing spaces and print the stripped string
```

```
In [19]: line = "      "
line1 = line.rstrip()
print(line1)
print("Before",len(line))
print("After",len(line1))

hi
Before 23
After 3

Question:6: Write a program that takes a string with leading and trailing spaces as input. Remove both leading and trailing spaces and print the stripped string.
```

```
In [20]: line = "      hi "
line1 = line.strip()
print(line1)
print("Before",len(line))
print("After",len(line1))

hi
Before 15
After 2

Question:7: Write a program that takes a sentence and two words (old and new) as input. Replace all occurrences of the old word with the new word in the sentence and print the result.
```

```
In [26]: line = "I am working as data analyst is xyz organization.As a data analyst my work is to analyse the raw data and convert it into meaningful insights"
line1 = line.replace("data","Data")
print(line1)

I am working as Data analyst is xyz organization.As a data analyst my work is to analyse the raw Data and convert it into meaningful insights

Question:8: Write a program that takes a string and a character as input. Count the number of times the character appears in the string (case-insensitive) using a loop and conditional statements (or directly with count()) after converting the string to a single case)
```

```
In [28]: line = "I am working as data analyst is xyz organization.As a data analyst my work is to analyse the raw data and convert it into meaningful insights"
line1 = line.count("data")
print("Number of time data is arrived in line is:",line1)

Number of time data is arrived in line is: 3

Question:9: Write a program that takes a string and a substring as input. Find the index of the first occurrence of the substring. If the substring is not found, print a message indicating that.
```

```
In [34]: line = "I am working as data analyst is xyz organization.As a data analyst my work is to analyse the raw data and convert it into meaningful insights"
line1 = line.index("data")
print(line1)

16

Question:10: Write a program that takes a string and a substring as input. Find all occurrences of the substring in the string using a while loop and the find() method. Print the starting index of each occurrence.
```

```
In [3]: line = "Python"
print(line.find("t"))

2

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]:
```

```
In [ ]:

In [ ]:

In [ ]:
```

