1. Write a program to print all even numbers from 1 to 50 using a loop.
2. Use a loop to count and print the number of vowels in a string.
3. Write a program to print the factorial of a given number using a loop.
4. Write a program to find the average of 5 numbers.
5. Write a program to print the below pattern  
   \*  
   \* \*  
   \* \* \*  
   \* \* \* \*  
   \* \* \* \* \*
6. Write a program to display the multiplication table of a number entered by the user.
7. Use a loop to calculate the sum of the first 100 natural numbers.
8. Write a program to check if a given number is divisible by 2 and 4.
9. Check if a given number is odd or even.
10. Write a program to check if a string contains the character ‘t’ in it.
11. Write a program to check if a number is divisible by 5 and 11.
12. Write a program to check if a string contains the character ‘a’ in it.
13. Convert a list into a tuple using type-cast.
14. Take two sets and find their intersection.
15. Write a Python program to find the largest and smallest number in a list.
16. Take a list of numbers and print the sum of all even numbers.
17. Create a program to sort a list of integers in descending order.
18. Take a list of words and print the words that start with a vowel.
19. Accept a string and print it in reverse using slicing.
20. Accept a string and replace all vowels with a \*.
21. Create a dictionary with 5 elements where the value of each is the squared value of the key.
22. Create a tuple and demonstrate unpacking it into variables.
23. CHAPTER-III
24. Write a program to create a new text file and write your name into it.
25. Write a program to append user input to an existing file.
26. Create a program that reads a file line by line and prints each line.
27. Write a program to count the number of lines in a file.
28. Write a program to count the total number of words in a file.
29. Write a program that overwrites a file with new content.
30. Check if a file exists before reading or writing using the os module.
31. CHAPTER-IV
32. Create a class Person with attributes name and age. Write a method to display the person's details.
33. Write a class Rectangle with methods to compute area and perimeter.
34. Define a class Circle with a method to calculate area. Accept radius as input from the user.
35. Define a class Book with attributes title, author, and price. Write a method to display book details.
36. Create a base class Animal and a subclass Dog that adds a method bark().
37. Create a class BankAccount with attributes account\_holder and balance. Initialize them through a constructor.
38. Showcase the use of the super() method in OOPs by incorporating in a program.
39. Write a class Patient that stores name and disease. Use methods to access and update data securely.

### 1. Print even numbers from 1 to 50:

python

CopyEdit

for i in range(1, 51):

if i % 2 == 0:

print(i, end=' ')

### 2. Count vowels in a string:

python

CopyEdit

s = input("Enter a string: ")

vowels = 'aeiouAEIOU'

count = 0for char in s:

if char in vowels:

count += 1print("Number of vowels:", count)

### 3. Factorial using loop:

python

CopyEdit

n = int(input("Enter a number: "))

fact = 1for i in range(1, n+1):

fact \*= iprint("Factorial:", fact)

### 4. Average of 5 numbers:

python

CopyEdit

total = 0for i in range(5):

num = float(input("Enter number: "))

total += numprint("Average:", total / 5)

### 5. Pattern printing:

python

CopyEdit

for i in range(1, 6):

print('\* ' \* i)

### 6. Multiplication table:

python

CopyEdit

n = int(input("Enter a number: "))for i in range(1, 11):

print(f"{n} x {i} = {n\*i}")

### 7. Sum of first 100 natural numbers:

python

CopyEdit

total = 0for i in range(1, 101):

total += iprint("Sum:", total)

### 8. Divisible by 2 and 4:

python

CopyEdit

n = int(input("Enter a number: "))if n % 2 == 0 and n % 4 == 0:

print("Divisible by both 2 and 4")else:

print("Not divisible by both")

### 9. Odd or even:

python

CopyEdit

n = int(input("Enter a number: "))print("Even" if n % 2 == 0 else "Odd")

### 10. Check if string contains 't':

python

CopyEdit

s = input("Enter a string: ")print("'t' is in the string" if 't' in s else "'t' is not in the string")

### 11. Divisible by 5 and 11:

python

CopyEdit

n = int(input("Enter a number: "))if n % 5 == 0 and n % 11 == 0:

print("Divisible by both 5 and 11")else:

print("Not divisible by both")

### 12. Check for 'a' in string:

python

CopyEdit

s = input("Enter a string: ")print("'a' is in the string" if 'a' in s else "'a' is not in the string")

### 13. List to tuple:

python

CopyEdit

lst = [1, 2, 3, 4, 5]

tpl = tuple(lst)print(tpl)

### 14. Intersection of two sets:

python

CopyEdit

set1 = {1, 2, 3, 4}

set2 = {3, 4, 5, 6}print(set1 & set2)

### 15. Largest and smallest in list:

python

CopyEdit

lst = [3, 9, 1, 7, 4]print("Max:", max(lst))print("Min:", min(lst))

### 16. Sum of even numbers in list:

python

CopyEdit

lst = [1, 2, 3, 4, 5, 6]

even\_sum = sum(i for i in lst if i % 2 == 0)print("Sum of even numbers:", even\_sum)

### 17. Sort list in descending:

python

CopyEdit

lst = [5, 2, 9, 1]

lst.sort(reverse=True)print(lst)

### 18. Words starting with vowel:

python

CopyEdit

words = ["apple", "banana", "orange", "grape"]

vowels = 'aeiouAEIOU'for word in words:

if word[0] in vowels:

print(word)

### 19. Reverse string using slicing:

python

CopyEdit

s = input("Enter a string: ")print("Reversed string:", s[::-1])

### 20. Replace vowels with \*:

python

CopyEdit

s = input("Enter a string: ")

vowels = 'aeiouAEIOU'for v in vowels:

s = s.replace(v, '\*')print(s)

### 21. Dictionary with squared values:

python

CopyEdit

d = {x: x\*\*2 for x in range(1, 6)}print(d)

### 22. Tuple unpacking:

python

CopyEdit

t = (1, 2, 3)

a, b, c = tprint(a, b, c)

### 23. ****(Just a chapter title, skipping)****

### 24. Write name to file:

python

CopyEdit

with open("myfile.txt", "w") as file:

file.write("YourName")

### 25. Append input to file:

python

CopyEdit

text = input("Enter text to append: ")with open("myfile.txt", "a") as file:

file.write('\n' + text)

### 26. Read file line by line:

python

CopyEdit

with open("myfile.txt", "r") as file:

for line in file:

print(line.strip())

### 27. Count number of lines:

python

CopyEdit

with open("myfile.txt", "r") as file:

lines = file.readlines()print("Line count:", len(lines))

### 28. Count number of words:

python

CopyEdit

with open("myfile.txt", "r") as file:

words = file.read().split()print("Word count:", len(words))

### 29. Overwrite file:

python

CopyEdit

with open("myfile.txt", "w") as file:

file.write("This is new content.")

### 30. Check if file exists:

python

CopyEdit

import osif os.path.exists("myfile.txt"):

print("File exists")else:

print("File does not exist")

### 31. ****(Just a chapter title, skipping)****

### 32. Class Person:

python

CopyEdit

class Person:

def \_\_init\_\_(self, name, age):

self.name = name

self.age = age

def display(self):

print(f"Name: {self.name}, Age: {self.age}")

### 33. Class Rectangle:

python

CopyEdit

class Rectangle:

def \_\_init\_\_(self, length, width):

self.length = length

self.width = width

def area(self):

return self.length \* self.width

def perimeter(self):

return 2 \* (self.length + self.width)

### 34. Class Circle:

python

CopyEdit

class Circle:

def \_\_init\_\_(self, radius):

self.radius = radius

def area(self):

return 3.1416 \* self.radius \*\* 2

r = float(input("Enter radius: "))

c = Circle(r)print("Area:", c.area())

### 35. Class Book:

python

CopyEdit

class Book:

def \_\_init\_\_(self, title, author, price):

self.title = title

self.author = author

self.price = price

def display(self):

print(f"Title: {self.title}, Author: {self.author}, Price: {self.price}")

### 36. Animal and Dog class:

python

CopyEdit

class Animal:

def speak(self):

print("Animal speaks")

class Dog(Animal):

def bark(self):

print("Dog barks")

### 37. BankAccount class:

python

CopyEdit

class BankAccount:

def \_\_init\_\_(self, account\_holder, balance):

self.account\_holder = account\_holder

self.balance = balance

### 38. Use of super():

python

CopyEdit

class Animal:

def \_\_init\_\_(self, name):

self.name = name

class Dog(Animal):

def \_\_init\_\_(self, name, breed):

super().\_\_init\_\_(name)

self.breed = breed

### 39. Patient class with secure access:

python

CopyEdit

class Patient:

def \_\_init\_\_(self, name, disease):

self.\_\_name = name

self.\_\_disease = disease

def get\_details(self):

return self.\_\_name, self.\_\_disease

def update\_disease(self, new\_disease):

self.\_\_disease = new\_disease