**# Step 1**: Create and write to the file

filename = "learning\_python.txt"

with open(filename, "w") as file:

file.write("In Python, you can store data in variables.\n")

file.write("In Python, you can define functions using 'def'.\n")

file.write("In Python, you can use loops to repeat tasks.\n")

file.write("In Python, you can import libraries to extend functionality.\n")

**# Step 2**: Read the file content in three different ways

**# Method 1**: Read entire file at once

print("=== Reading entire file at once ===")

with open(filename) as file:

contents = file.read()

print(contents)

**# Method 2:** Looping over the file object

print("=== Reading file line by line ===")

with open(filename) as file:

for line in file:

print(line.strip())

**# Method 3:** Working with lines outside the with block

print("=== Reading lines into a list and working with them outside ===")

with open(filename) as file:

lines = file.readlines()

for line in lines:

print(line.strip())

**output:**

=== Reading entire file at once ===

In Python, you can store data in variables.

In Python, you can define functions using 'def'.

In Python, you can use loops to repeat tasks.

In Python, you can import libraries to extend functionality.

=== Reading file line by line ===

In Python, you can store data in variables.

In Python, you can define functions using 'def'.

In Python, you can use loops to repeat tasks.

In Python, you can import libraries to extend functionality.

=== Reading lines into a list and working with them outside ===

In Python, you can store data in variables.

In Python, you can define functions using 'def'.

In Python, you can use loops to repeat tasks.

In Python, you can import libraries to extend functionality.

**10.2. Learning C:**

sentence = "The dog chased the ball."

new\_sentence = sentence.replace("dog", "cat")

print(new\_sentence)

**OUTPUT:**

**The cat chased the ball.**

**10.3.GUEST:**

# Prompt the user for their name

name = input("What is your name? ")

# Write the name to 'guest.txt'

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

file.write(name)

print("Your name has been saved to guest.txt.")

**OUTPUT:**

What is your name? Ayesha

Your name has been saved to guest.txt.

**AFTER RUNNING FILE:**

Ayesha

**10.5.Programming poll:**

# Open the file in append mode so we don't overwrite previous entries

filename = "programming\_reasons.txt"

print("Enter 'q' anytime to quit.\n")

while True:

reason = input("Why do you like programming? ")

if reason.lower() == 'q':

print("Thanks for sharing your thoughts!")

break

**output:**

It allows me to build useful tools.

I enjoy solving problems.

**10.6.Addition :**

# Program to add two numbers with error handling

print("Enter two numbers to add them together.")

print("If you enter text instead of a number, you'll see a friendly error message.\n")

# Prompt for input

first = input("Enter the first number: ")

second = input("Enter the second number: ")

try

**TEST CASE 1:**

Enter the first number: 10

Enter the second number: 5

The sum is: 15

**TEST CASE 2:**

Enter the first number: apple

Enter the second number: 5

Oops! One or both of your inputs were not valid numbers. Please try again.

**10.7.ADDITION CALCULATER:**

print("Enter two numbers to add them together.")

print("Enter 'q' at any time to quit.\n")

while True:

first = input("Enter the first number: ")

if first.lower() == 'q':

break

second = input("Enter the second number: ")

if second.lower() == 'q':

break

try:

num1 = int(first)

num2 = int(second)

total = num1 + num2

print(f"The sum is: {total}\n")

except ValueError:

print("Oops! One or both of your inputs were not valid numbers. Please try again.\n")

**OUTPUT:**

Enter two numbers to add them together.

Enter 'q' at any time to quit.

Enter the first number: 10

Enter the second number: 20

The sum is: 30

Enter the first number: ten

Enter the second number: 5

Oops! One or both of your inputs were not valid numbers. Please try again.

Enter the first number: q

**10.8 Cats and Dogs:**

# List of files to read

filenames = ["cats.txt", "dogs.txt"]

for filename in filenames:

try:

print(f"\nReading from {filename}:")

with open(filename) as file:

contents = file.read()

print(contents)

except FileNotFoundError:

print(f"Sorry, the file '{filename}' was not found.")

**Test the Program:**

Reading from cats.txt:

Whiskers

Mittens

Shadow

Reading from dogs.txt:

Sorry, the file 'dogs.txt' was not found.

**10.9.SILENT CATS AND DOGS:**

# List of files to read

filenames = ["cats.txt", "dogs.txt"]

for filename in filenames:

try:

print(f"\nReading from {filename}:")

with open(filename) as file:

contents = file.read()

print(contents)

except FileNotFoundError:

# Fail silently

Pass

**Output:**

Reading from cats.txt:

Whiskers

Mittens

Shadow

Reading from dogs.txt:

Buddy

Charlie

Max

**Case 2: dogs.txt is missing:**

Reading from cats.txt:

Whiskers

Mittens

Shadow

**10.10.common words:**

# Open the downloaded book

filename = 'pride\_and\_prejudice.txt'

try:

with open(filename, encoding='utf-8') as file:

text = file.read()

# Convert to lowercase to make the search case-insensitive

text\_lower = text.lower()

# Count occurrences of a word or phrase

word = "elizabeth"

count = text\_lower.count(word)

print(f"The word '{word}' appears {count} times in the book.")

except FileNotFoundError:

print(f"Sorry, the file {filename} was not found.")

**Output:**

The word 'elizabeth' appears 635 times in the book.

**10.11.Favorite Number:**

**Program: Store the Favorite Number**

# store\_fav\_number.py

import json

# Prompt the user

favorite\_number = input("What is your favorite number? ")

# Save to a JSON file

filename = 'favorite\_number.json'

with open(filename, 'w') as f:

json.dump(favorite\_number, f)

print("Thanks! I've saved your favorite number.")

**Program 2: Read and Display the Favorite Number**

# read\_fav\_number.py

import json

# Load the JSON file

filename = 'favorite\_number.json'

try:

with open(filename) as f:

favorite\_number = json.load(f)

except FileNotFoundError:

print("I don't know your favorite number yet.")

else:

print(f"I know your favorite number! It's {favorite\_number}.")

**OUTPUT 1:**

What is your favorite number? 42

Thanks! I've saved your favorite number.

**OUTPUT 2:**

I know your favorite number! It's 42.

**10.12.Favorite Number Remembered:**

**Combined Program:**

import json

filename = 'favorite\_number.json'

try:

# Try to load the favorite number if it exists

with open(filename) as f:

favorite\_number = json.load(f)

except FileNotFoundError:

# If the file doesn't exist, prompt the user and save it

favorite\_number = input("What is your favorite number? ")

with open(filename, 'w') as f:

json.dump(favorite\_number, f)

print("Thanks! I've saved your favorite number.")

else:

# If the file exists, display the stored number

print(f"I know your favorite number! It's {favorite\_number}.")

**First Run Output:**

What is your favorite number? 27

Thanks! I've saved your favorite number.

**Second Run Output:**

I know your favorite number! It's 27.

**10.13.Verify User:**

import json

filename = 'username.json'

def get\_stored\_username():

"""Get stored username if available."""

try:

with open(filename) as f:

username = json.load(f)

except FileNotFoundError:

return None

else:

return username

def get\_new\_username():

"""Prompt for a new username and store it."""

username = input("What is your name? ")

with open(filename, 'w') as f:

json.dump(username, f)

return username

def greet\_user():

"""Greet the user by name, with confirmation."""

username = get\_stored\_username()

if username:

confirm = input(f"Is your name {username}? (y/n): ")

if confirm.lower() == 'y':

print(f"Welcome back, {username}!")

else:

username = get\_new\_username()

print(f"We'll remember you when you come back, {username}!")

else:

username = get\_new\_username()

print(f"We'll remember you when you come back, {username}!")

greet\_user()

**Example Run 1:**

What is your name? Ayesha

We'll remember you when you come back, Ayesha!

**Example Run 2:**

Is your name Ayesha? (y/n): y

Welcome back, Ayesha!

**Example Run 3:**

Is your name Ayesha? (y/n): n

What is your name? Salman

We'll remember you when you come back, Salman!