4. **Files and Directories**

a. **Reading, Writing, Appending Text Files**

```python
# Writing to a file
with open("test.txt", "w") as file:
file.write("Hello, World!")
# Appending to a file
with open("test.txt", "a") as file:
file.write("\nAppending text")
# Reading from a file
with open("test.txt", "r") as file:
content = file.read()
print(content)
```

b. **File Paths and Operations**

```python
import os
# File information
print(os.path.isfile("test.txt"))
print(os.path.getsize("test.txt"))
# Moving, copying, removing files
os.rename("test.txt", "new_test.txt")
os.remove("new_test.txt")
```

c. **Regular Expressions**

```python
import re
text = "The rain in Spain"
pattern = re.search("rain", text)
if pattern:
print("Pattern found!")
```

```

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### 5. **Python GUI Programming**

#### a. **Creating GUI Widgets (Tkinter Example)**

```python
import tkinter as tk
root = tk.Tk()
label = tk.Label(root, text="Hello, GUI!")
label.pack()
root.mainloop()
```

b. **Layout and Widget Appearance**

```python
import tkinter as tk
root = tk.Tk()
root.geometry("200x100")
button1 = tk.Button(root, text="Button 1")
button2 = tk.Button(root, text="Button 2")
button1.pack(side=tk.LEFT)
button2.pack(side=tk.RIGHT)
root.mainloop()
```

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6. **Text Processing**

a. **Text Processing and Searching Files**

```python
# Searching for a word in a file
with open("test.txt", "r") as file:
for line in file:
if "Hello" in line:
print("Found 'Hello'")
```
```

```

#### b. **HTML Parsing**

```python
from bs4 import BeautifulSoup
html_doc = "<html><body><h1>Hello, World!</h1></body></html>"
soup = BeautifulSoup(html_doc, 'html.parser')
print(soup.h1.string)
```

---

7. **Accessing Databases**

a. **DBM - Persistent Dictionaries**

```python
import dbm
# Creating and accessing DBM
db = dbm.open("mydb", "c")
db["key1"] = "value1"
print(db["key1"])
db.close()
```

b. **Relational Database - SQL and Transactions**

```python
import sqlite3
conn = sqlite3.connect("mydatabase.db")
cursor = conn.cursor()
# Create table
cursor.execute("CREATE TABLE IF NOT EXISTS students (id INTEGER, name TEXT)")
# Insert data
cursor.execute("INSERT INTO students (id, name) VALUES (1, 'Mahesh')")
conn.commit()
# Fetch data
cursor.execute("SELECT * FROM students")
```
```

```
rows = cursor.fetchall()
for row in rows:
print(row)
conn.close()
```