TEXT HANDLING

```
text = "Hello"
print(text.upper())
print(text.lower())
print(text.capitalize())
```

```
HELLO
hello
Hello
```

```
text = "123abc"
print(text.isalpha())   # letters only
print(text.isdigit())   # numbers only
print(text.isalnum())   # letters or numbers
```

```
False
False
True
```

```
text = "Hello, world!"
print(text[0])
print(text[-1])
print(text[0:5])
```

```
H
!
Hello
```

FILE HANDLING

```
#Write to the file
with open('example.txt', 'w') as file:
    file.write("Hello, this is some sample text.\nPython is fun!")

print("Writing done.\n")

#Read from the file
with open('example.txt', 'r') as file:
    contents = file.read()

print("File contents after writing:")
print(contents)
```

```
Writing done.

File contents after writing:
Hello, this is some sample text.
Python is fun!
```

IMAGE PROCESSING

```
!pip install Pillow
```

```
Requirement already satisfied: Pillow in /usr/local/lib/python3.11/dist-packages (11.3.0)
```

```
from google.colab import files
uploaded = files.upload()
```

```
Choose Files download.jpeg
• download.jpeg(image/jpeg) - 57132 bytes, last modified: 7/8/2025 - 100% done
Saving download.jpeg to download.jpeg
```

```
from PIL import Image
import matplotlib.pyplot as plt

image = Image.open("download.jpeg")

resized = image.resize((200, 200))

plt.imshow(resized)
plt.axis('off')
plt.show()
```

```
from PIL import Image
import matplotlib.pyplot as plt

image = Image.open("download.jpeg")

# Rotate the image by 90 degrees
rotated = image.rotate(90)

plt.imshow(rotated)
plt.axis('off')
plt.show()

# Convert to grayscale
gray_image = image.convert("L")  # 'L' = luminance = grayscale

plt.imshow(gray_image, cmap='gray')
plt.axis('off')
plt.show()

rgb_image = gray_image.convert("RGB")
```

HANDLING VIDEO FILES

```
!pip install opencv-python
```

```
Requirement already satisfied: opencv-python in /usr/local/lib/python3.11/dist-packages (4.12.0.88)
Requirement already satisfied: numpy<2.3.0,>=2 in /usr/local/lib/python3.11/dist-packages (from opencv-python) (2.0.2)
```

```
from google.colab import files
uploaded = files.upload()
```

Choose Files cutevideo1.mp4

- **cutevideo1.mp4**(video/mp4) - 207396 bytes, last modified: 7/8/2025 - 100% done

```
Saving cutevideo1.mp4 to cutevideo1.mp4
```

```
import cv2

video = cv2.VideoCapture("cutevideo1.mp4")
frame_count = 0

while True:
    ret, frame = video.read()
    if not ret:
        break
    frame_count += 1

video.release()
print(f"Total frames (manually counted): {frame_count}")
```

```
Total frames (manually counted): 82
```

```
video = cv2.VideoCapture("cutevideo1.mp4")

frame_count = 0
while True:
    ret, frame = video.read()
    if not ret:
        break
    gray = cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)
    cv2.imwrite(f"frame_{frame_count}.jpg", gray)
    frame_count += 1

video.release()
print(f"{frame_count} frames saved.")
```

```
82 frames saved.
```

```
import cv2
from google.colab.patches import cv2_imshow

# Open the video file
video = cv2.VideoCapture("cutevideo1.mp4")

# Read and show 10 frames
frame_count = 0
while frame_count < 10:
    ret, frame = video.read()
    if not ret:
        break
    cv2_imshow(frame)
    frame_count += 1

video.release()
```