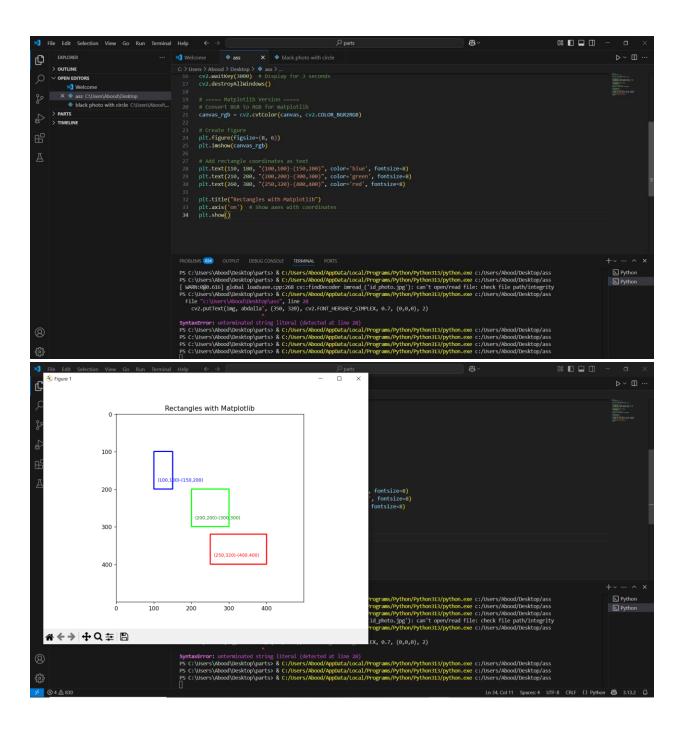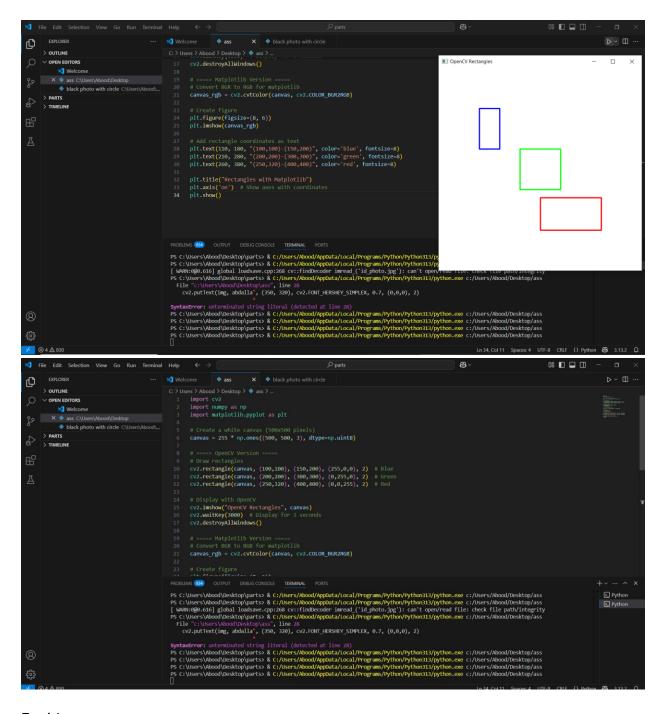Code: (Draw the following rectangles (100,100) to (150,200) (200,200) to (300,300) (250,320) to (400,400)):

```python
import
import        as
import           .            as

# Create a white canvas (500x500 pixels)
      = 255 *    .      ((500, 500, 3),       = .      )

# ===== OpenCV Version =====
# Draw rectangles
   .            (       , (100,100), (150,200), (255,0,0), 2)  # Blue
   .            (       , (200,200), (300,300), (0,255,0), 2)  # Green
   .            (       , (250,320), (400,400), (0,0,255), 2)  # Red

# Display with OpenCV
   .        ("OpenCV Rectangles",       )
   .        (3000)  # Display for 3 seconds
   .                ()

# ===== Matplotlib Version =====
# Convert BGR to RGB for matplotlib
         =    .          (       ,    .              )

# Create figure
   .      (        =(8, 6))
   .      (            )

# Add rectangle coordinates as text
   .    (110, 180, "(100,100)-(150,200)",      ='blue',       =8)
   .    (210, 280, "(200,200)-(300,300)",      ='green',       =8)
   .    (260, 380, "(250,320)-(400,400)",      ='red',       =8)

   .    ("Rectangles with Matplotlib")
   .    ('on')  # Show axes with coordinates
   .    ()
```

Welcome   ass   black photo with circle

C: > Users > Abood > Desktop > ass > ...

EXPLORER

> OUTLINE
∨ OPEN EDITORS
   Welcome
   ✕ ass C:\Users\Abood\Desktop
      black photo with circle C:\Users\Abood\...
> PARTS
> TIMELINE

```python
16      cv2.waitKey(3000)  # Display for 3 seconds
17      cv2.destroyAllWindows()
18
19      # ===== Matplotlib Version =====
20      # Convert BGR to RGB for matplotlib
21      canvas_rgb = cv2.cvtColor(canvas, cv2.COLOR_BGR2RGB)
22
23      # Create figure
24      plt.figure(figsize=(8, 6))
25      plt.imshow(canvas_rgb)
26
27      # Add rectangle coordinates as text
28      plt.text(110, 180, "(100,100)-(150,200)", color='blue', fontsize=8)
29      plt.text(210, 280, "(200,200)-(300,300)", color='green', fontsize=8)
30      plt.text(260, 380, "(250,320)-(400,400)", color='red', fontsize=8)
31
32      plt.title("Rectangles with Matplotlib")
33      plt.axis('on')  # Show axes with coordinates
34      plt.show()
```

PROBLEMS 834   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS

```
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
[ WARN:0@0.616] global loadsave.cpp:268 cv::findDecoder imread_('id_photo.jpg'): can't open/read file: check file path/integrity
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
    File "c:\Users\Abood\Desktop\ass", line 28
      cv2.putText(img, abdalla", (350, 320), cv2.FONT_HERSHEY_SIMPLEX, 0.7, (0,0,0), 2)
                                ^
SyntaxError: unterminated string literal (detected at line 28)
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
```

Figure 1

Rectangles with Matplotlib

(100,100)-(150,200)

(200,200)-(300,300)

(250,320)-(400,400)

```
, fontsize=8)
, fontsize=8)
fontsize=8)
```

```
Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
id_photo.jpg'): can't open/read file: check file path/integrity
Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
                            ^
EX, 0.7, (0,0,0), 2)
SyntaxError: unterminated string literal (detected at line 28)
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
```

Ln 34, Col 11   Spaces: 4   UTF-8   CRLF   {} Python   3.13.2

```python
17  cv2.destroyAllWindows()
18
19  # ===== Matplotlib Version =====
20  # Convert BGR to RGB for matplotlib
21  canvas_rgb = cv2.cvtColor(canvas, cv2.COLOR_BGR2RGB)
22
23  # Create figure
24  plt.figure(figsize=(8, 6))
25  plt.imshow(canvas_rgb)
26
27  # Add rectangle coordinates as text
28  plt.text(110, 180, "(100,100)-(150,200)", color='blue', fontsize=8)
29  plt.text(210, 280, "(200,200)-(300,300)", color='green', fontsize=8)
30  plt.text(260, 380, "(250,320)-(400,400)", color='red', fontsize=8)
31
32  plt.title("Rectangles with Matplotlib")
33  plt.axis('on')  # Show axes with coordinates
34  plt.show()
```

```
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/py
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/py
[ WARN:0@0.616] global loadsave.cpp:268 cv::findDecoder imread_('id_photo.jpg'): can't open/read file: check file path/integrity
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
  File "c:\Users\Abood\Desktop\ass", line 28
    cv2.putText(img, abdalla", (350, 320), cv2.FONT_HERSHEY_SIMPLEX, 0.7, (0,0,0), 2)
                              ^
SyntaxError: unterminated string literal (detected at line 28)
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
```

```python
1  import cv2
2  import numpy as np
3  import matplotlib.pyplot as plt
4
5  # Create a white canvas (500x500 pixels)
6  canvas = 255 * np.ones((500, 500, 3), dtype=np.uint8)
7
8  # ===== OpenCV Version =====
9  # Draw rectangles
10  cv2.rectangle(canvas, (100,100), (150,200), (255,0,0), 2)  # Blue
11  cv2.rectangle(canvas, (200,200), (300,300), (0,255,0), 2)  # Green
12  cv2.rectangle(canvas, (250,320), (400,400), (0,0,255), 2)  # Red
13
14  # Display with OpenCV
15  cv2.imshow("OpenCV Rectangles", canvas)
16  cv2.waitKey(3000)  # Display for 3 seconds
17  cv2.destroyAllWindows()
18
19  # ===== Matplotlib Version =====
20  # Convert BGR to RGB for matplotlib
21  canvas_rgb = cv2.cvtColor(canvas, cv2.COLOR_BGR2RGB)
22
23  # Create figure
```

For id:

```python
30    alphas = [1.0, 0.75, 0.5, 0.25]
31    fig, axs = plt.subplots(2, 2, figsize=(10, 8))
32    axs = axs.ravel()
33
34    for i in range(4):
35        img_alpha = img.copy()
36        img_alpha[:, :, 3] = int(255 * alphas[i])   # Set alpha channel
37        axs[i].imshow(cv2.cvtColor(img_alpha, cv2.COLOR_BGRA2RGBA))
38        axs[i].set_title(f'Alpha: {alphas[i]}')
39        axs[i].axis('off')
40
41    plt.tight_layout()
42    plt.show()
43
```

```
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
  File "c:\Users\Abood\Desktop\ass", line 28
    cv2.putText(img, abdalla", (350, 320), cv2.FONT_HERSHEY_SIMPLEX, 0.7, (0,0,0), 2)
                                                          ^
SyntaxError: unterminated string literal (detected at line 28)
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts>
```


Alpha: 1.0

Alpha: 0.75

Alpha: 0.5

Alpha: 0.25

```python
import cv2
import numpy as np
import matplotlib.pyplot as plt

# === LOAD YOUR ID IMAGE ===
# Replace with the path to your actual ID image
img = cv2.imread(r'C:\Users\Abood\Desktop\New folder (5)\1.py\22.jpg', cv2.IMREAD_UNCHANGED)

# Convert to BGRA if needed
if img.shape[2] == 3:
    img = cv2.cvtColor(img, cv2.COLOR_BGR2BGRA)

# === WRITE YOUR NAME ===
name = "abdalla abdelnasser"
cv2.putText(img, name, (50, 100), cv2.FONT_HERSHEY_SIMPLEX, 1.2, (255, 255, 255, 255), 2)

# === DRAW LINE UNDER NAME ===
text_size = cv2.getTextSize(name, cv2.FONT_HERSHEY_SIMPLEX, 1.2, 2)[0]
start_point = (50, 110)
end_point = (50 + text_size[0], 110)
cv2.line(img, start_point, end_point, (255, 255, 255, 255), 2)

# === DRAW CIRCLES ON IMAGE CORNERS ===
```

Terminal:

```
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
  File "c:\Users\Abood\Desktop\ass", line 28
    cv2.putText(img, abdalla", (350, 320), cv2.FONT_HERSHEY_SIMPLEX, 0.7, (0,0,0), 2

SyntaxError: unterminated string literal (detected at line 28)
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts> & C:/Users/Abood/AppData/Local/Programs/Python/Python313/python.exe c:/Users/Abood/Desktop/ass
PS C:\Users\Abood\Desktop\parts>
```

```python
# === DRAW LINE UNDER NAME ===
text_size = cv2.getTextSize(name, cv2.FONT_HERSHEY_SIMPLEX, 1.2, 2)[0]
start_point = (50, 110)
end_point = (50 + text_size[0], 110)
cv2.line(img, start_point, end_point, (255, 255, 255, 255), 2)

# === DRAW CIRCLES ON IMAGE CORNERS ===
h, w = img.shape[:2]
corners = [(0, 0), (w-1, 0), (0, h-1), (w-1, h-1)]
for x, y in corners:
    cv2.circle(img, (x, y), 10, (0, 255, 0, 255), -1)

# === CREATE 4 TRANSPARENCY VERSIONS ===
alphas = [1.0, 0.75, 0.5, 0.25]
fig, axs = plt.subplots(2, 2, figsize=(10, 8))
axs = axs.ravel()

for i in range(4):
    img_alpha = img.copy()
    img_alpha[:, :, 3] = int(255 * alphas[i])  # Set alpha channel
    axs[i].imshow(cv2.cvtColor(img_alpha, cv2.COLOR_BGRA2RGBA))
    axs[i].set_title(f'Alpha: {alphas[i]}')
```