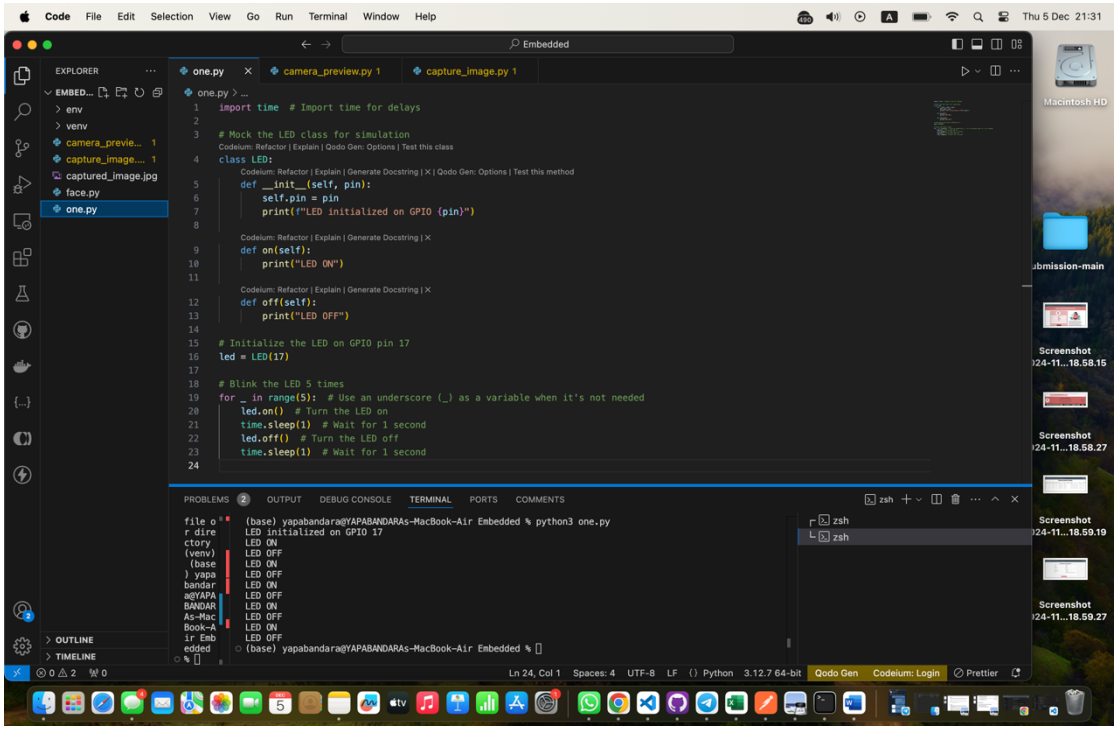
Question 1

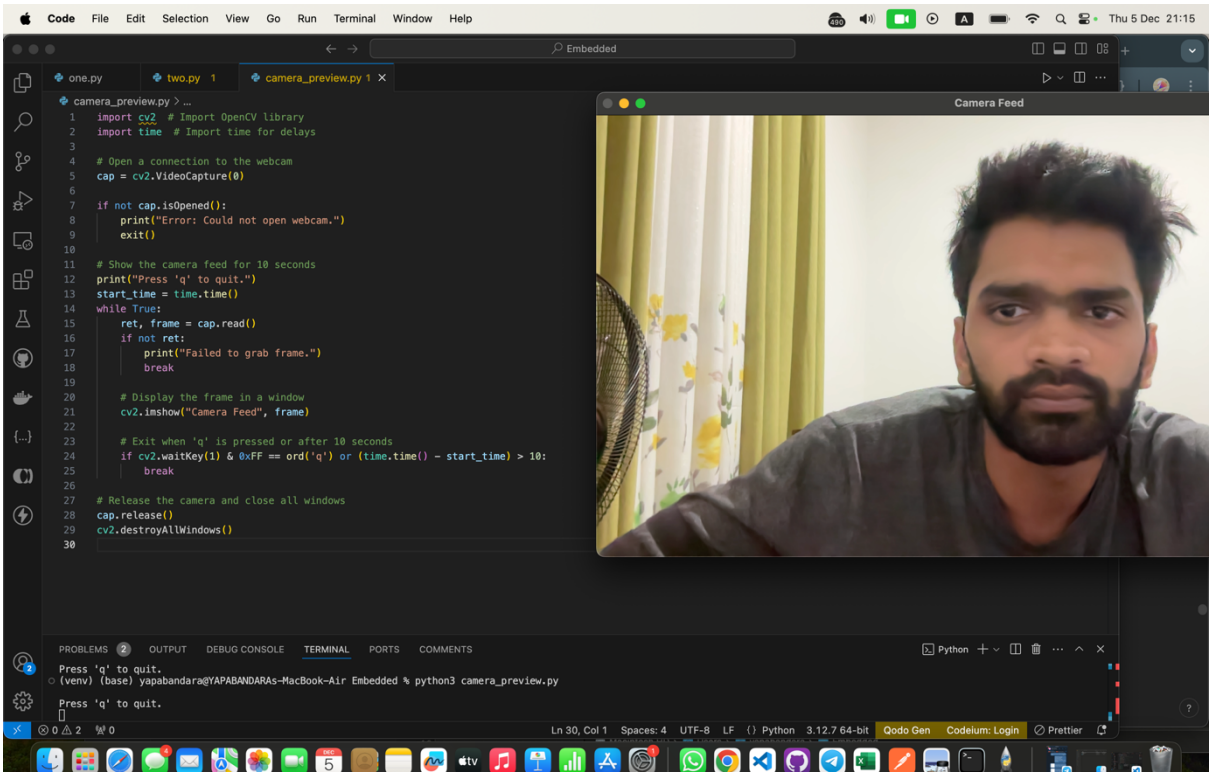
03).




```
import time

class LED:

    def __init__(self, pin):

        self.pin = pin

        print(f"LED initialized on GPIO {pin}")

    def on(self):

        print("LED ON")

    def off(self):

        print("LED OFF")

led = LED(17)

 for _ in range(5):

    led.on()

    time.sleep(1)

    led.off()

    time.sleep(1)
```

Question 2

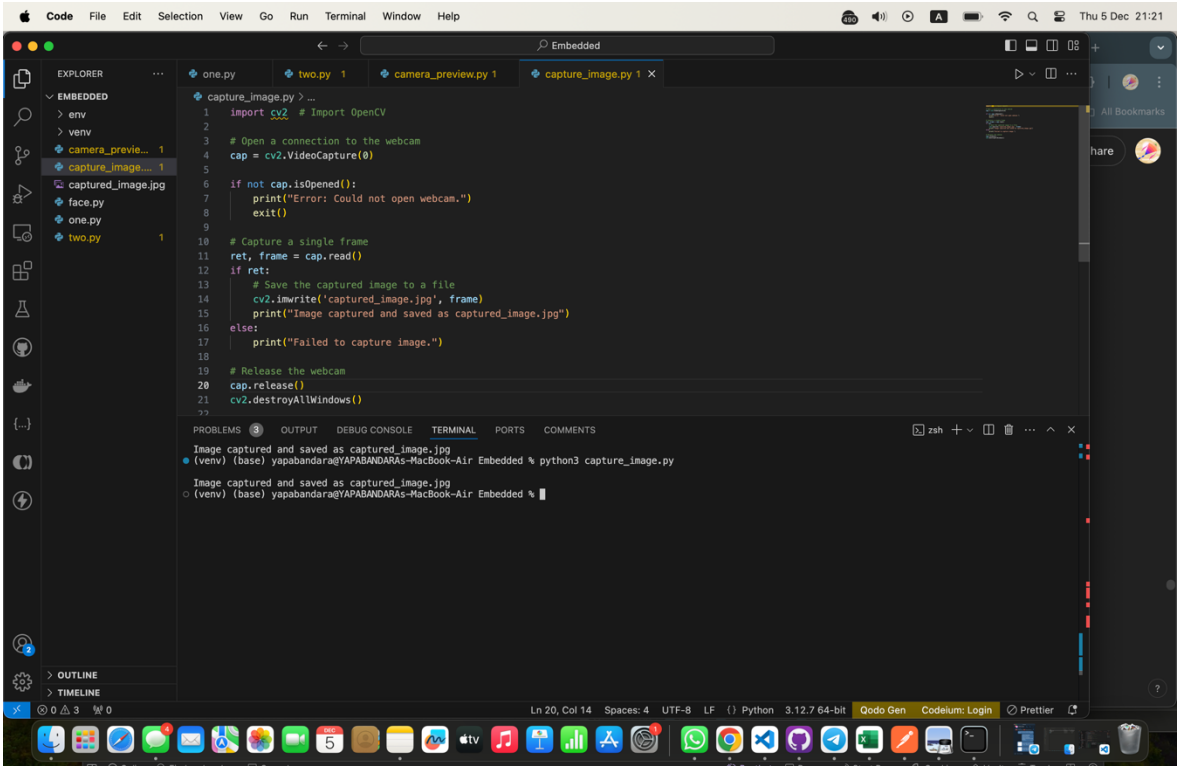
02)




```
import cv2
import time
cap = cv2.VideoCapture(0)
if not cap.isOpened():
    print("Error: Could not open webcam.")
    exit()
print("Press 'q' to quit.")
start_time = time.time()
while True:
ret, frame = cap.read()
    if not ret:
```

```
        print("Failed to grab frame.")
        break
    cv2.imshow("Camera Feed", frame)
    if cv2.waitKey(1) & 0xFF == ord('q') or (time.time() - start_time) > 10:
        break
cap.release()
cv2.destroyAllWindows()
```

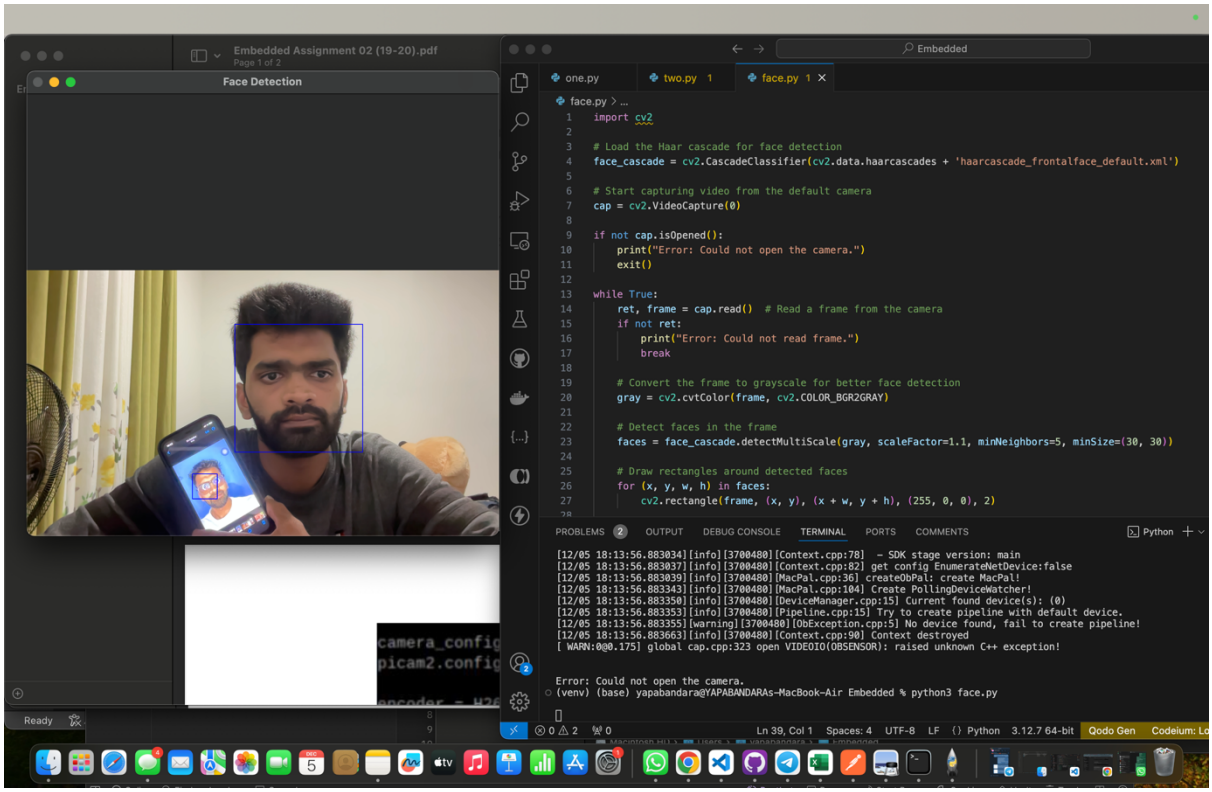
03).




```
import cv2  # Import OpenCV
  cap = cv2.VideoCapture(0)
  if not cap.isOpened():
     print("Error: Could not open webcam.")
     exit()
  ret, frame = cap.read()
  if ret:
     cv2.imwrite('captured_image.jpg', frame)
     print("Image captured and saved as captured_image.jpg")
  else:
     print("Failed to capture image.")
  cap.release()
  cv2.destroyAllWindows()
```

Question 3

02).




```
import cv2  # Import OpenCV
cap = cv2.VideoCapture(0)
if not cap.isOpened():
    print("Error: Could not open webcam.")
    exit()
ret, frame = cap.read()
if ret:
    cv2.imwrite('captured_image.jpg', frame)
    print("Image captured and saved as captured_image.jpg")
else:
    print("Failed to capture image.")
cap.release()
cv2.destroyAllWindows()
```