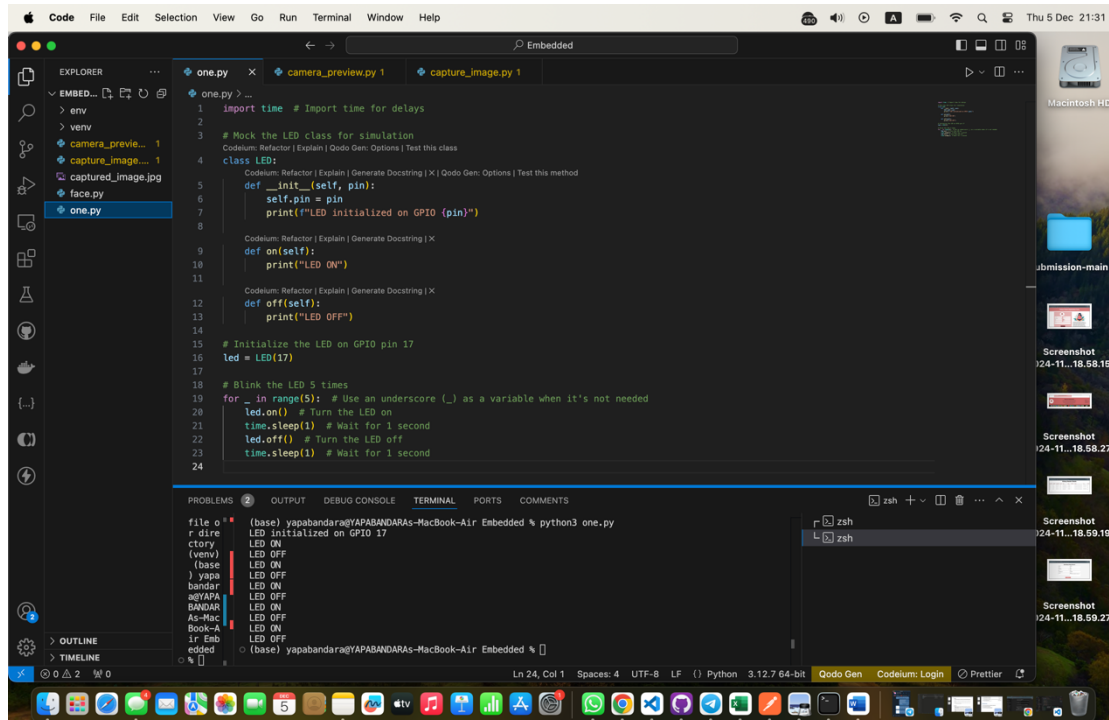


Question 1

03).



```
1 import time # Import time for delays
2
3 # Mock the LED class for simulation
4 class LED:
5     def __init__(self, pin):
6         self.pin = pin
7         print(f"LED initialized on GPIO {pin}")
8
9     def on(self):
10        print("LED ON")
11
12    def off(self):
13        print("LED OFF")
14
15    # Initialize the LED on GPIO pin 17
16    led = LED(17)
17
18    # Blink the LED 5 times
19    for _ in range(5): # Use an underscore (_) as a variable when it's not needed
20        led.on() # Turn the LED on
21        time.sleep(1) # Wait for 1 second
22        led.off() # Turn the LED off
23        time.sleep(1) # Wait for 1 second
24
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS

```
file o" (base) yapabandara@YAPABANDARAS-MacBook-Air Embedded % python3 one.py
r dire LED initialized on GPIO 17
ctory LED ON
(venv) LED OFF
(base) LED ON
) yapab LED OFF
bandar LED ON
a@YAPA LED OFF
RANDAR LED ON
As-Mac LED OFF
Book-A LED ON
ir Emb LED OFF
edded (base) yapabandara@YAPABANDARAS-MacBook-Air Embedded %
```

```
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()
```

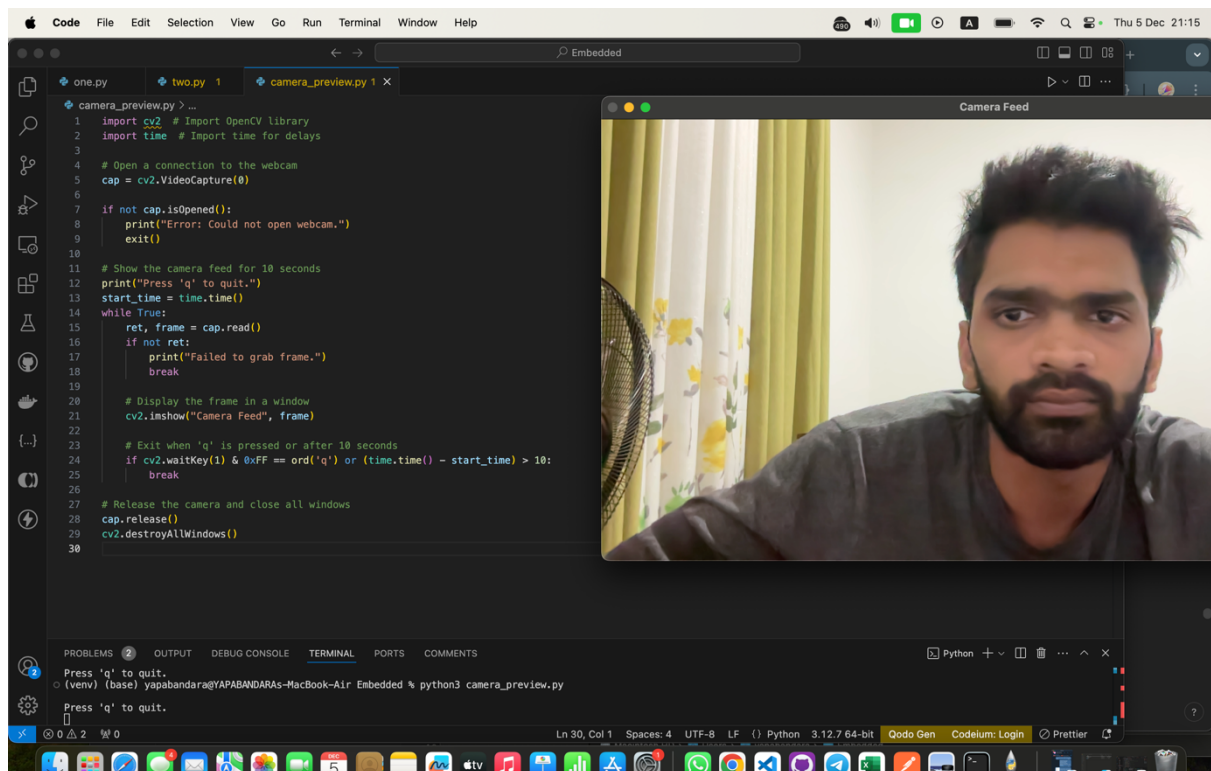
```
    time.sleep(1)
```

```
    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()

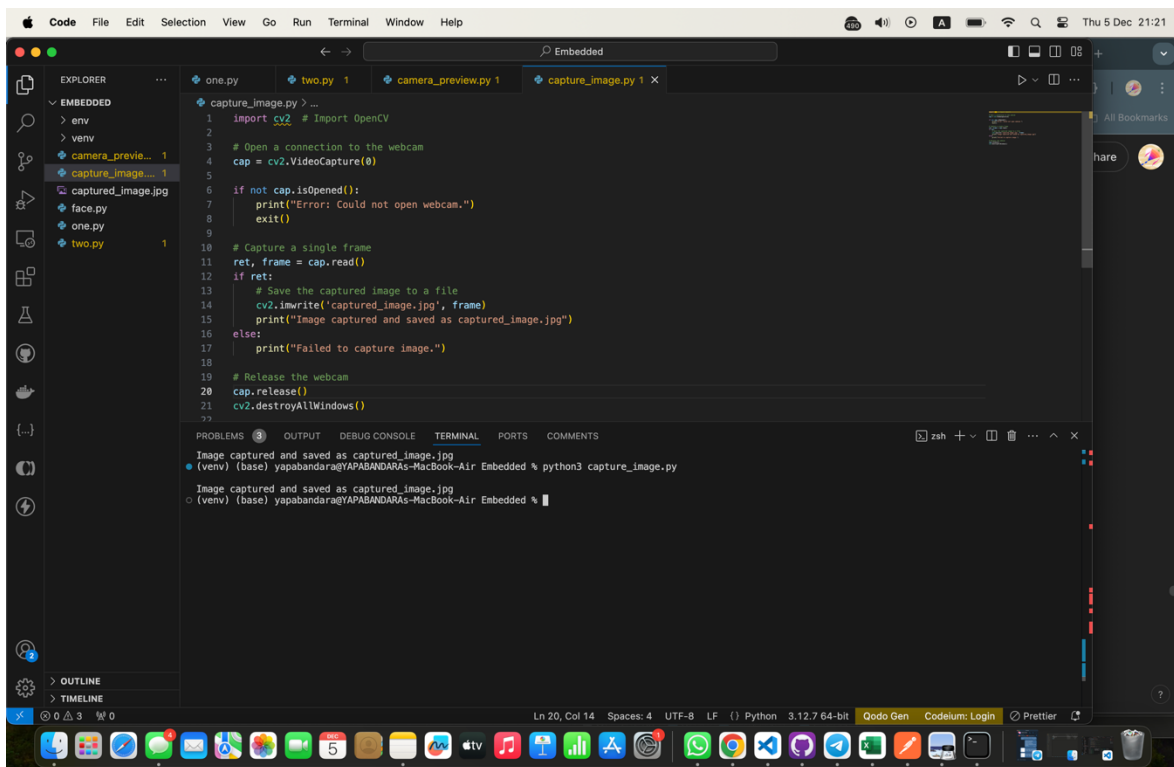
while True:

    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()

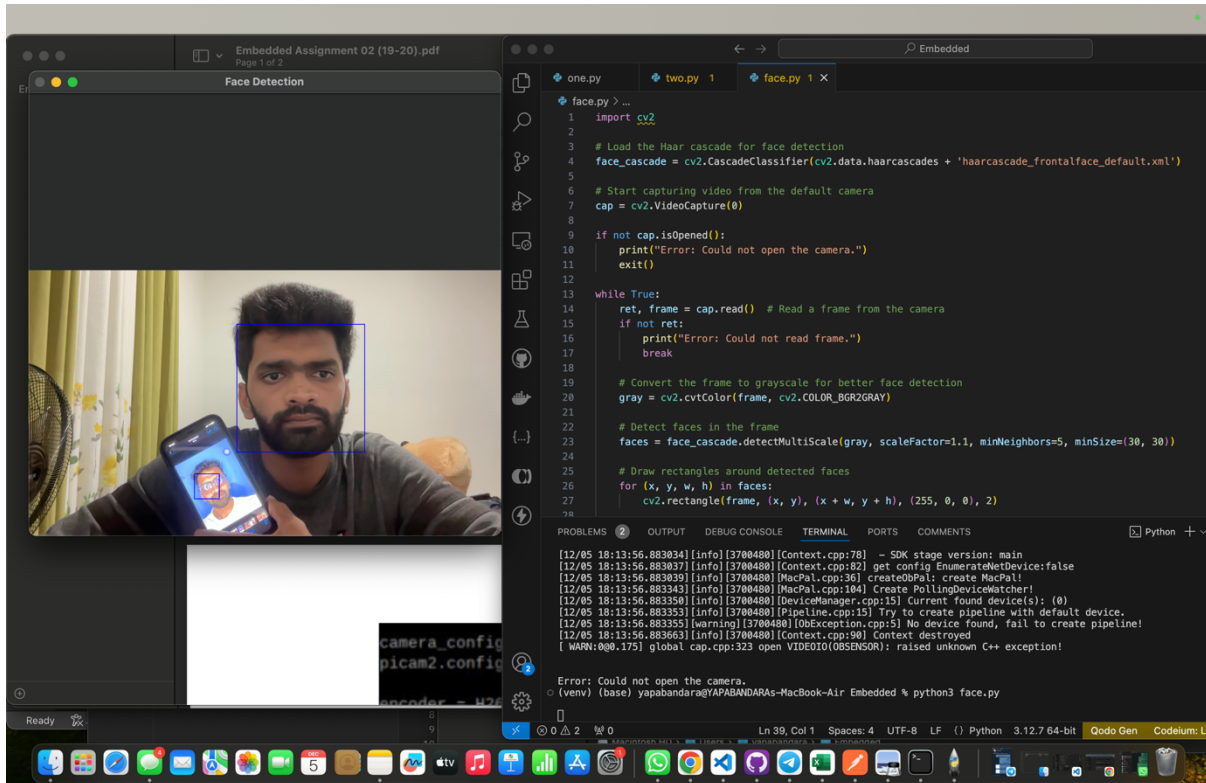
if ret:
    cv2.imwrite('captured_image.jpg', frame)
    print("Image captured and saved as captured_image.jpg")
else:
    print("Failed to capture image.")

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()
```

