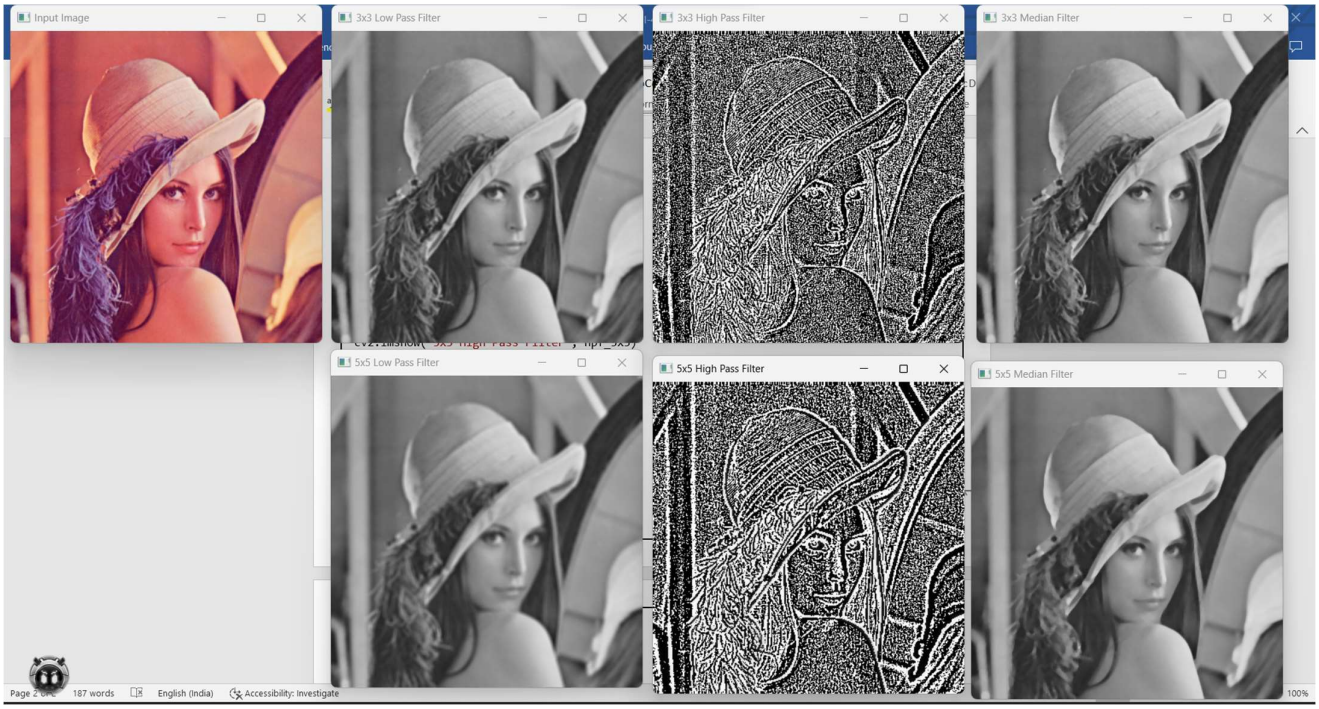
Practical 5:-

```
import cv2
import numpy as np
# Load an image
img = cv2.imread("../assets/Lenna.png")
# Get the current size of the image
height, width, _ = img.shape

# Scale down the image to half its original size
img = cv2.resize(img, (int(width/1.4), int(height/1.4)))
# Convert image to grayscale
gray = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)

# Define 3x3 and 5x5 kernels for filtering
kernel_3x3 = np.ones((3,3),np.float32)/9
kernel_5x5 = np.ones((5,5),np.float32)/25

# Apply low pass filter using 3x3 kernel
lpf_3x3 = cv2.filter2D(gray, -1, kernel_3x3)

# Apply low pass filter using 5x5 kernel
lpf_5x5 = cv2.filter2D(gray, -1, kernel_5x5)

# Apply high pass filter using 3x3 kernel
hpf_3x3 = gray - lpf_3x3

# Apply high pass filter using 5x5 kernel
hpf_5x5 = gray - lpf_5x5

# Apply median filter using 3x3 kernel
mf_3x3 = cv2.medianBlur(gray, 3)

# Apply median filter using 5x5 kernel
mf_5x5 = cv2.medianBlur(gray, 5)

# Display the filtered images
cv2.imshow("Input Image", img)
cv2.imshow("3x3 Low Pass Filter", lpf_3x3)
cv2.imshow("5x5 Low Pass Filter", lpf_5x5)
cv2.imshow("3x3 High Pass Filter", hpf_3x3)
cv2.imshow("5x5 High Pass Filter", hpf_5x5)
cv2.imshow("3x3 Median Filter", mf_3x3)
cv2.imshow("5x5 Median Filter", mf_5x5)

# Wait for a key press and then exit
cv2.waitKey(0)
cv2.destroyAllWindows()
```



Noisy Camera Man