Group Members:

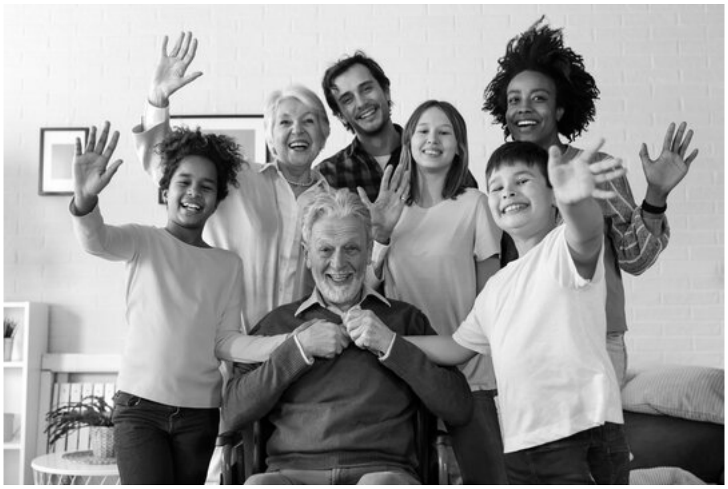
Faizan Mughal 20L-0939

Haroon Shahid 20L-1297

```
from google.colab.patches import cv2_imshow
import cv2
import numpy as np
```

Step 1: Load the image and convert it to grayscale

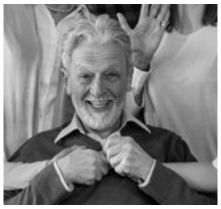
```
original_image = cv2.imread("/content/ppl.jpg")
gray_image = cv2.cvtColor(original_image, cv2.COLOR_BGR2GRAY)
cv2_imshow(gray_image)
```



Step 2: Subset a portion of the image (face, for example)

```
x = 180
y = 130
width = 160
height = 150
face_coordinates = (x, y, width, height)
subset_image = gray_image[y:y+height, x:x+width]

# Display the subset image
cv2_imshow(subset_image)
```



Step 3: Write a function to overlay two images at given coordinates

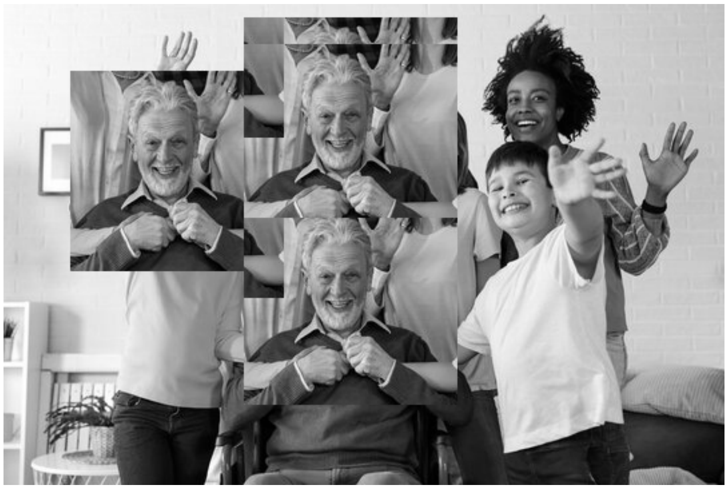
```
def overlay_images(background, overlay, x, y):
    h, w = overlay.shape
    background[y:y+h, x:x+w] = overlay
```

```
x1, y1 = 50, 50
x2, y2 = 180, 150
x3, y3 = 180, 10
```

Step 4: Use the function to insert the subset image back into the original image at different locations

```
overlay_images(gray_image, subset_image, x1, y1)
overlay_images(gray_image, subset_image, x2, y2)
overlay_images(gray_image, subset_image, x3, y3)

# Display the modified image
cv2_imshow(gray_image)
```



Step 5: Write a function to blend two images at given coordinates

```
def blend_images(background, overlay, x, y):
    h, w = overlay.shape
    region = background[y:y+h, x:x+w]
    blended_region = cv2.addWeighted(region, 0.5, overlay, 0.5, 0)
    background[y:y+h, x:x+w] = blended_region

blend_images(gray_image, subset_image, x1, y1)
blend_images(gray_image, subset_image, x2, y2)
blend_images(gray_image, subset_image, x3, y3)

cv2_imshow(gray_image)
```