Photo Collage

This project task was to taking random input of photos arranging them in templates without changing the aspect ratio of the photos in a specific size canvas so that the user can include multiple photos in one frame in a video which will reduce the time length of the video and make it more interesting and innovative.
I used Python Imaging Library PIL for this project which gave me easy to use methods to open images and make a collage.

PIL

The Python Imaging Library (PIL) adds image processing capabilities to your Python interpreter. This library supports many file formats, and provides powerful image processing and graphics capabilities.
The core image library is designed for fast access to data stored in a few basic pixel formats. It is ideal for image archival and batch processing applications to create thumbnails, convert between file formats, print images, etc. Write support is intentionally restricted to the most commonly used interchange and presentation formats.
For debugging, there's also a **show** method which saves an image to disk, and calls an external display utility.
The library contains point operations, filtering with a set of built-in convolution kernels, and colour space conversions.
The library also supports image resizing, rotation and arbitrary affine transforms.
There's a histogram method allowing you to pull some statistics out of an image. This can be used for automatic contrast enhancement, and for global statistical analysis.

Why not use an api for photo collage ?

There are many photo collage api but the photos made by them is not what the gist platform wants. First of all, it will consume more time and money to make collages through an api. Second, the type of collage we want has to be random **without changing the aspect ratio of the photo.**

Aspect ratio: The ratio of the width to the height of an image

Collage Algorithm

I used 7 default templates to arrange photos in the canvas. More and more templates can be added without changing much code. These templates will be merger with each other in the final canvas of the image making a collage. All the photos can be taken as random input which will result in random canvas containing different photos each time it is refreshed. This will give user more than one options for the collage.

Default 7 templates:

a) 2 Squares:

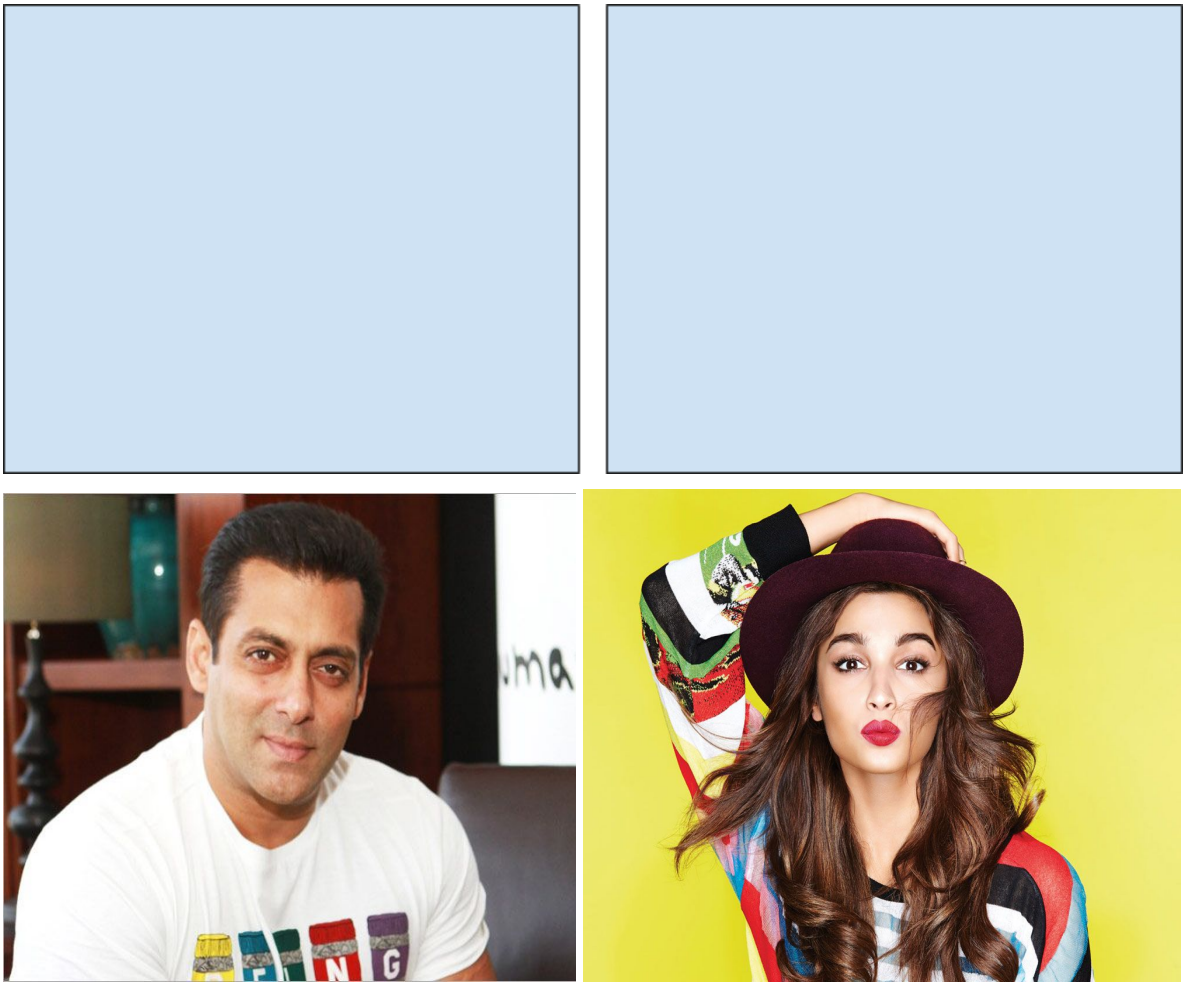

Figure 9.1 : Photo Collage- Template 1

b) 1 verti 2 square:

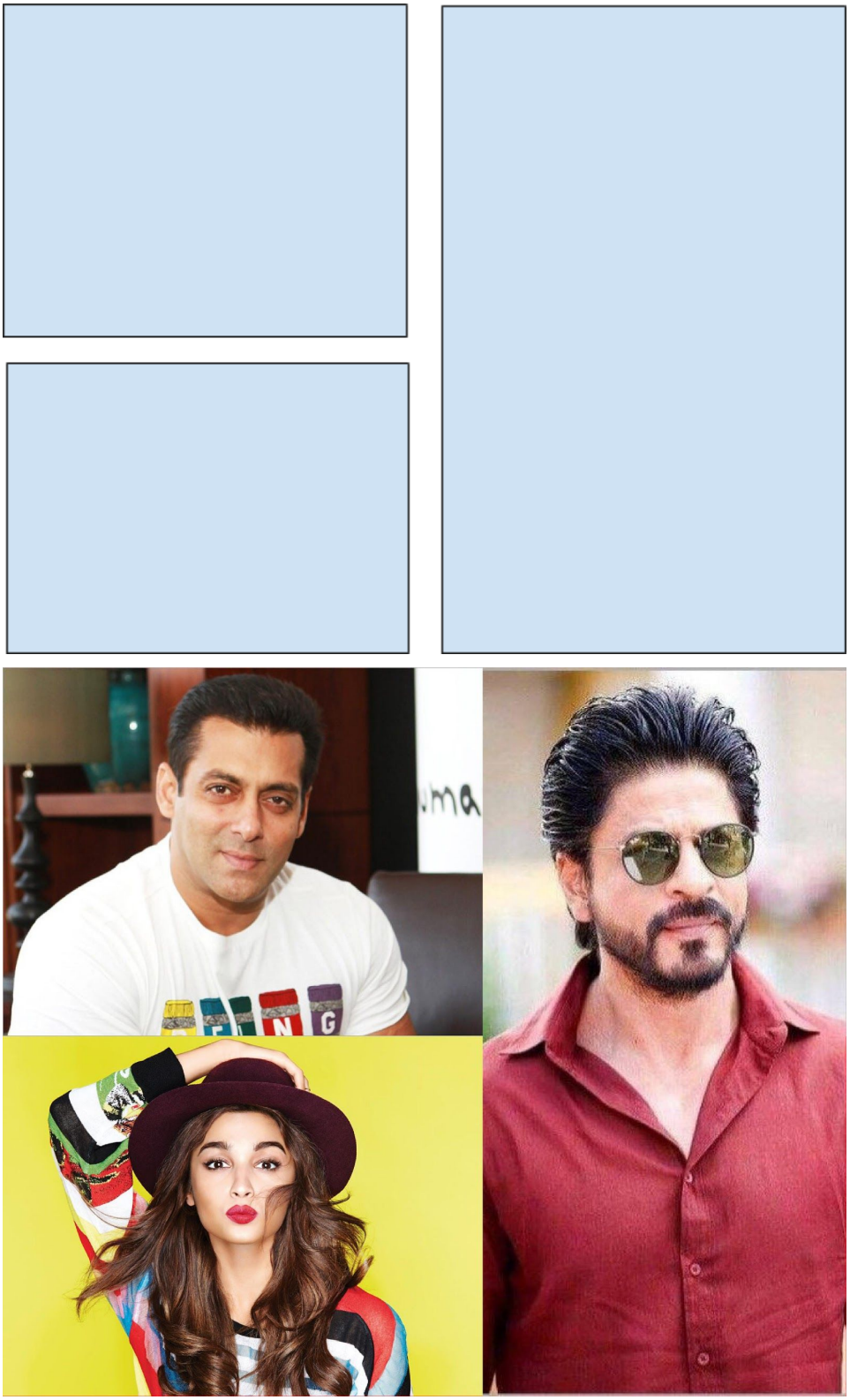

Figure 9.2 : Photo Collage- Template 2

c) 1 verti 1 square:

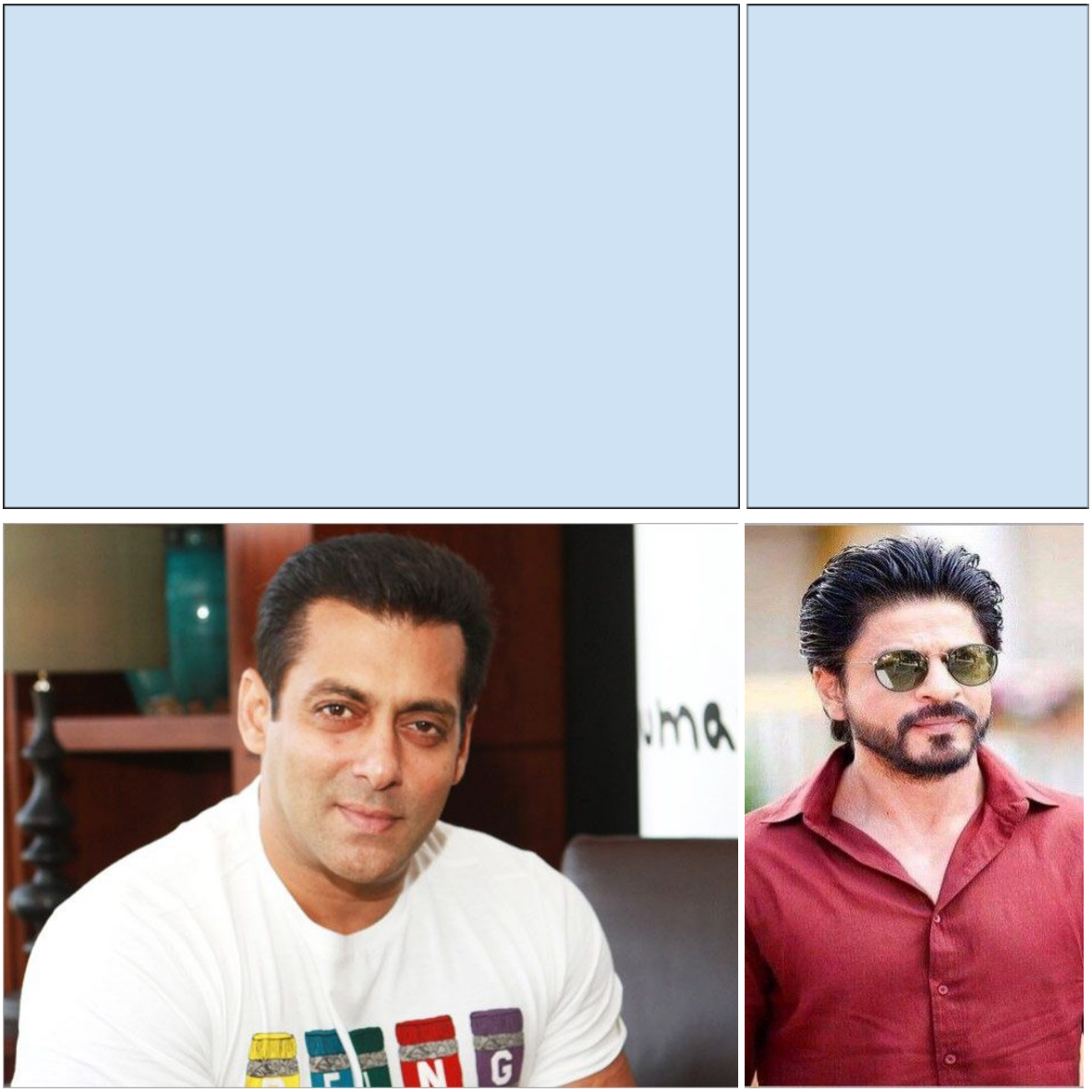

Figure 9.3 : Photo Collage- Template 3

d) Only hori:

Figure 9.4 : Photo Collage- Template 4

e) Only 2 verti:

Figure 9.5 : Photo Collage- Template 5

f) Only 1 verti:

Figure 9.6 : Photo Collage- Template 6

g) Only 1 square:

Figure 9.7 : Photo Collage- Template 7

h) 1 square 1 verti 1 hori:

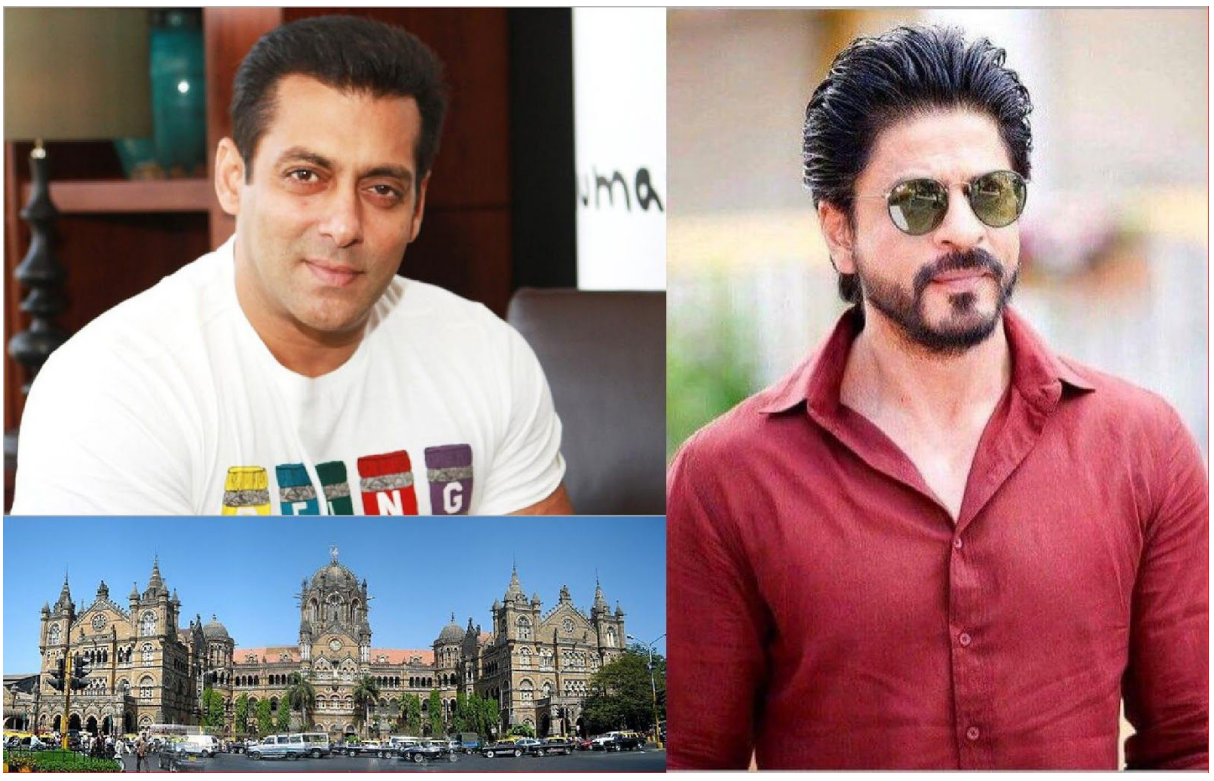

Figure 9.8 : Photo Collage- Template 8

Final Canvas Example:

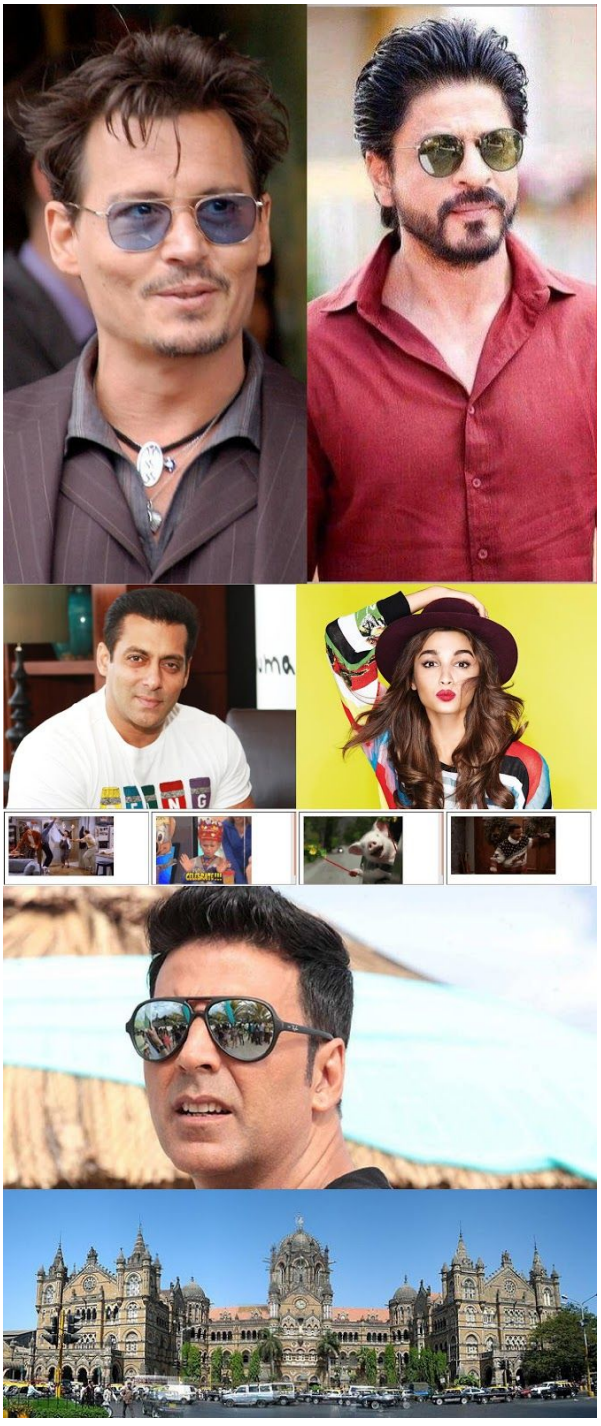

Figure 9.9 : Photo Collage Final Canvas