*Computer Graphics - Monsoon 2022*

# SHAPE INTERPOLATION

## GROUP 17

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# MILESTONES

## 01

RGB to Binary Image Formation using OpenCV (for both source and target images)

## 02

Contours Detection

## 03

Feature Points + Edge Detection

## 04

Blending of shapes to show interpolation

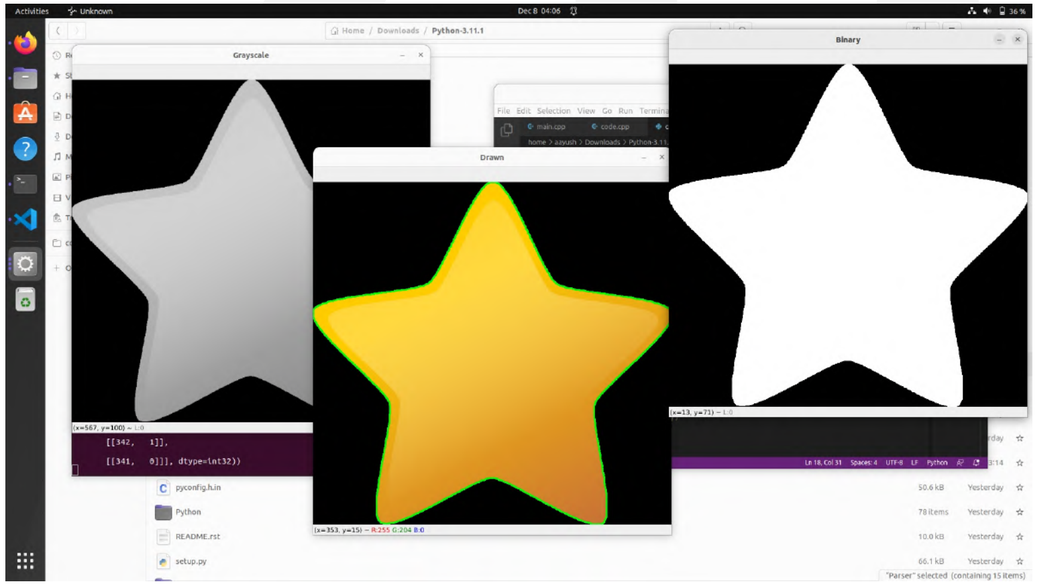
# OVERVIEW

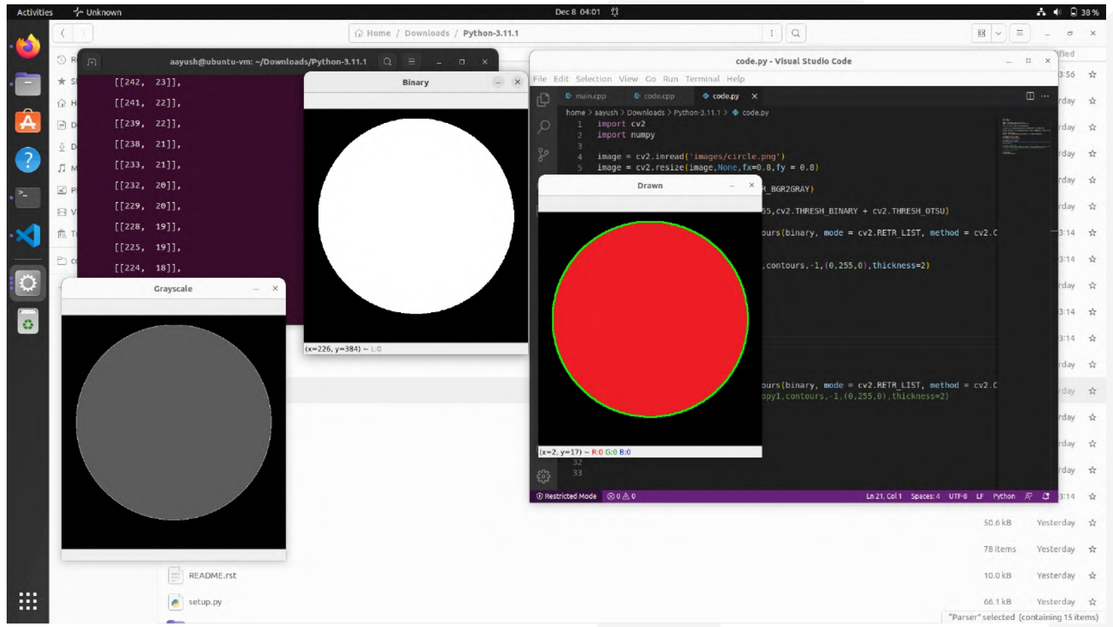
Shape interpolation is a method of blending two shapes in a smooth and reasonable manner. Blending and morphing techniques include creating a smooth transition from an initial (source)
object to the target object such that the transition would be as-rigid-as possible.

# CONTOURS DETECTION

***Contours:-*** the outline of a figure or body; the edge or line that defines or bounds a shape or object. The contours are a useful tool for shape analysis and object detection and recognition.

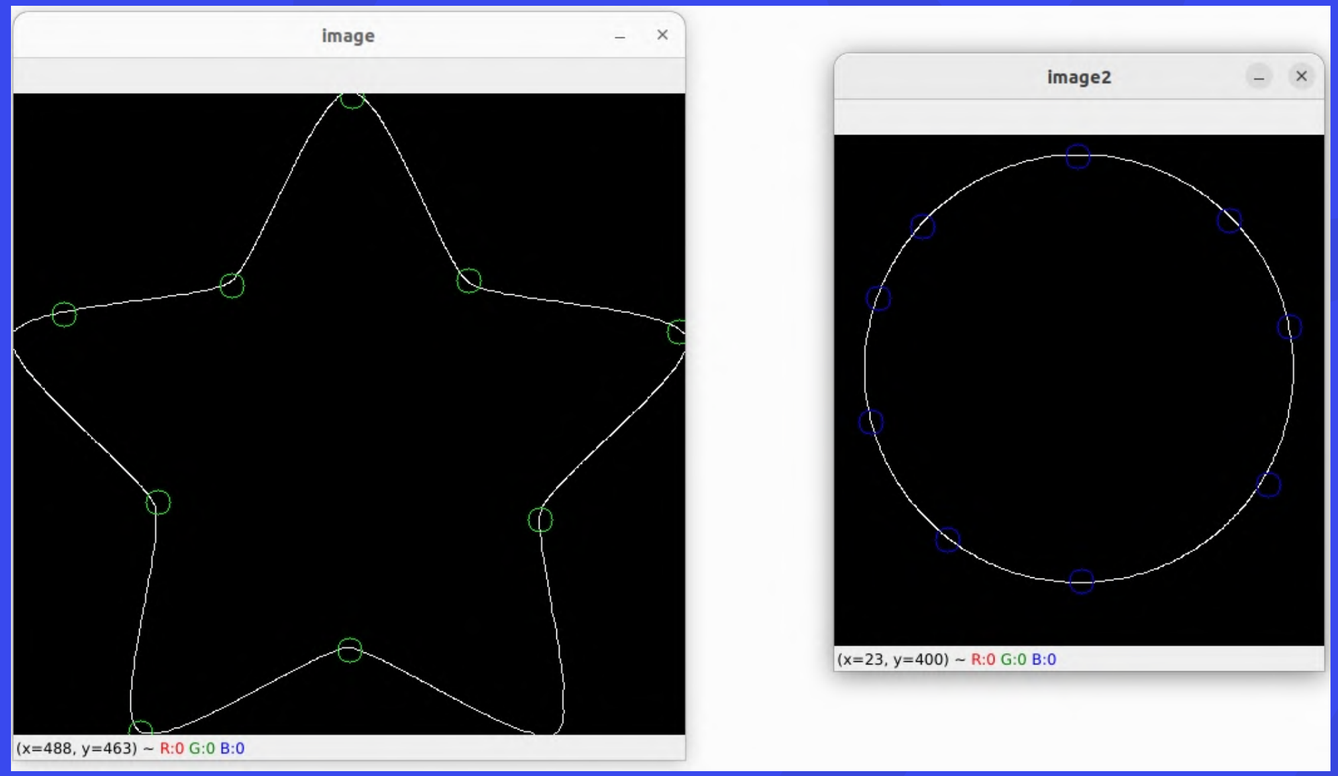
Using contour detection, we can detect the borders of objects, and localize them easily in an image. It is often the first step for many interesting applications, such as image-foreground extraction, simple-image segmentation, detection and recognition.



# FEATURE POINTS + EDGE DETECTION

For Points Matching between the source and target image, it is essential to match the points for the blending of features. The clues which are used to identify or recognize an image are called *features* of an image. Edge detection is a technique of image processing used to identify points in a digital image with discontinuities, simply to say, sharp changes in the image brightness. These points where the image brightness varies sharply are called the edges (or boundaries) of the image.



# ALGORITHMS USED IN OPENCV

+ Event Detection
+ BGR TO GRAY_SCALE CONVERSION
+ Canny Edge Detection
+ Contours using CHAIN_APPROX_SIMPLE method
+ WarpAffine for Geometric Transformations
+ Image Thresholding

# FEATURE CORRESPONDENCES

*Computer Graphics*

# THANK YOU