

Assignment - 2

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Q1 Define the following

- Transformation:- It means changing graphics object into something else by applying rules.
- Viewing:- The process of mapping a part of world co-ordinate scene to device coordinates is known as viewing transformation.
- Text Clipping:- It is process of clipping the string on this process, we clip the whole character or only some part of it depending upon the requirement of the applied.
- World coordinate System:- It is space in which the application model is defined space in which the object geometry is defined. Here we describe the coordinate of image to be displayed.

Q2 Find the new co-ordinate of triangle A(0,0), B(1,1), C(5,2) after it has been reduced to half of its size

A(0,0) B(1,1) , C(5,2)

$$S(x) = 0.5$$

$$S(y) = 0.5 \quad (\text{half of its size})$$

for A(0,0)

$$\begin{aligned}x' &= x * Sx \\&= 0 * 0.5 = 0\end{aligned}$$
$$\begin{aligned}y' &= y * Sy \\&= 0 * 0.5 = 0\end{aligned}$$

new A(0,0)

for B(1,1)

$$\begin{aligned}x' &= 1 * 0.5 \\&= 0.5\end{aligned}$$
$$\begin{aligned}y' &= 1 * 0.5 \\&= 0.5\end{aligned}$$

new B(0.5,0.5)

for C(5,2)

$$\begin{aligned}x' &= 5 * 0.5 = 2.5 \\y' &= 2 * 0.5 = 1\end{aligned}$$

New coordinate are -

A(0,0) B(0.5,0.5) C(2.5,1)

Q3 - Differential between scaling and shearing transformation

### 13) Scaling

- To change the size of an object scaling transformation is used.
- It is the concept of increasing or decreasing the sizing picture in any direction.
- Scaling can be achieved by multiplying the original coordinate of the scaling factor to get the desired result.

### Shearing:

- A transformation that slants the shape of an object is called the shear transformation.
- Type of shear transformation x-shear and y-shear
- One shift x-coordinate values and the shift y coordinate values However in both the case by one coordinate change its coordinate and ~~is~~ the present make shearing is also shearing.

Q4 - List and explain the different component of image processing system.

Image sensor:- Image Sensor Senses the intensity amplitude co-ordinates and other feature of image and passes the result to the image processing hardware



- **Image processing hardware**- It is the dedicated hardware that used to process the instruction obtained from the images sensor.
- **Computer**- computer used in the image processing system is the general purpose computer that is used by us in our daily life.
- **Image processing software**- This software that include all the mechanism & algorithm that are used in image processing system.
- **Mass storage** :- It store the pixels of image during the processing
- **Hard copy device**- Once the image is processed then it is stored in the hard copy device.
- **Image display**- It include the monitor or display screen that display the processed image.
- **Network** :- It is the connection of all the above elements of the image processing system.

Q 6

### Difference Between



JPEG

GIF

- It stand for joint photographic experts group.
- JPEG uses lossy compression algorithm.
- This type image may lose some image data causing quality loss.
- It stands for Graphical Interchange format.
- GIF uses lossless compression algorithm.
- GIF is high quality.

2.

### Sampling

- Digitilization of co-ordinate values.
- X axis (time) discretized
- Y-axis (amplitude) continuous
- Sampling is done prior to the quantization process.

### Quantization

- Digitilization of amplitude values.
- X-axis (time) continuous
- Y-axis (time) discretized.
- Quantization is done after sampling process.

3) Lossy compression

- lossy compression is the method which eliminate the data which is not noticeable.
- In lossy compression, A file does not restore or rebuilt in its original form.

### Lossless compression

- lossless compression does not eliminate the data which is not noticeable.
- In lossless compression A file can be restored in its original form.
- It has less data holding capacity.

It has more data holding capacity.