SNS COLLEGE OF ENGINEERING

Kurumbapalayam(Po), Coimbatore – 641 107
Accredited by NAAC-UGC with 'A' Grade
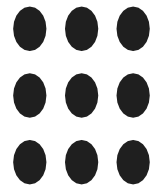**Approved by AICTE, Recognized by UGC & Affiliated to Anna University, Chennai**

Department of Information Technology

Computer Graphics

Unit 1 : INTRODUCTION TO COMPUTER GRAPHICS

Topic : WINDOWS AND VIEWPORTS

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WINDOW:

➢ A world-coordinate area selected for display is called a window.

➢ In computer graphics, a window is a graphical control element.

➢ It consists of a visual area containing some of the graphical user interface of the program it belongs to and is framed by a window decoration.

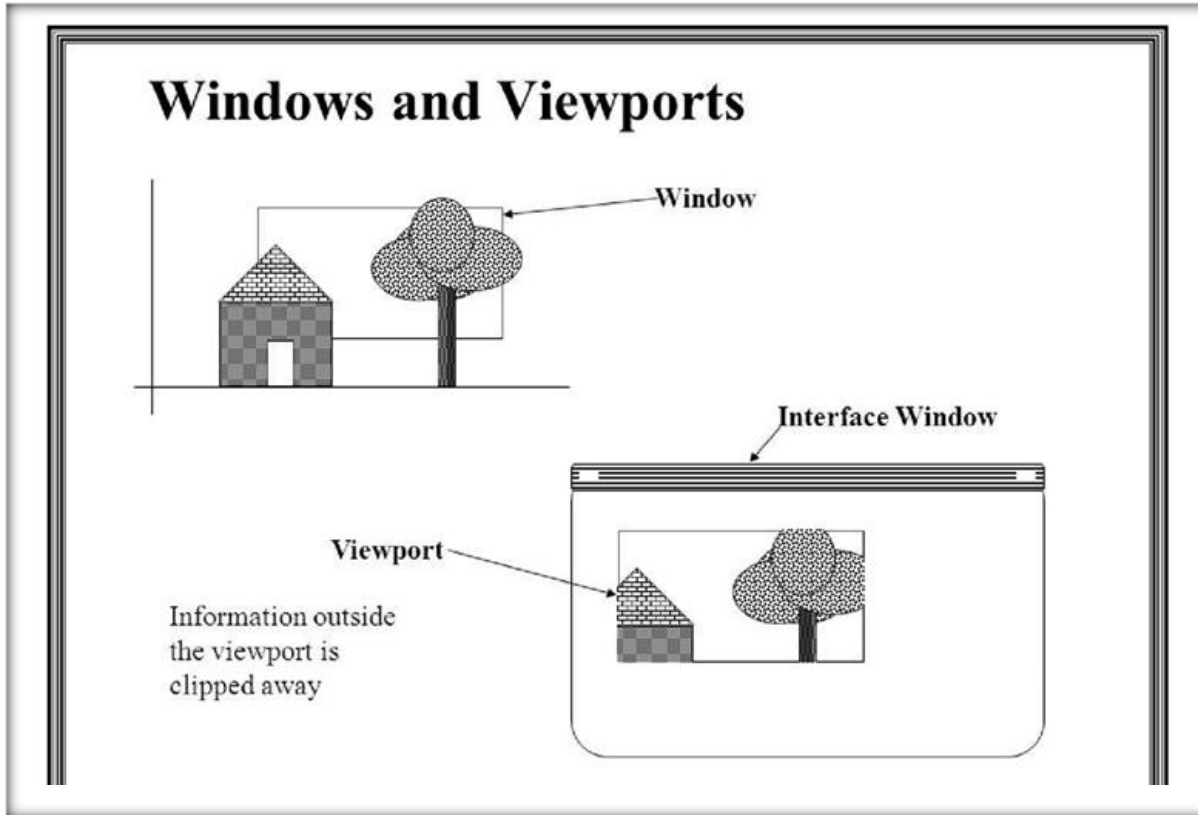➢ The "window" defines what portion of the virtual world you want to render.

VIEWPORTS:

➢ An area on a display device to which a window is mapped is called a viewport.

➢ A viewport is a polygon viewing region in computer graphics.

➢ The viewport is an area expressed in rendering-device-specific coordinates, e.g. pixels for screen coordinates, in which the objects of interest are going to be rendered.

➢ The "viewport" defines where the rendered image of that portion will be displayed on the screen.

Window Port	Viewport
Window port is the coordinate area specially selected for the display.	Viewport is the display area of viewport in which the window is perfectly mapped.
Region Created according to World Coordinates.	Region Created according to Device Coordinates.
It is a region selected form the real world. It is a graphically control thing and composed of visual areas along with some of its program controlled with help of window decoration.	It is the region in computer graphics which is a polygon viewing region.
A window port can be defined with the help of a GWINDOW statement.	A viewport is defined by the GPORT command.

Window to Viewport Transformation in Computer Graphics with Implementation :

➢ Window to Viewport Transformation is the process of transforming 2D world-coordinate objects to device coordinates.

➢ Objects inside the world or clipping window are mapped to the viewport which is the area on the screen where world coordinates are mapped to be displayed.
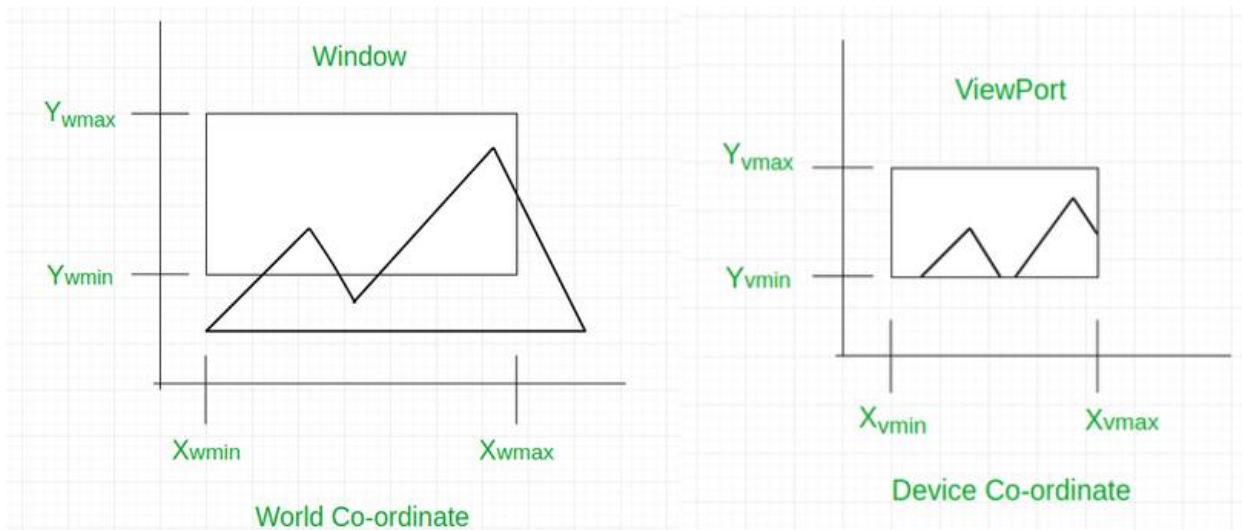
World coordinate – It is the Cartesian coordinate w.r.t which we define the diagram, like Xwmin, Xwmax, Ywmin, Ywmax.

Device Coordinate –It is the screen coordinate where the objects are to be displayed, like Xvmin, Xvmax, Yvmin, Yvmax.

Window –It is the area on the world coordinate selected for display.

ViewPort –It is the area on the device coordinate where graphics is to be displayed.