Difference between Parallel and Perspective Projection in Computer Graphics

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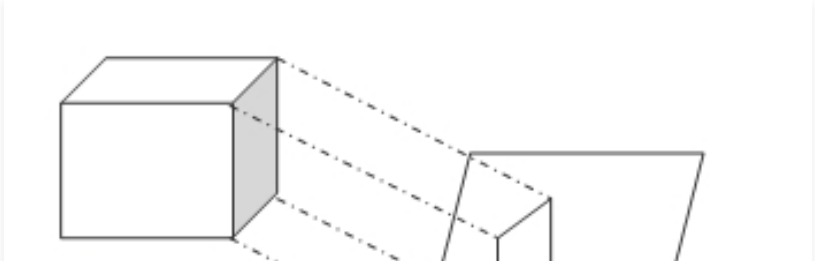
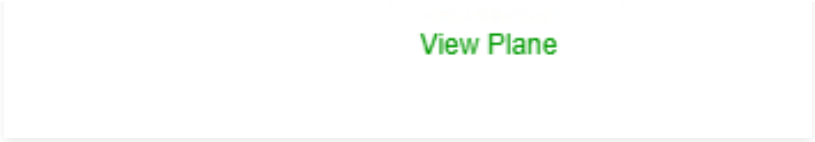
Projection are defined as mapping of three-dimensional points to a two-dimensional plane. There are two type of projection parallel and perspective.

1. Parallel Projection :

Parallel projections are used by architects and engineers for creating working drawing of the object, for complete representations require two or more views of an object using different planes.

Parallel Projection use to display picture in its true shape and size. When projectors are perpendicular to view plane then is called orthographic projection. The parallel projection is formed by extending parallel lines from each vertex on the object until they intersect the plane of the screen. The point of intersection is the projection of vertex.



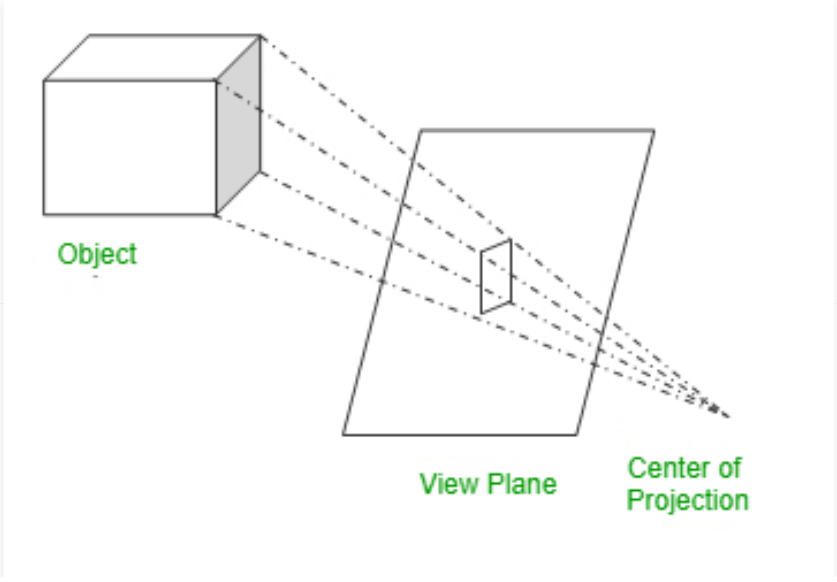


2. Perspective Projection :

Perspective projections are used by artist for drawing three-dimensional scenes.

In Perspective projection lines of projection do not remain parallel. The lines converge at a single point called a center of projection. The projected image on the screen is obtained by points of intersection of converging lines with the plane of the screen. The image on the screen is seen as of viewer's eye were located at the centre of projection, lines of projection would correspond to path travel by light beam originating from object.

Two main characteristics of perspective are vanishing points and perspective foreshortening. Due to foreshortening object and lengths appear smaller from the center of projection. More we increase the distance from the center of projection, smaller will be the object appear.



Difference Between Parallel Projection And Perspective Projection :

SR.NO	Parallel Projection	Perspective Projection
1	Parallel projection represents the object in a different way like telescope.	Perspective projection represents the object in three dimensional way.
2	In parallel projection, these effects are not created.	In perspective projection, objects that are far away appear smaller, and objects that are near appear bigger.
3	The distance of the object from the center of projection is infinite.	The distance of the object from the center of projection is finite.
4	Parallel projection can give the accurate view of object.	Perspective projection cannot give the accurate view of object.
5	The lines of parallel projection are parallel.	The lines of perspective projection are not parallel.
6	Projector in parallel projection is parallel.	Projector in perspective projection is not parallel.
7	Two types of parallel projection : 1.Orthographic, 2.Oblique	Three types of perspective projection: 1.one point perspective, 2.Two point perspective,

SR.NO	Parallel Projection	Perspective Projection
8	It does not form realistic view of object.	It forms a realistic view of object.

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