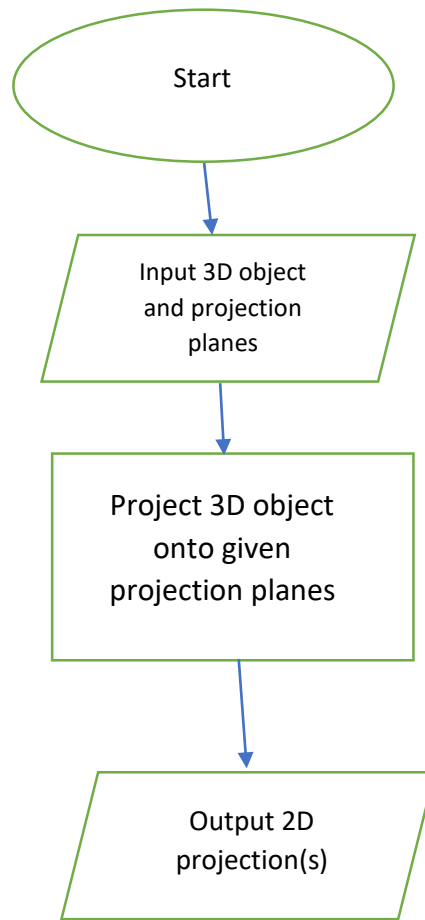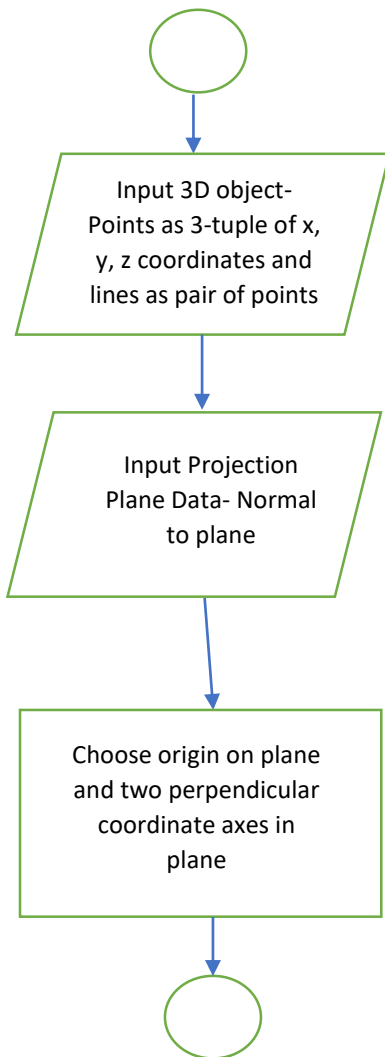3D to 2D conversion Flowchart:

Start

Input 3D object
and projection
planes

Project 3D object
onto given
projection planes

Output 2D
projection(s)

Elaboration: Input 3D object and projection planes

( )

↓

Input 3D object-
Points as 3-tuple of x,
y, z coordinates and
lines as pair of points

↓

Input Projection
Plane Data- Normal
to plane

↓

Choose origin on plane
and two perpendicular
coordinate axes in
plane

↓

( )

Elaboration: Projection of object

( )

↓

Project points onto
projection plane

↓

Join those points in
projection which are
joined in 3D object by
lines.

↓

( )
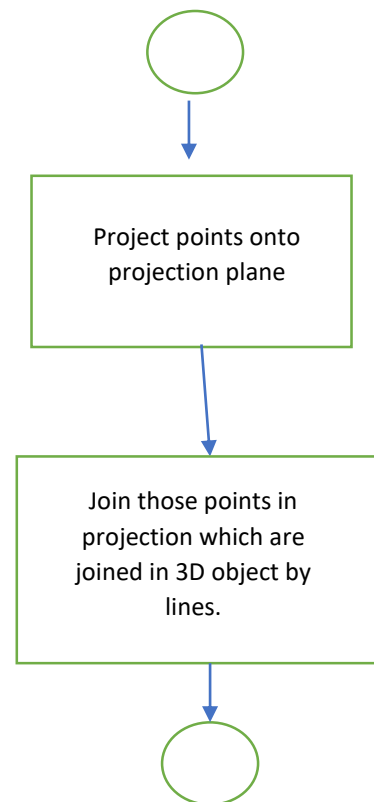
2D projections to 3D object Flowchart

Start

Input 2D
projections

Construct 3D
object from 2D
projections

Output 3D
object
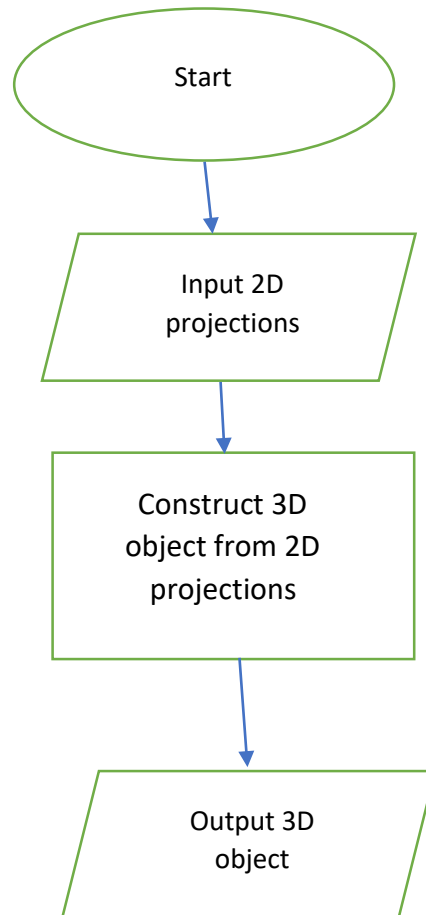
Elaboration: Input 2D projections

( )

Input Projection Plane Data- Normal to plane, origin on plane, coordinate axes in plane

Input points as labelled pair of coordinates along given axes and lines as pair of points

( )
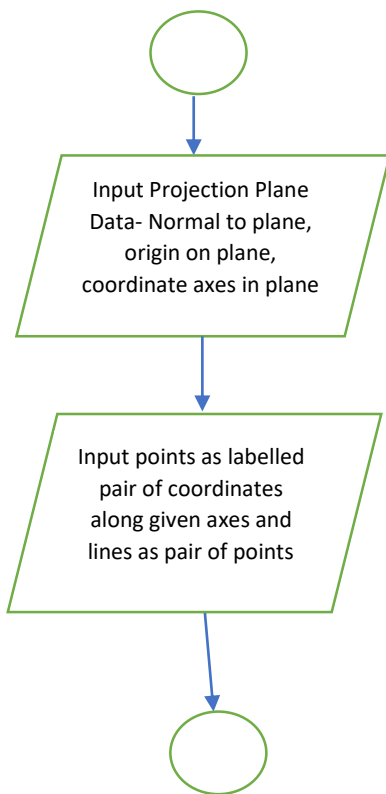
Elaboration: Construct 3D object from projections

( )

For each point, solve system of two equations derived from its projections.

Is system consistent for each point? — No → Error: Invalid Input

Yes

For each line visible in any projection, iterate over possible endpoints using set of labels at ends of line, checking for consistency with other projections. Add all consistent lines to 3D model.

Construct faces from coplanar lines in 3D model

( )