Geometric constraints:  
This is a limitation placed on an object, which can have two dimensions or more, because there are zero degrees of freedom. An object that is fully constrained cannot be geometrically altered; in other words, its angles and side lengths and positions cannot be changed unless the specification of one of the existing dimensions is altered first.  
Autodesk Inventor uses constraints in two primary ways:  
1. It controls geometry within sketches.  
2. It develops relationships between components placed within assembly models.  

The following are constraints that are used in this program application:  

1. Coincident constraint: 

Use Coincident Constraint to constrain points to other geometries in 2D and 3D sketches.  
How to use this constraint:  
Click the point to constrain.  
Click the geometry to which the point is constrained.  

2. Collinear constraint: 

Collinear:  
This means Lying in the same straight line  
How to use this constraint:  
Click the first line in a 2D or 3D sketch or an ellipse axis in a 2D sketch.  
Click a second line in the same 2D or 3D sketch or an ellipse axis in the same 2D sketch.
3. Concentric constraint:

![Concentric Constraint Diagram]

The Concentric constraint causes two arcs, circles, or ellipses to have the same center point. How to use this constraint:

Click the first line in a 2D or 3D sketch or an ellipse axis in a 2D sketch.
Click a second line in the same 2D or 3D sketch or an ellipse axis in the same 2D sketch.
Right-click and choose Done, press Esc, or select another tool or command.

4. Parallel constraint:

![Parallel Constraint Diagram]

Parallel constraint causes selected lines or ellipse axes to lie parallel to one another.

5. Perpendicular constraint:

![Perpendicular Constraint Diagram]

Perpendicular constraint causes selected lines, curves, or ellipse axes to lie at 90 degrees to one another.

6. Horizontal constraint:

![Horizontal Constraint Diagram]

Horizontal constraint causes lines, ellipse axes, or pairs of points to lie parallel to the X axis of the coordinate system.

7. Vertical constraint:

![Vertical Constraint Diagram]

Vertical constraint causes lines, ellipse axes, or pairs of points to lie parallel to the Y axis of the coordinate system.
8. Tangent constraint:

This constraint allows a straight line or plane to touch a curve or curved surface at a point.

9. Smooth constraint:

This constraint causes a continuous curvature between a spline and another curve, such as a line, arc, or spline.

11. Equal constraint:

This constraint equalizes the size between two geometric shapes.

12. Symmetric Constraint (2D Sketches):

The Symmetric constraint causes selected lines or curves to become proportionately constrained about a selected line. Segments constrained to the selected geometry reorient when the constraint is applied.