

Workshop 1.2 FEA: Sketching in SpaceClaim

Release 2022 R1

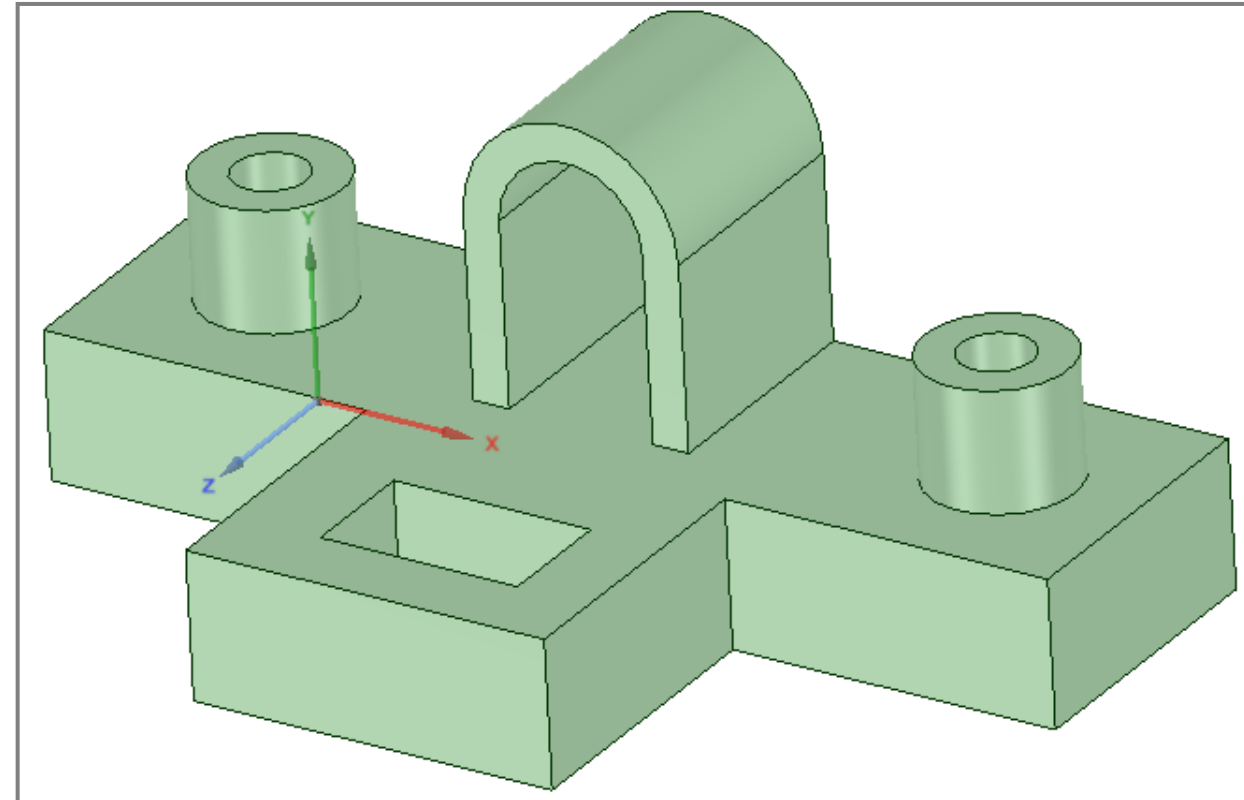
Please note:

- These training materials were developed and tested in Ansys Release 2022 R1. Although they are expected to behave similarly in later releases, this has not been tested and is not guaranteed.
- The screen images included with these training materials may vary from the visual appearance of a local software session.
- Although some workshop files may open successfully in previous releases, backward compatibility is somewhat unlikely and is not guaranteed.



/ Key Learning Points

- Creating a new Geometry
 - Create a new part using the image on the right as a reference
 - Learn to sketch in SpaceClaim
 - Learn how to effectively use the 'Pull' tool in SCDM



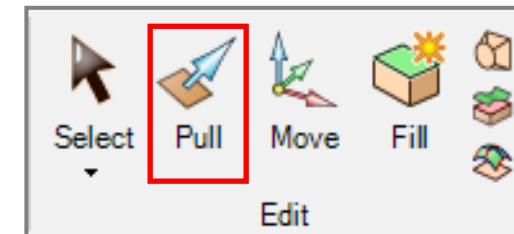
/ Objectives

The objective of this workshop is to create a new geometry without respecting any given dimensions. It starts by creating sketches using the Sketch Creation Tools. The Pull Tool is then used to create 3D geometry from the sketch

Tools needed:



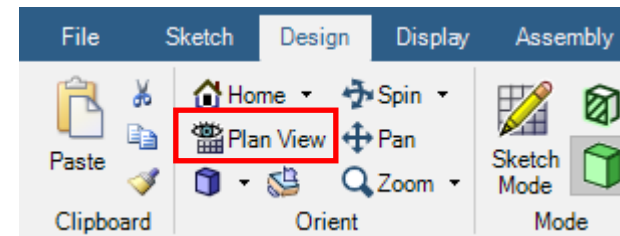
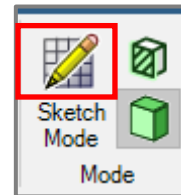
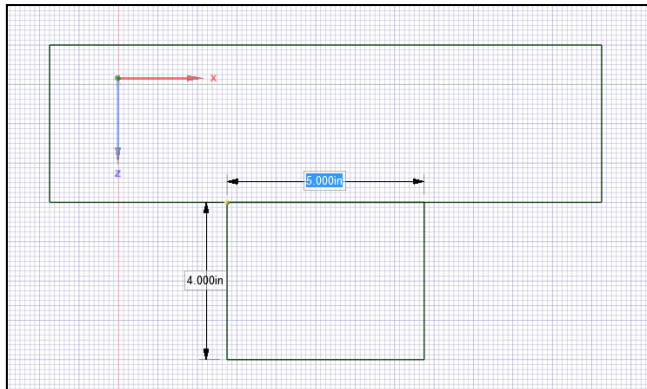
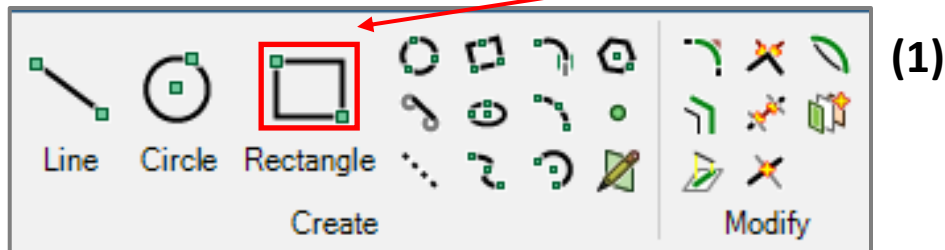
Sketch Creation Tools



Pull tool

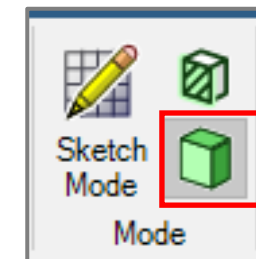
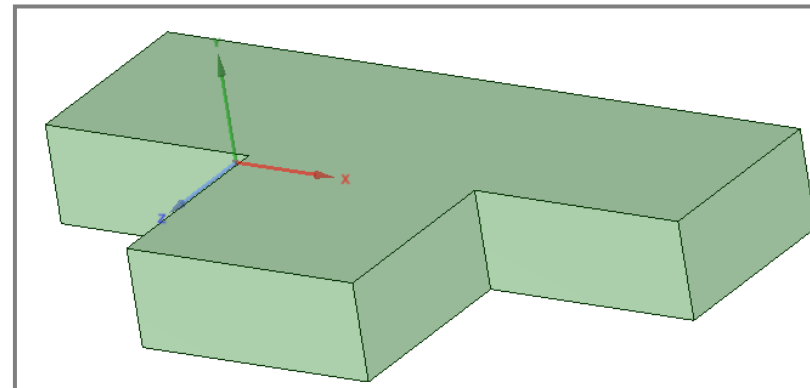
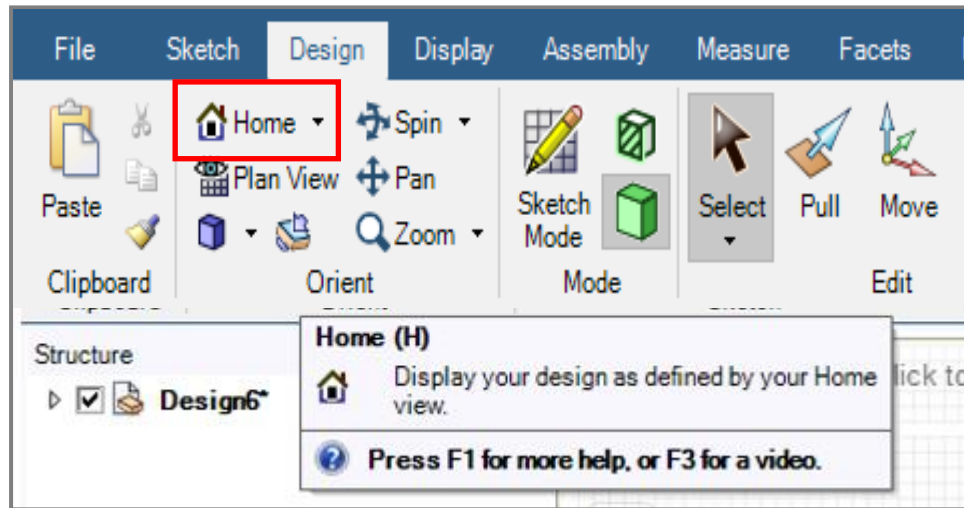
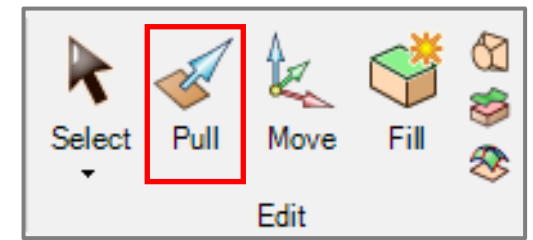
Sketching in SpaceClaim

- Open a new SpaceClaim project and select the Sketching Mode either by using shortcut 'K' or pressing the button (1) in the picture below
- Select the XZ plane to sketch on by clicking when oriented in that plane
- Create 2 rectangles like the ones shown below using the 'rectangle' sketch tool or the keyboard shortcut 'R'
- Click on the Plan View for sketching; you can use the keyboard shortcut 'V'



/ Pulling the sketch

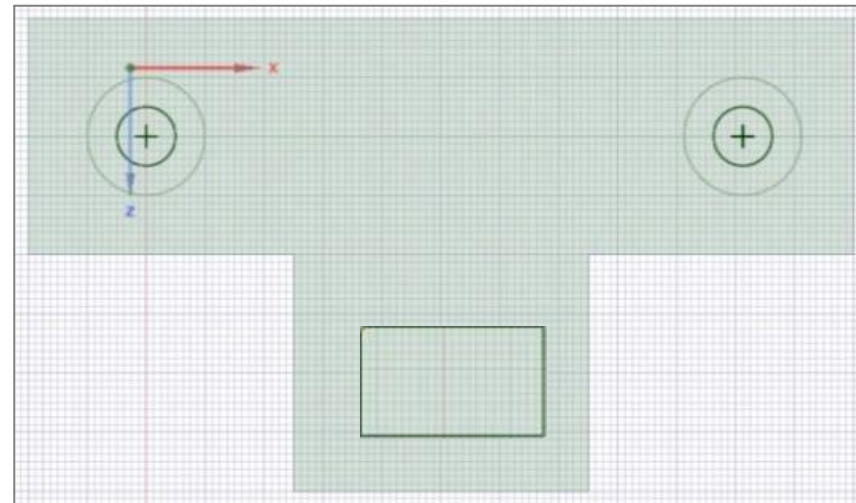
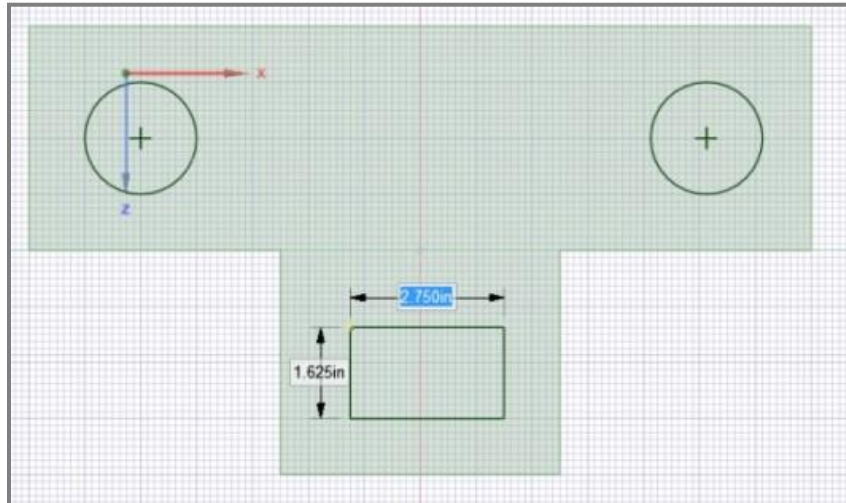
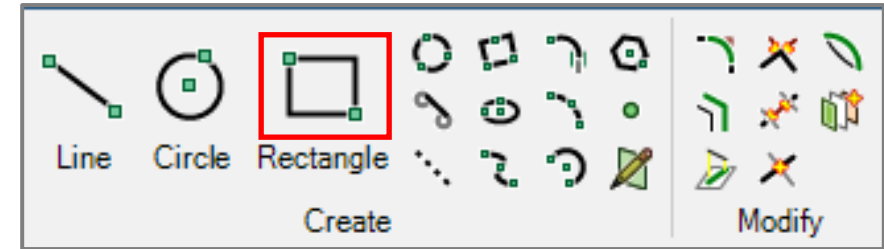
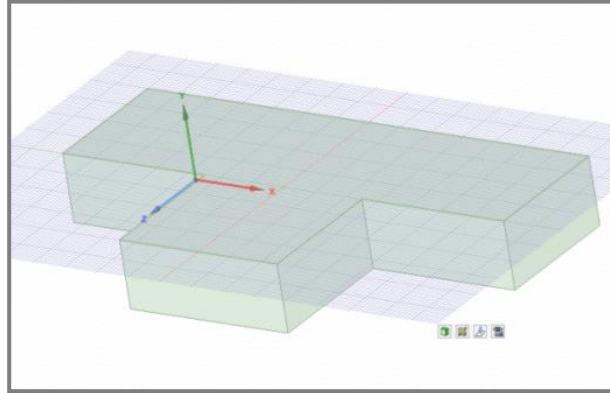
- Click on the Pull tool in the Design toolbar or use the keyboard shortcut 'P'
- “Pull” the box in the + y direction to make it a 3D cube
- Click on the Home view button or use the keyboard shortcut 'H'



Notice: After clicking on 'Pull' the mode turns automatically to 3D

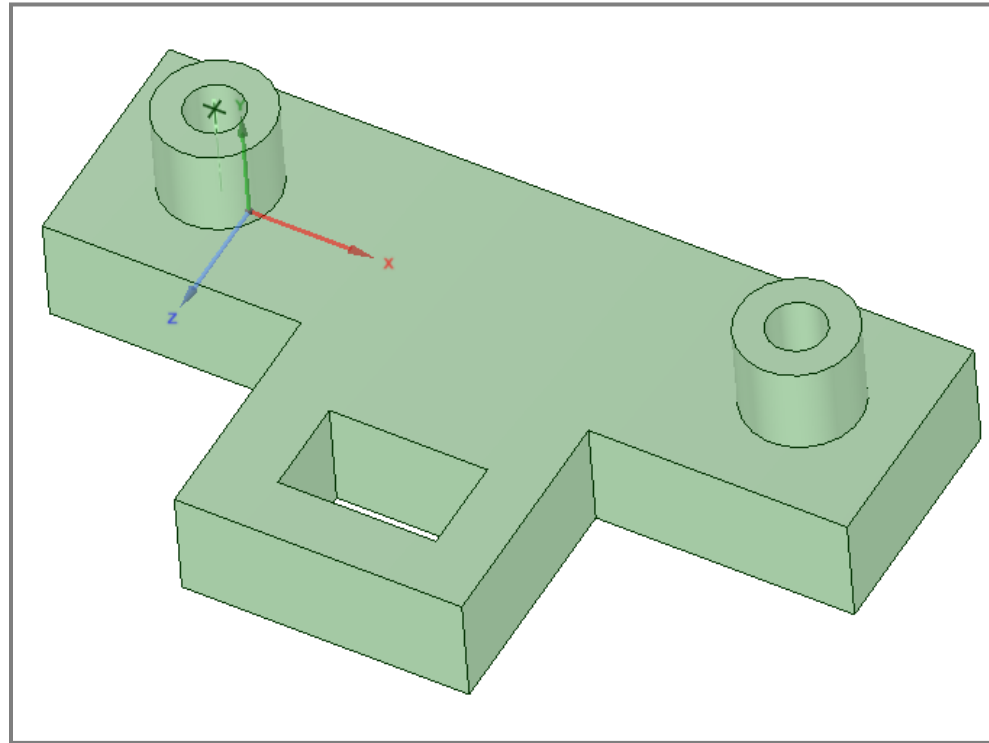
Creating Simple Bracket (1)

- Click on the upper surface of the volume obtained, then click on the rectangle sketch creation tool
- Notice the mode turns automatically to sketching
- Draw the following sketches:



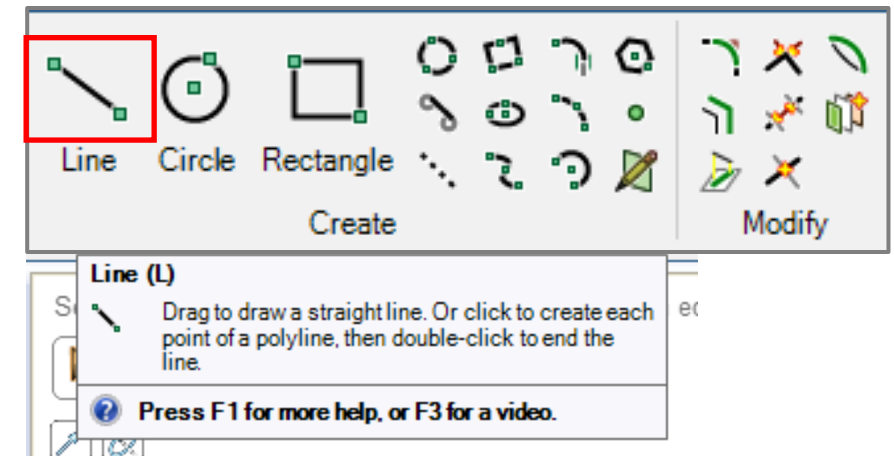
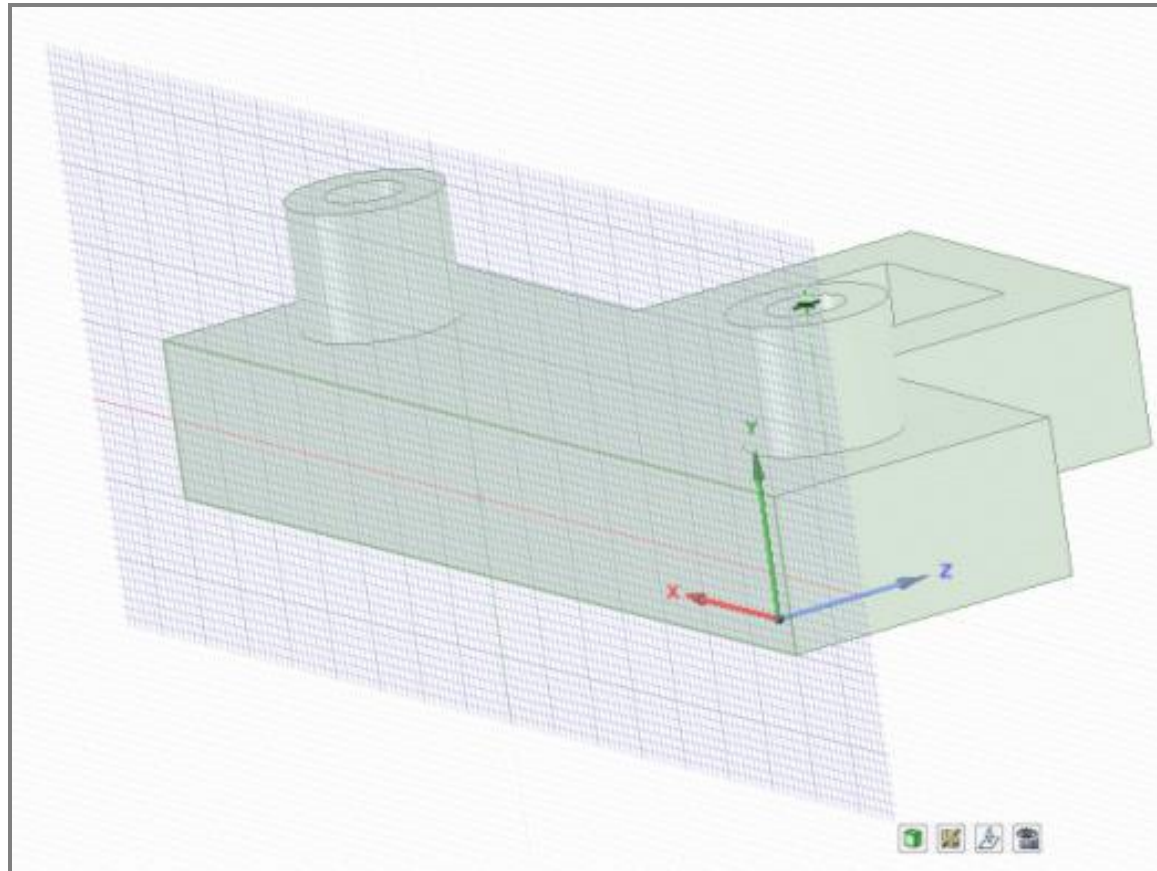
Creating Bracket (3)

- Select the inner circles and the small rectangle using the Ctrl key, then click on the 'pull' tool
- Pull in the – y direction to create holes
- Select the surfaces between the small and the big circles and pull in the + y direction to add material



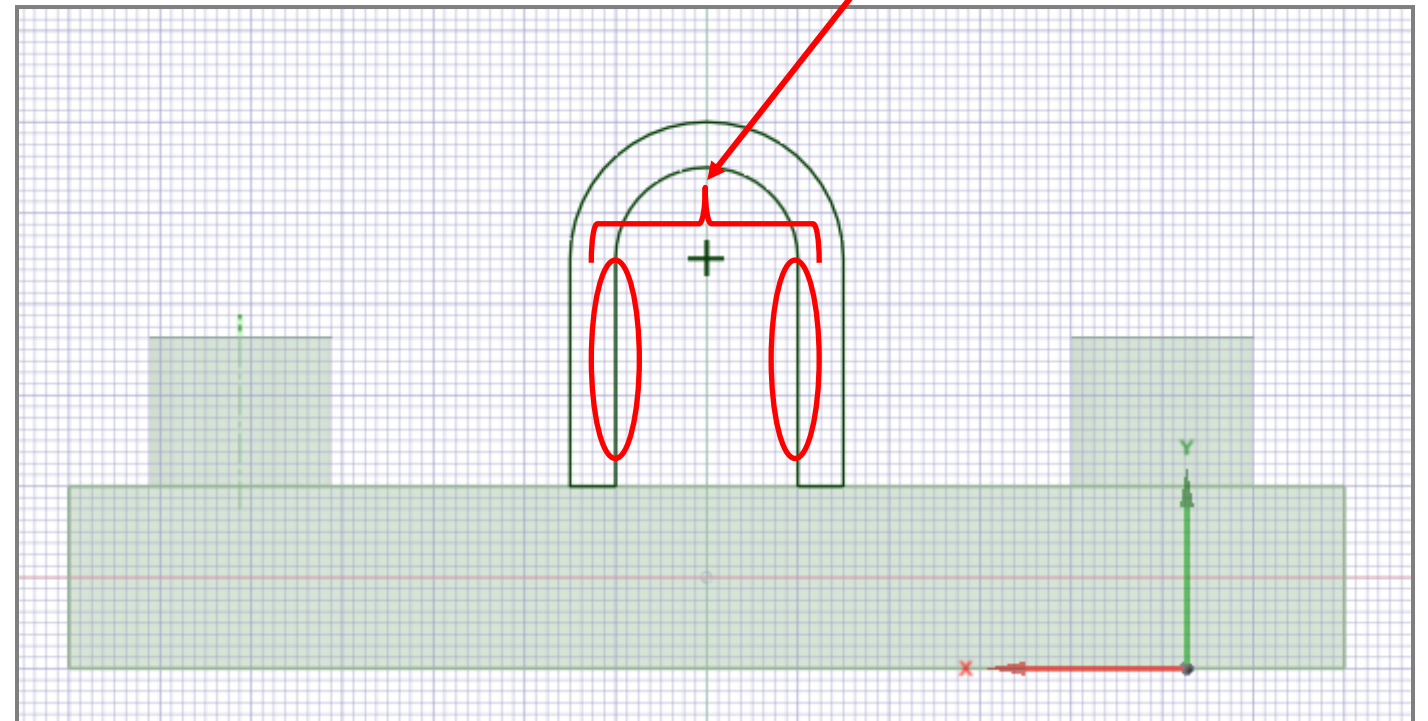
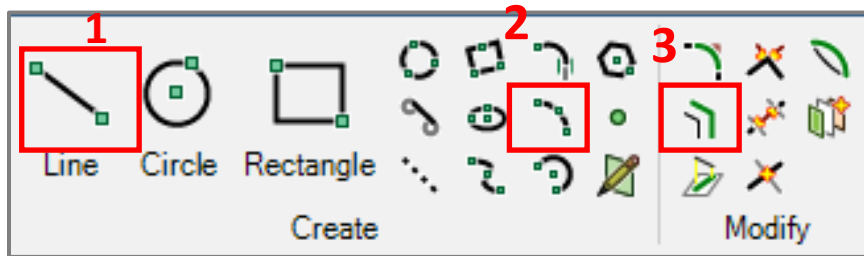
Creating Bracket (4)

- Select the surface behind the two cylinders and click on the line tool or use the keyboard shortcut 'L'



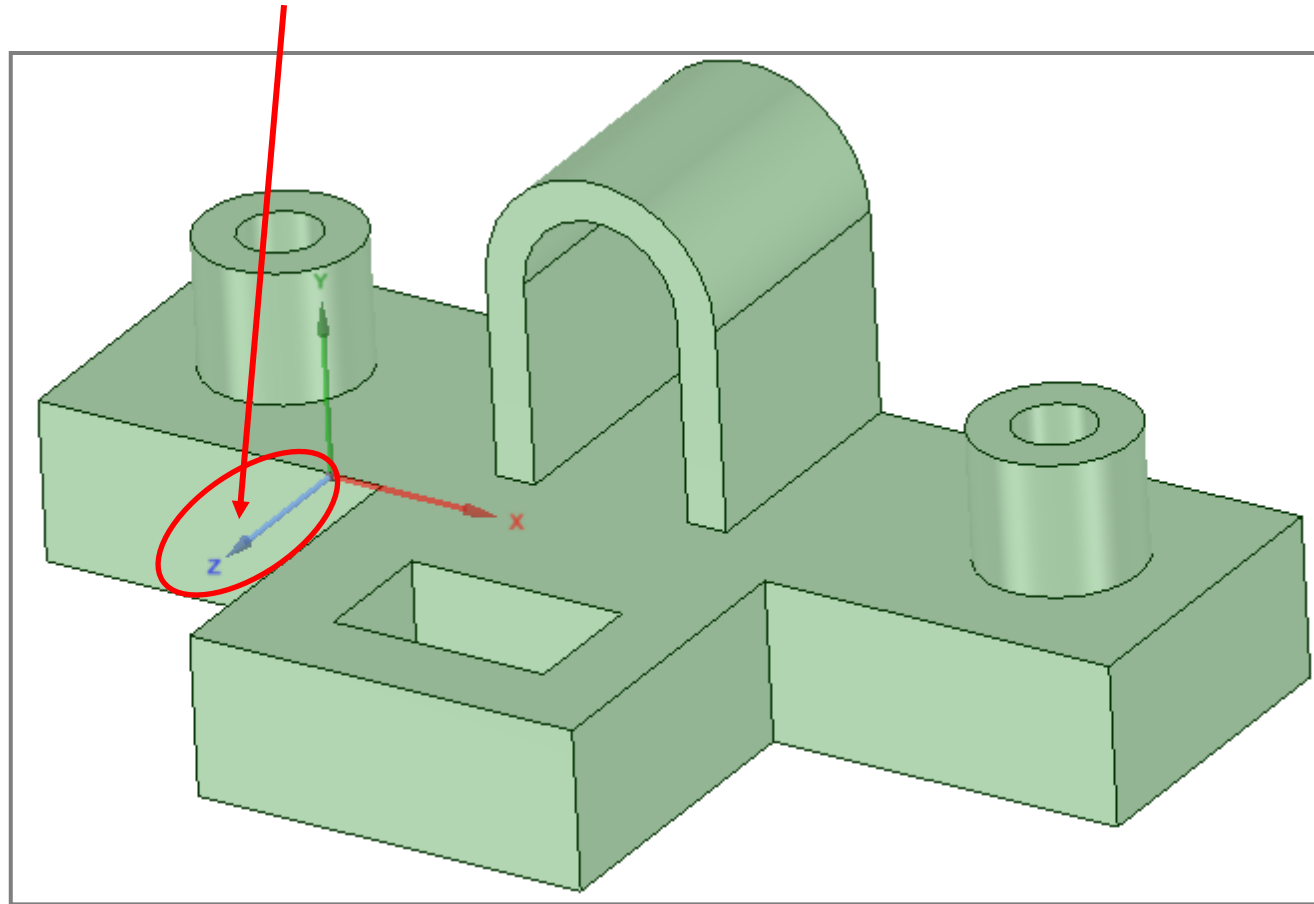
Creating Bracket (5)

1. Use the line tool or the keyboard shortcut 'L' to create the 2 lines shown below
2. Use the Three-Point-Arc to draw the Arc between the upper points
3. Use the Offset function to offset the created sketch



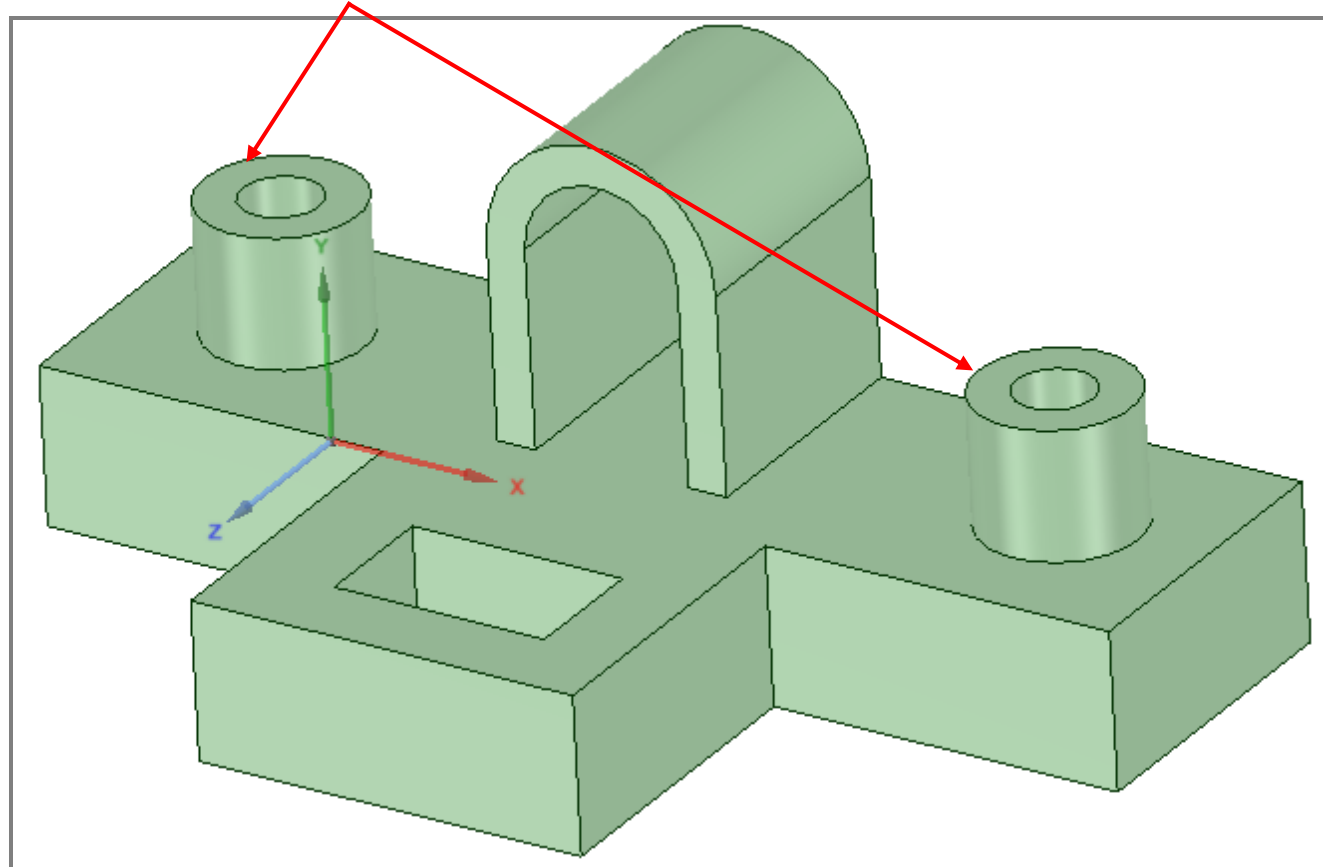
Creating Bracket (6)

- Pull the created sketch in the + Z direction to add material



Creating Rounds (1)

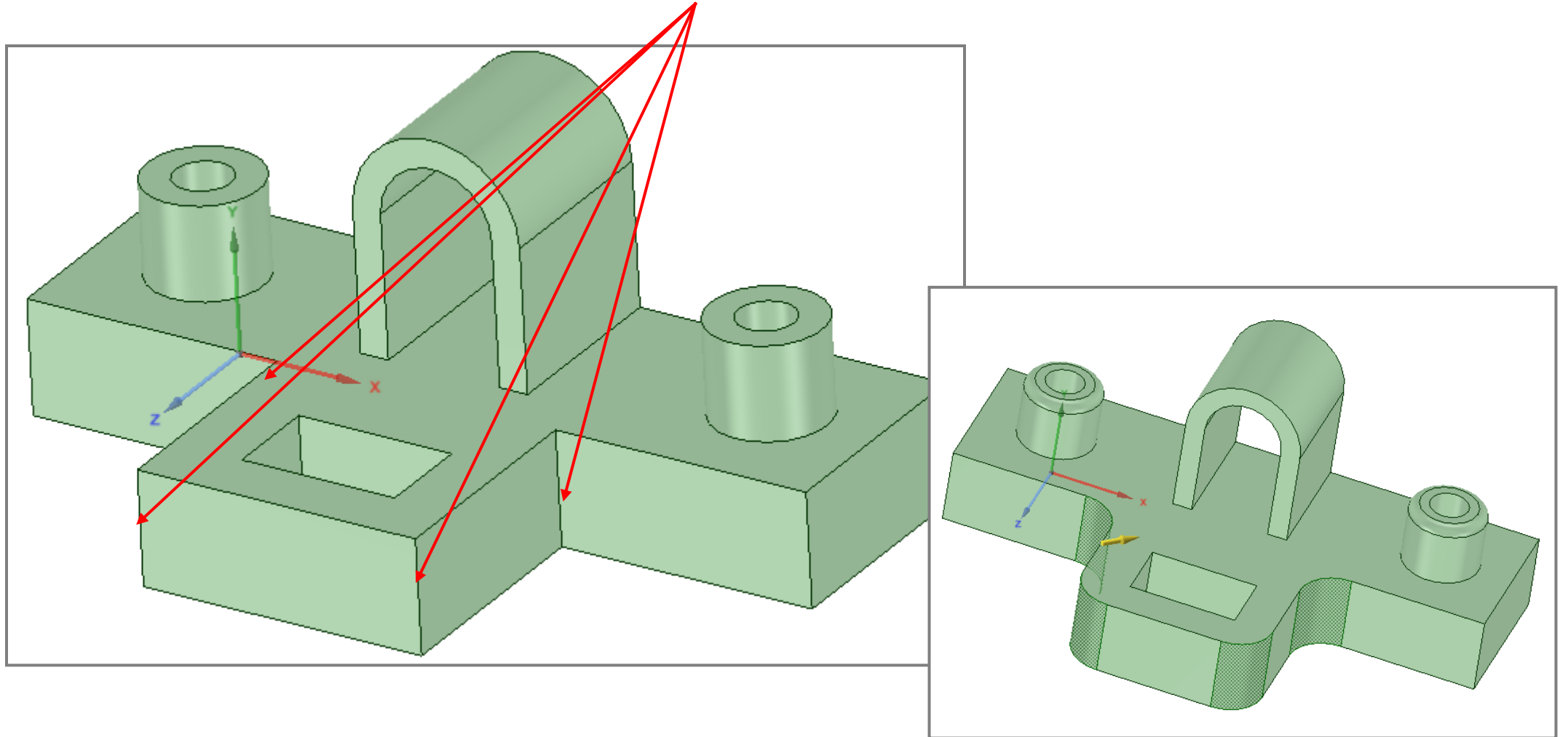
- Select the two **edges** of the upper cylinders surfaces and pull to create rounds




Notice: The default Pull option is set to Round for edges

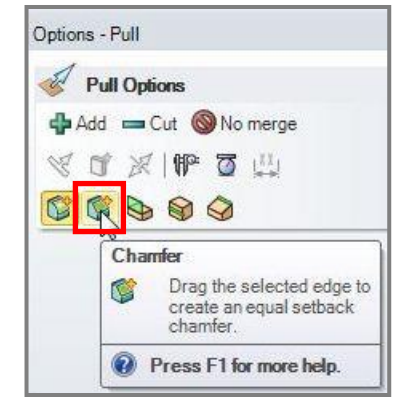
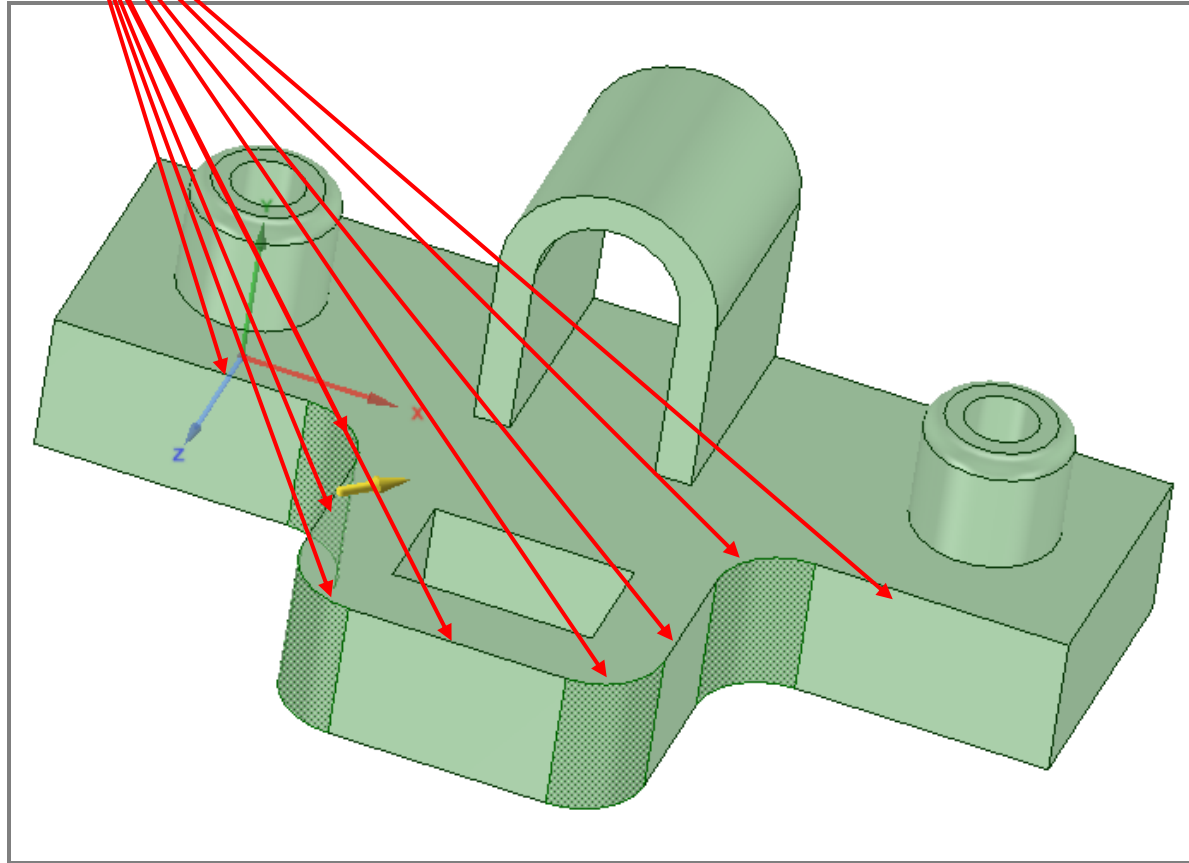
Creating Rounds (2)

- Repeat the same actions with the 4 following edges



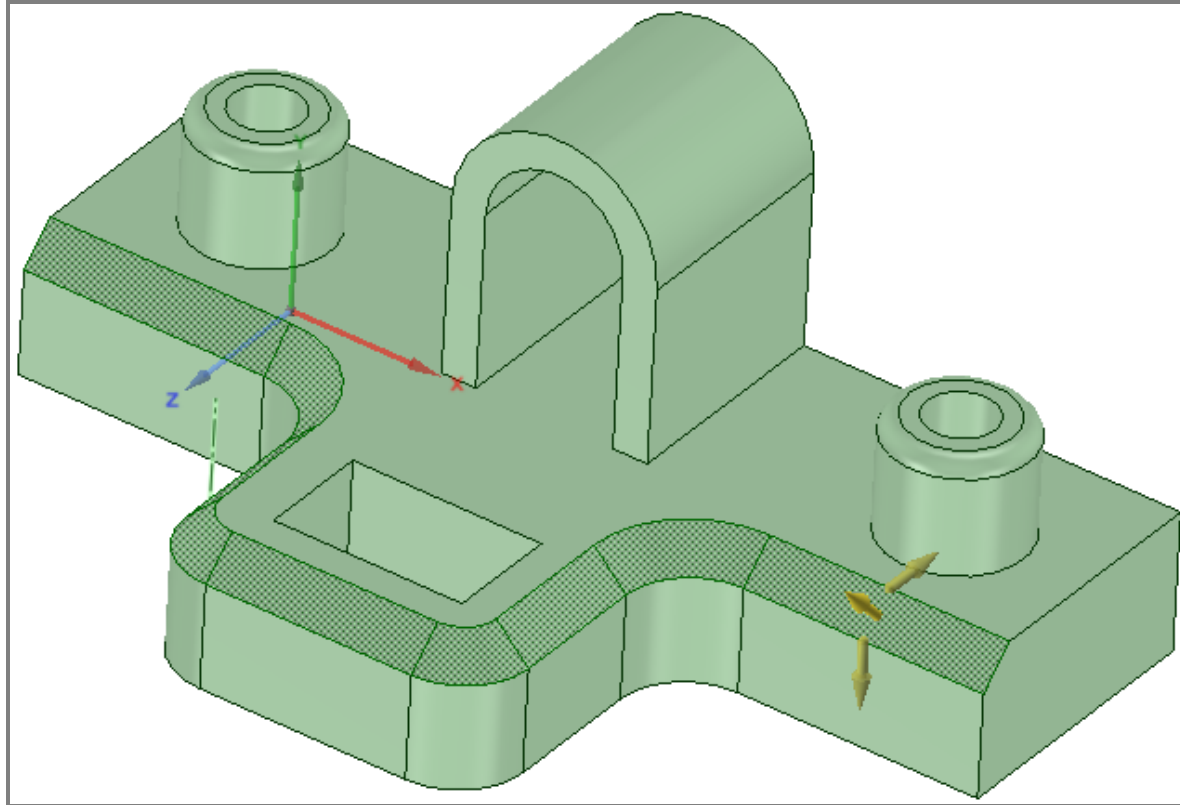
Creating Chamfers

- Select the 9 following edges using the CTRL key or double clicking on any of these edges. Click on the  Pull Tool and change the Pull Option to 'Chamfer' to create Chamfers



/ Saving the project

- Save the file as file.scdoc in the desired folder
- In this workshop we learned how to create sketches in SpaceClaim and how to pull these sketches without following any given dimensions





End of presentation