2D & 3D CAD

ASSIGNMENT 07

(DSL-732)

SHRUTI SHARMA 2019DDS6013

Introduction

Computer graphics are pictures and films created using computers. Usually, the term refers to computer-generated image data created with the help of specialized graphical hardware and software.

2D CAD :- 2D computer graphics are mainly used in applications that were originally developed upon traditional printing and drawing technologies such as typography. In those applications, the two-dimensional image is not just a representation of a real-world object, but an independent artifact with added semantic value; two-dimensional models are therefore preferred because they give more direct control of the image than 3D computer graphics, whose approach is more akin to photography than to typography.

3D CAD:- 3D graphics, compared to 2D graphics, are graphics that use a three-dimensional representation of geometric data. For the purpose of performance, this is stored in the computer. This includes images that may be for later display or for real-time viewing.

RASTER AND VECTOR IMAGES

There are two main type of image files: Raster and Vector. Raster images are created with pixel-based programs or captured with a camera or scanner. They are more common in general such as jpg, gif, png, and are widely used on the web. Vector graphics are created with vector software and are common for images that will be applied onto a physical product. Also used in CAD, engineering, and 3D graphics which we do not provide information nor services for.

Softwares used for 2D 3D CAD MODELS

2D CAD MODELS

Adobe Photoshop
Adobe Illustrator
Krita
GIMP
Corel Draw
Inkspace

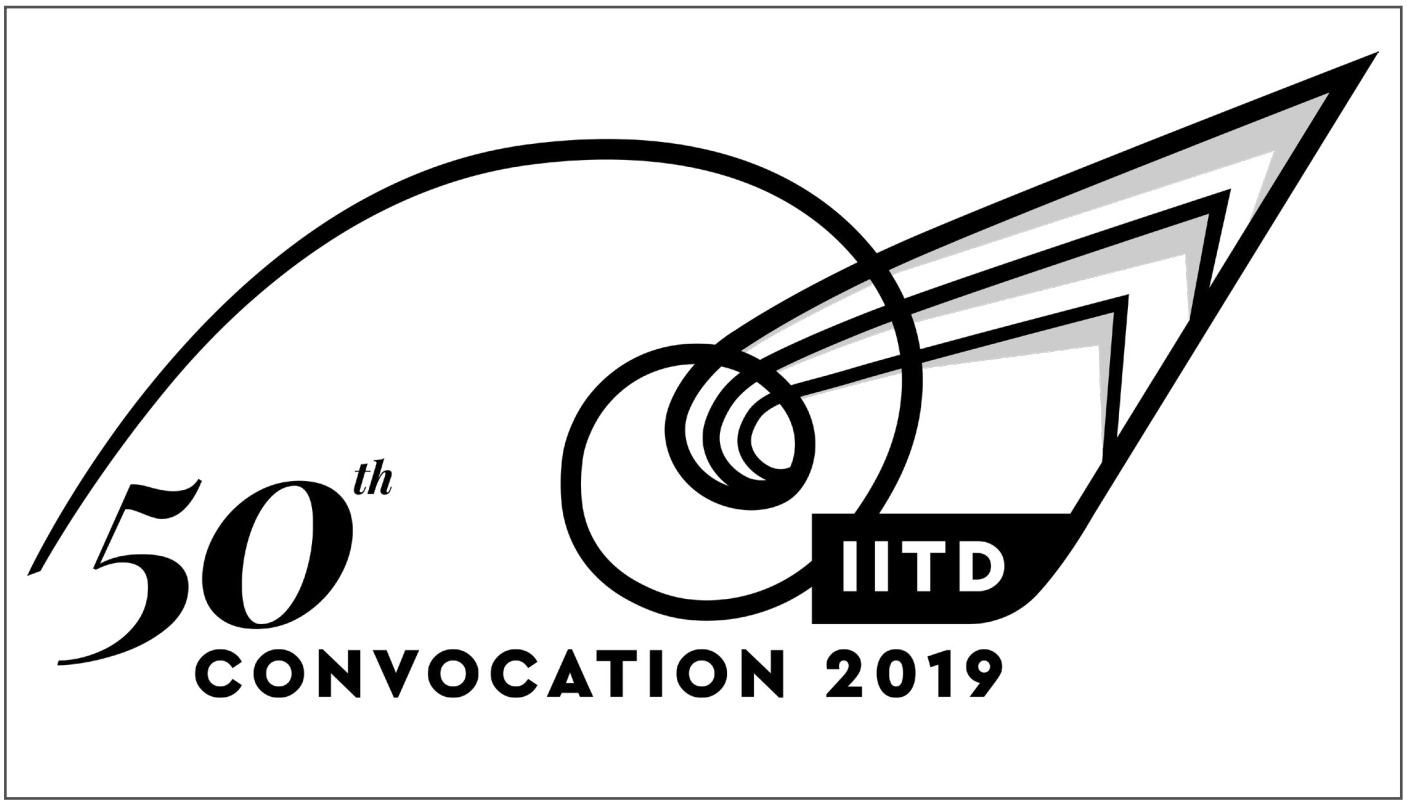
3D CAD MODELS

SOLIDWORKS
Fusion 360
Rhino
Alias
Sketchup

2D CAD

Adobe Photoshop is used for rastering and Adobe illustrator for vector CAD.This is part of an assignment for logo of IITD convocation.

Pen tool,paintbrush tool,shapebuilder,gradient tool,ellipse tool,etc to arrive at the final model.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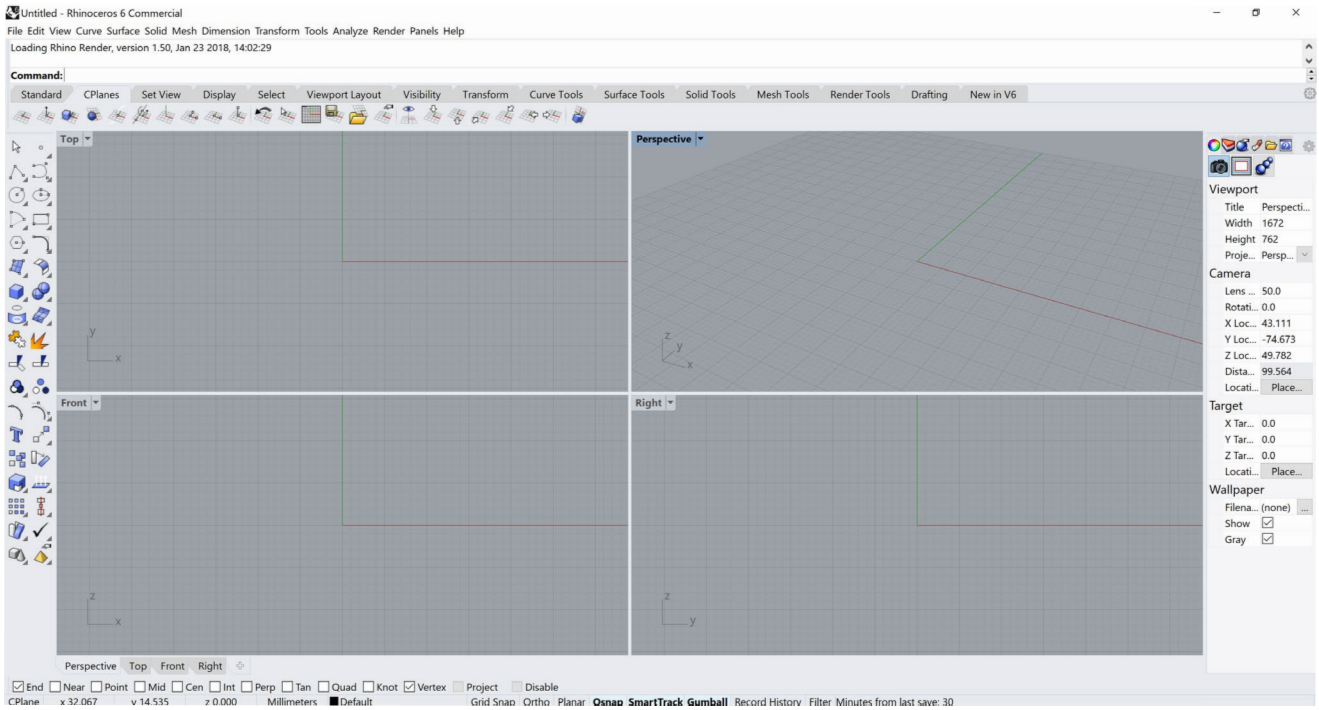
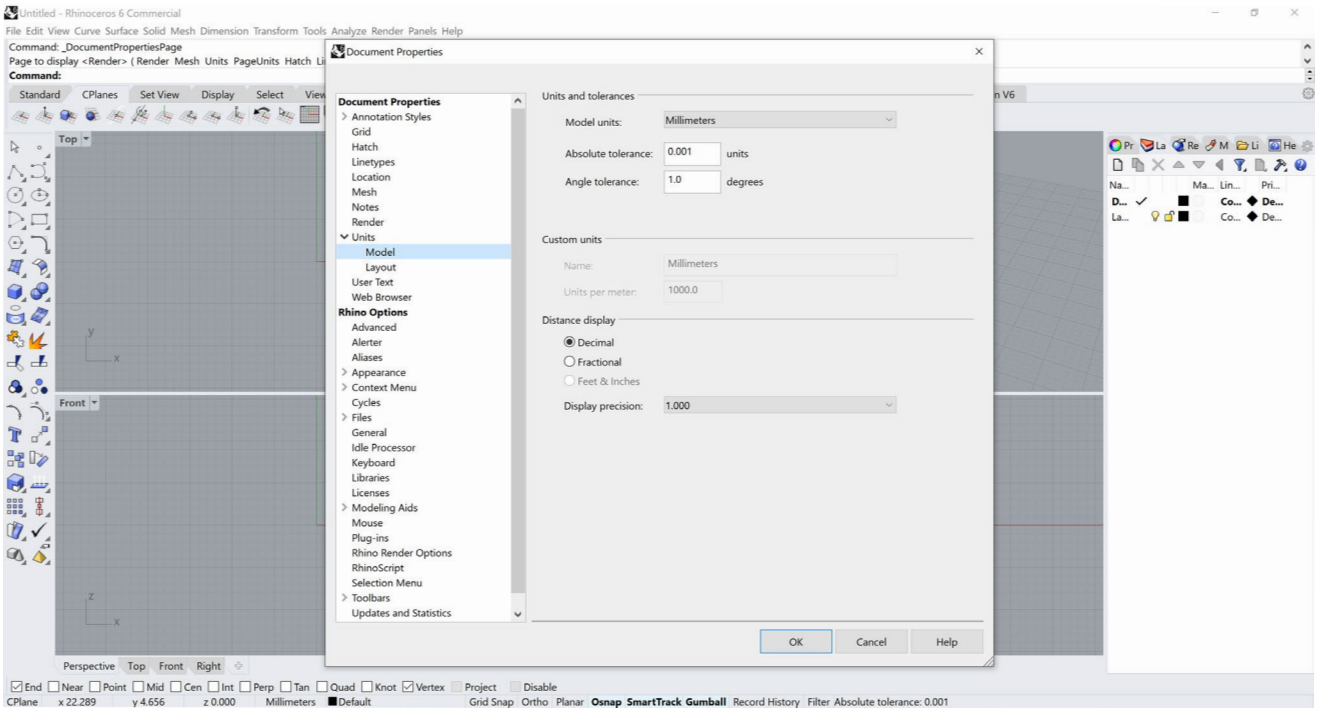
3D CAD

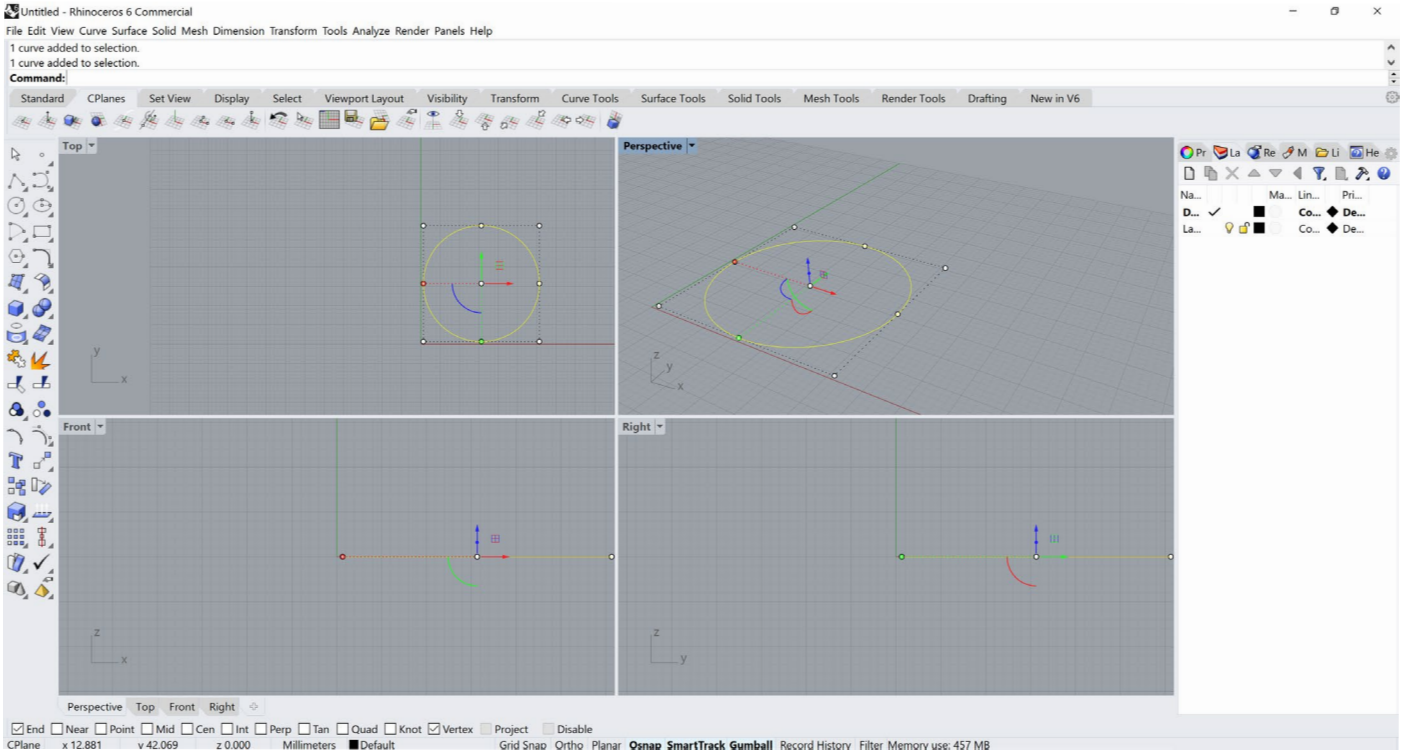
Using Rhinoceros 6.0 for 3D modelling and creating a patterned pen holder. Below are the steps how the 3D model was created using different commands ans specifically in chronological order.

Step 1 : setting up units and layers

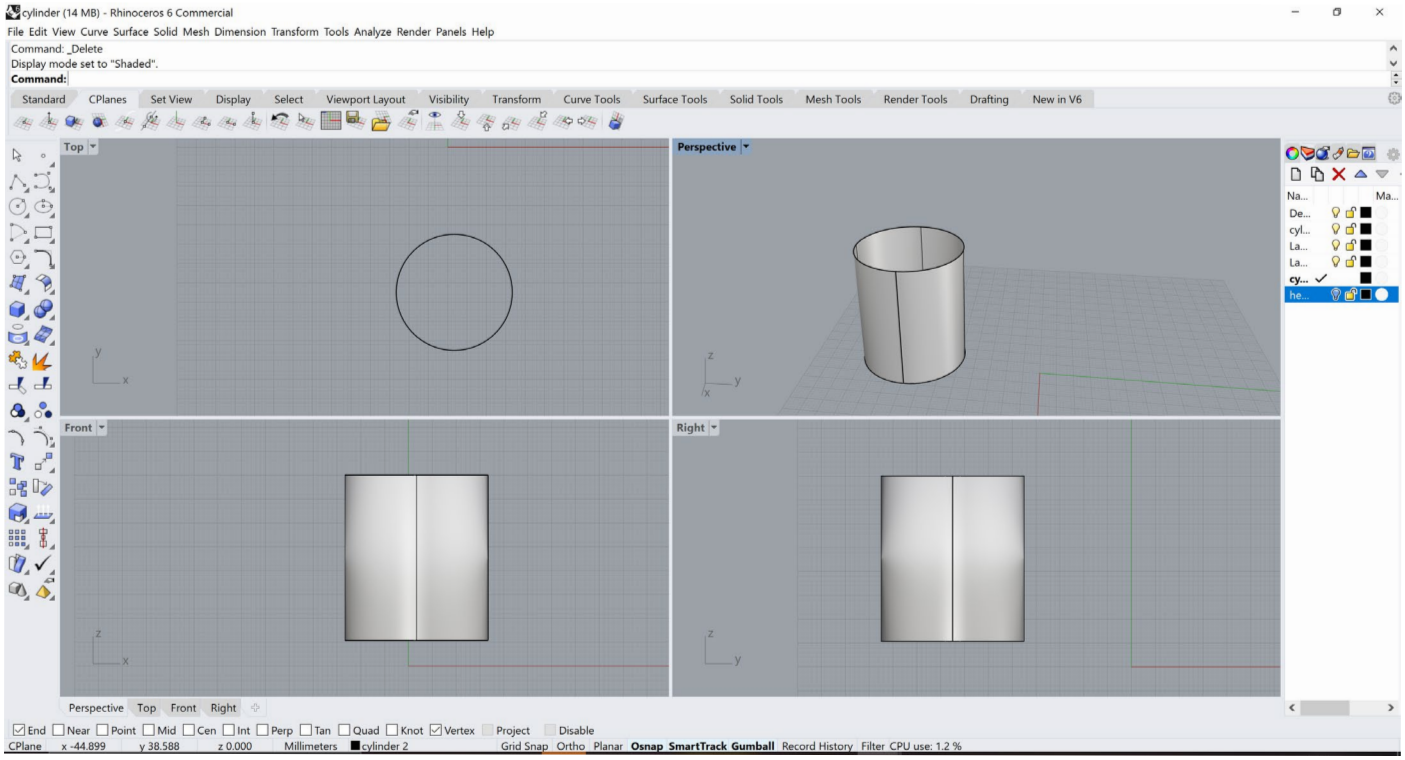




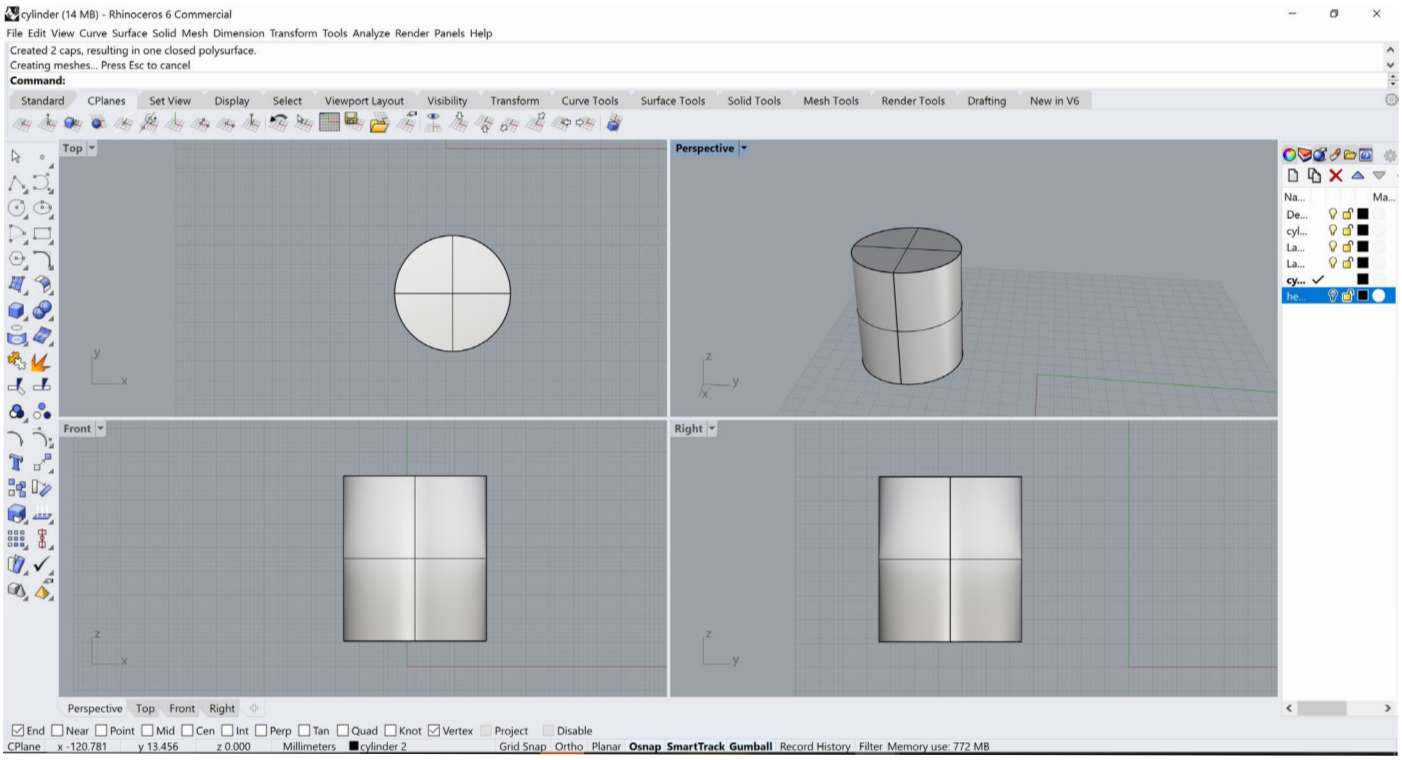
Step 2 : using **circle** command in the panel to create the circle of specific radii



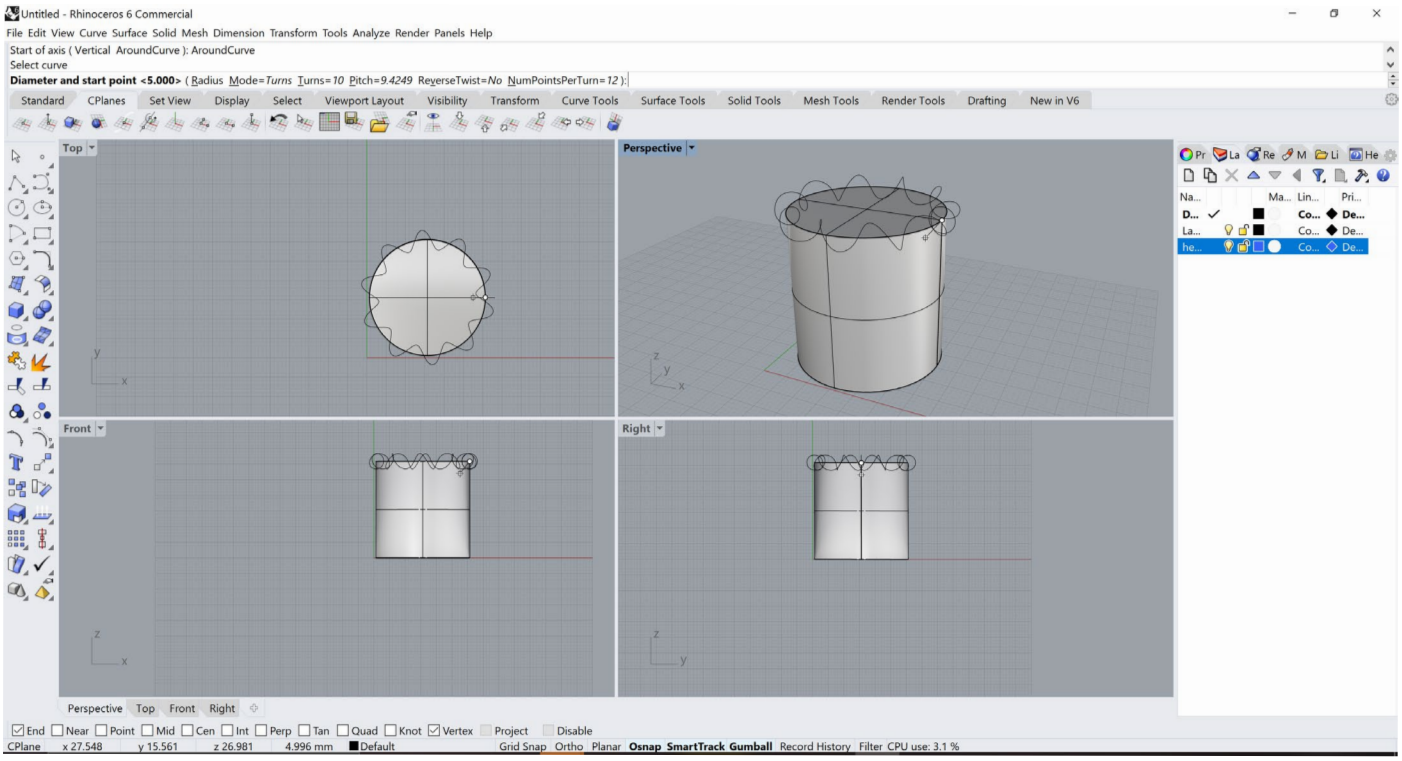
Step 3 : using **extrudeCrv** command to create the circle to 3D



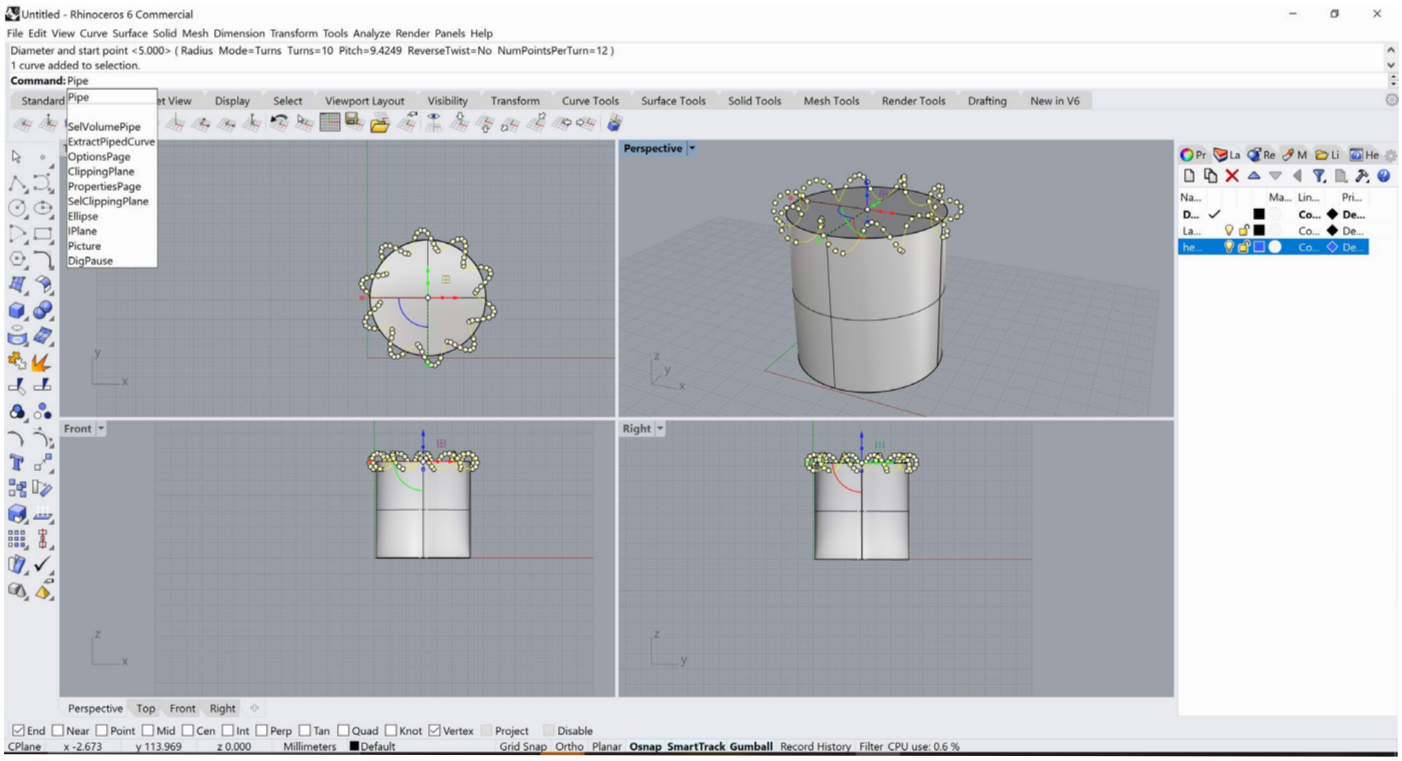
Step 4 : using **cap** command in the panel to close surfaces



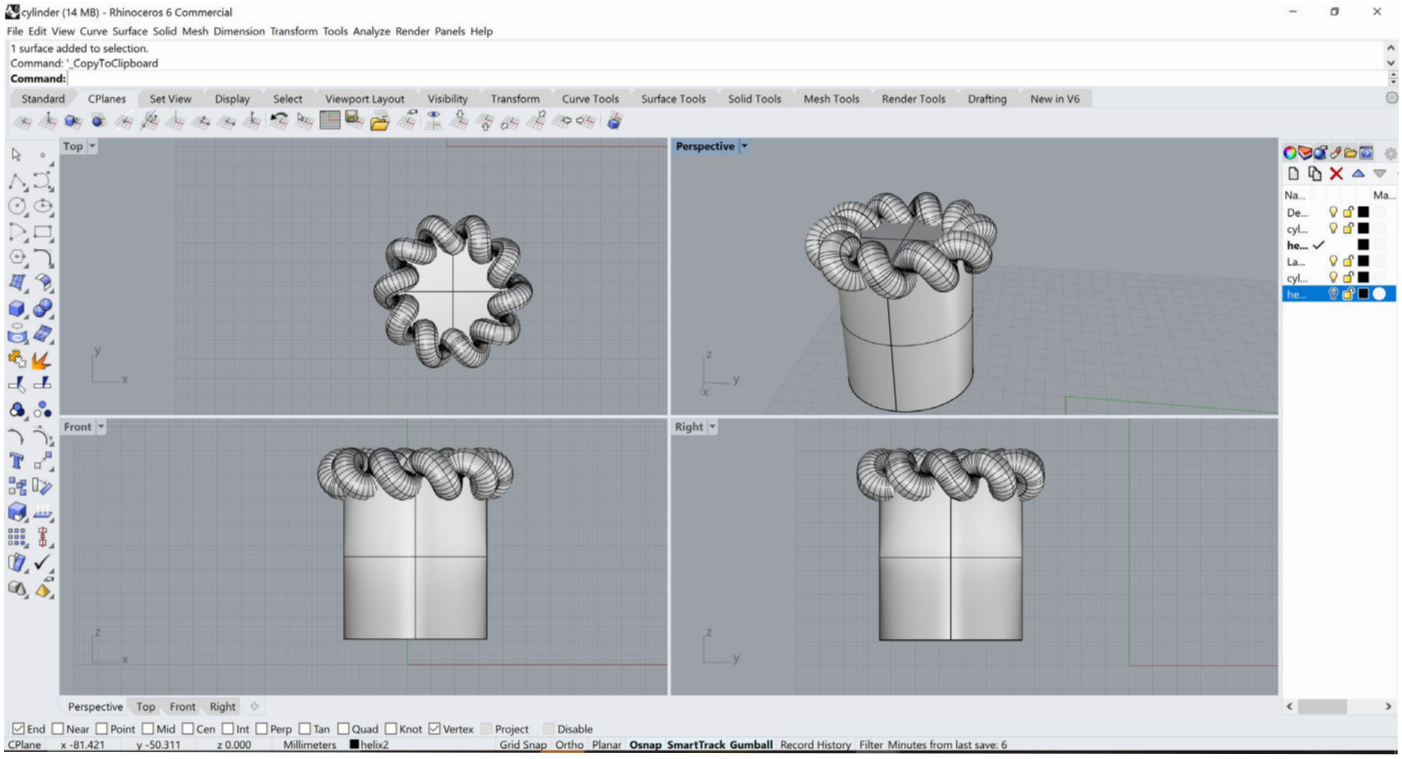
Step 5 : using **Helix** command on one end of the curve



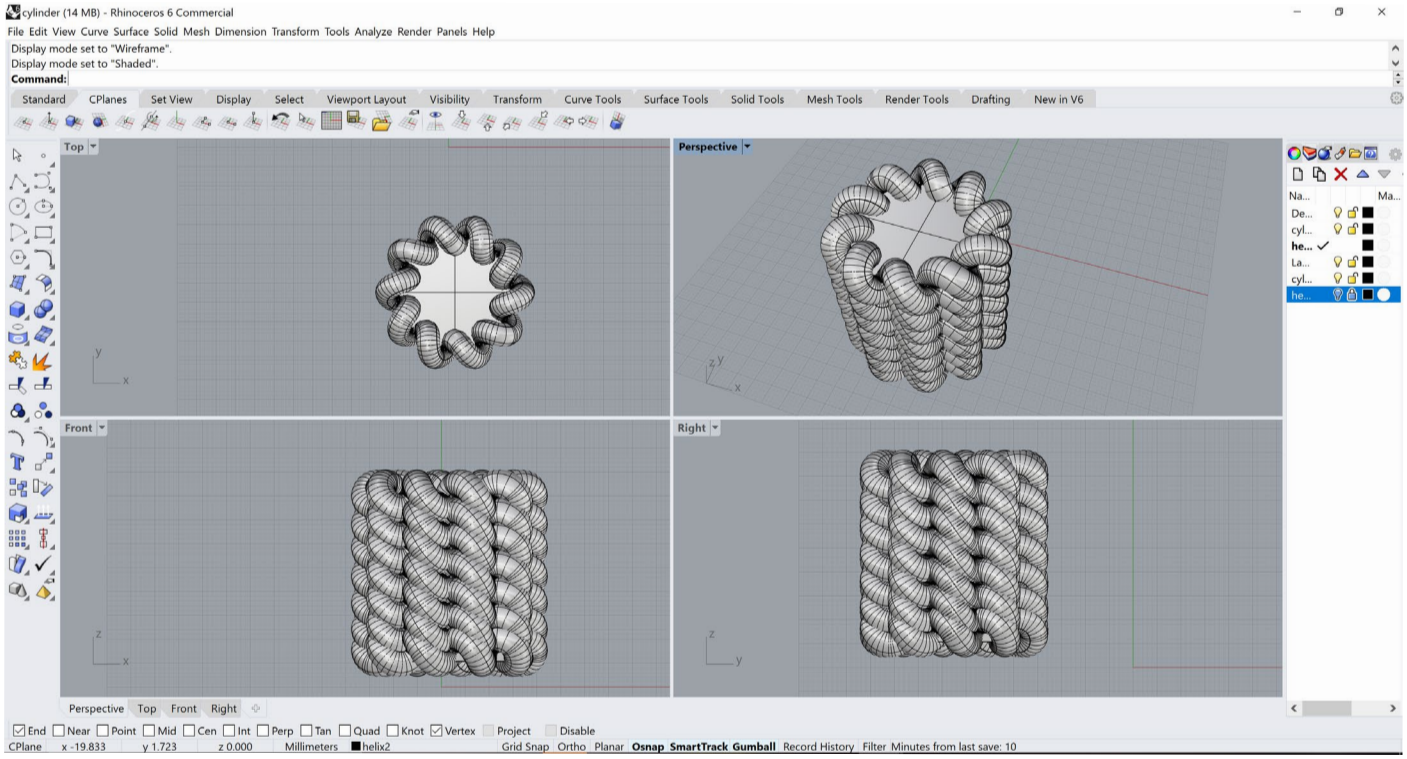
Step 6 : using **Pipe** command to give volume and thickness to the helix curve and giving thickness as radius



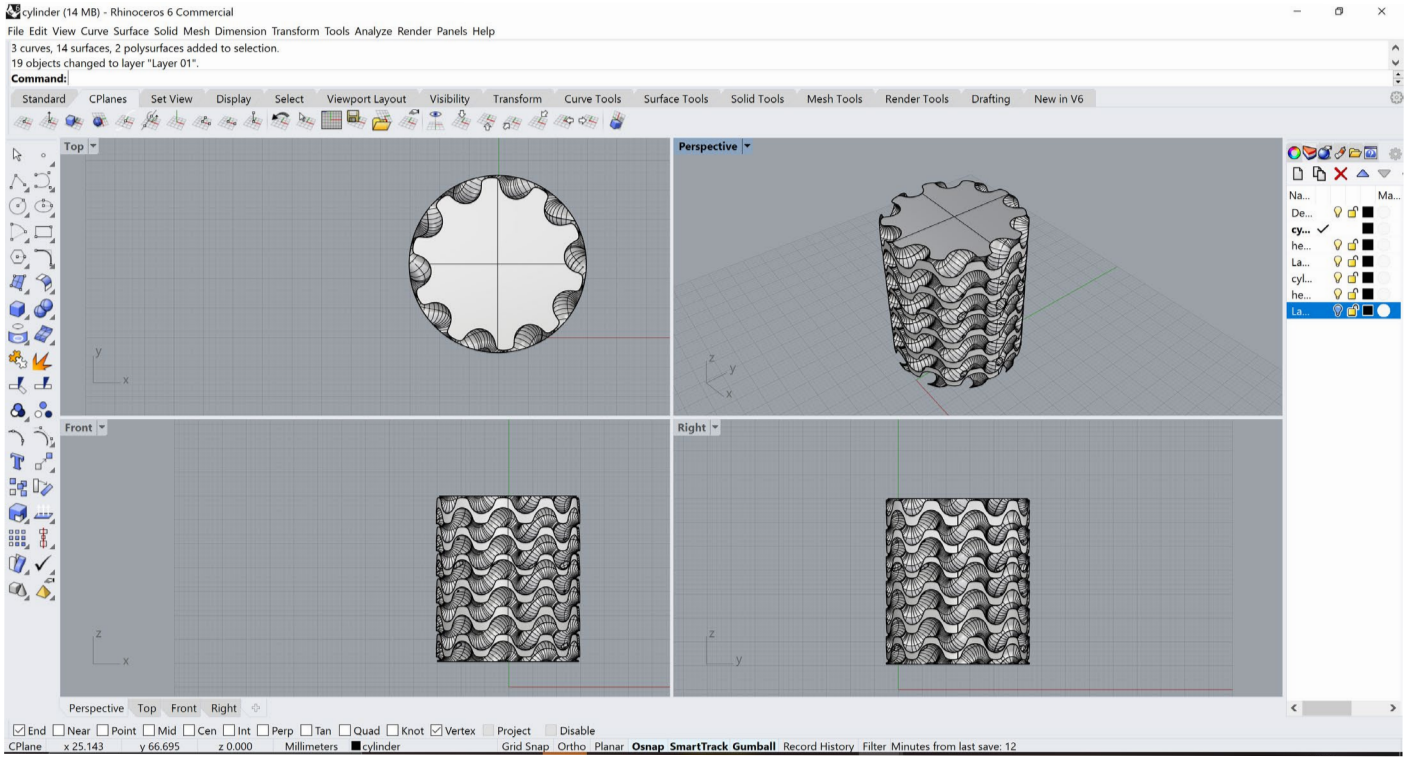
Step 7 : Volume given to th helix pipe curve



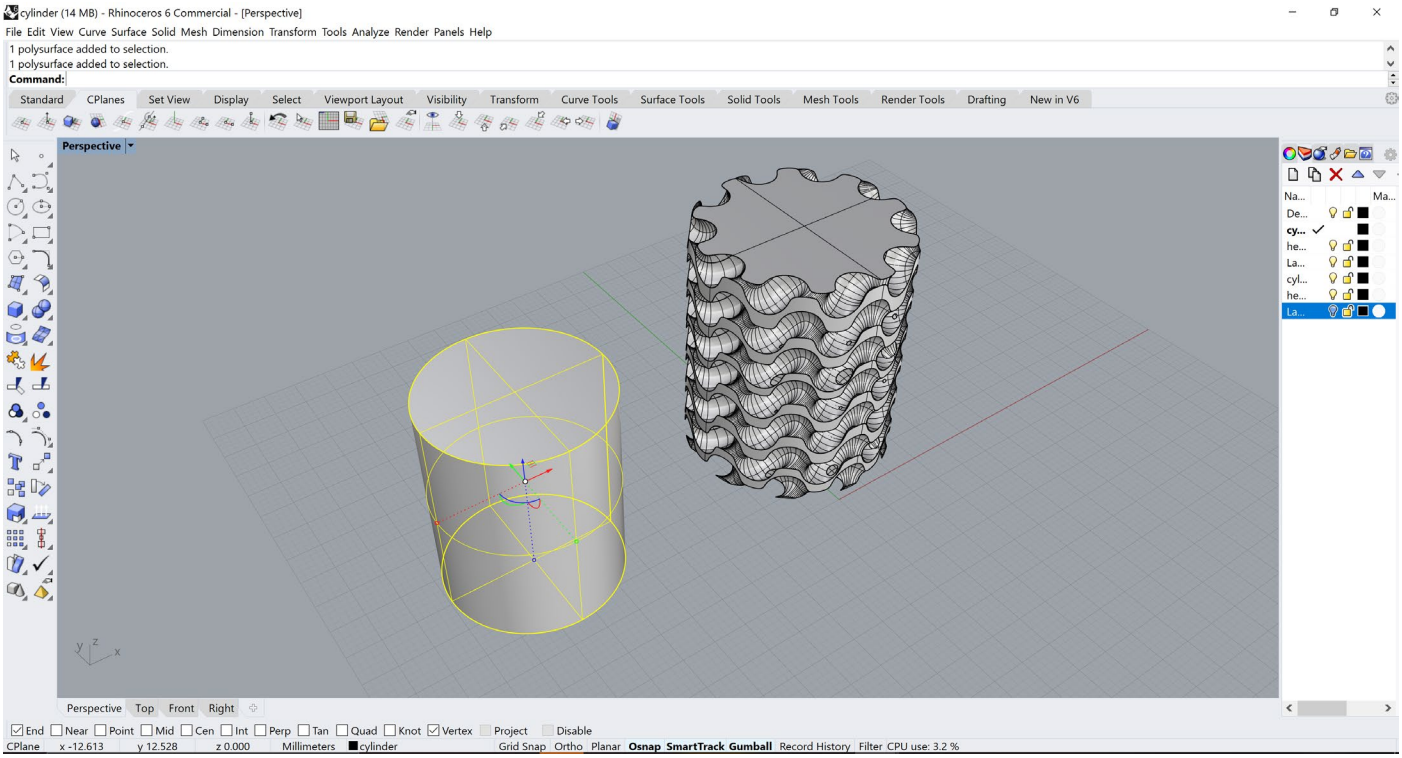
Step 8 : multiplying the helix curve uniformly along the length of the cylinder



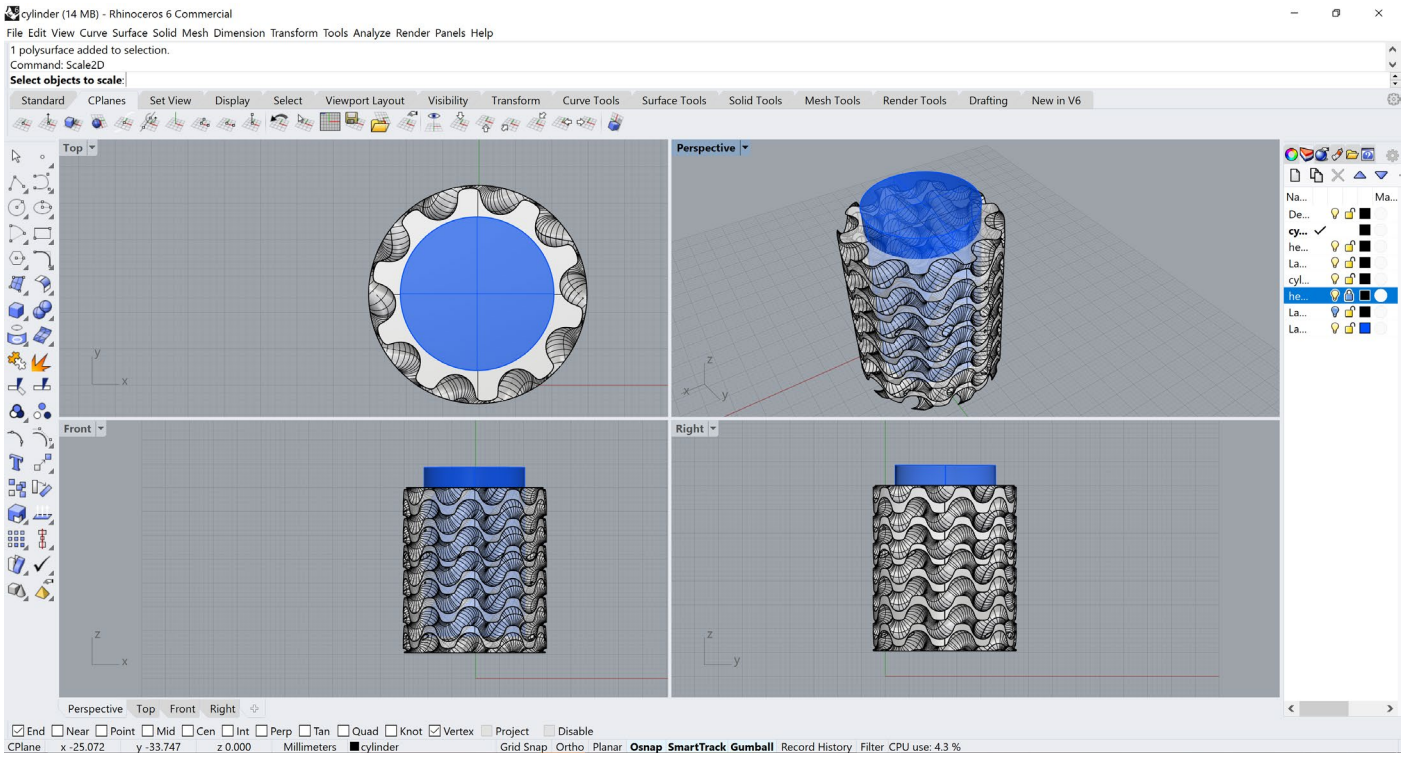
Step 9 : using **BooleanDifference** command to subtract volumes



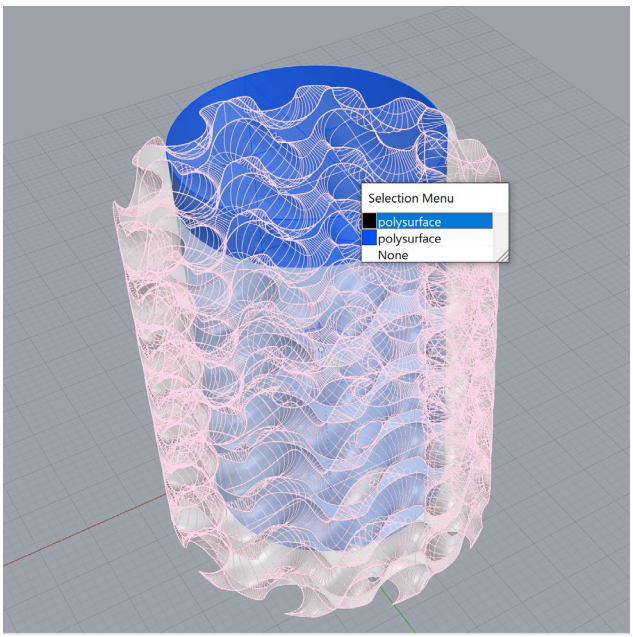
Step 10 : creating another cylinder for creating a hollow void

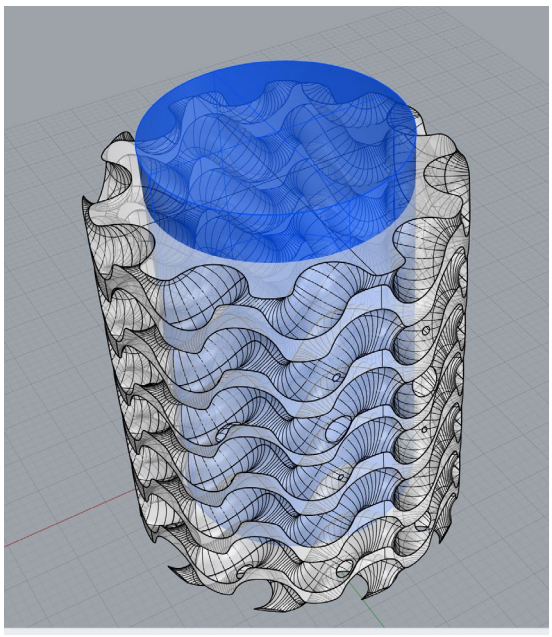


Step 11 : using **BooleanDifference** command to subtract volumes

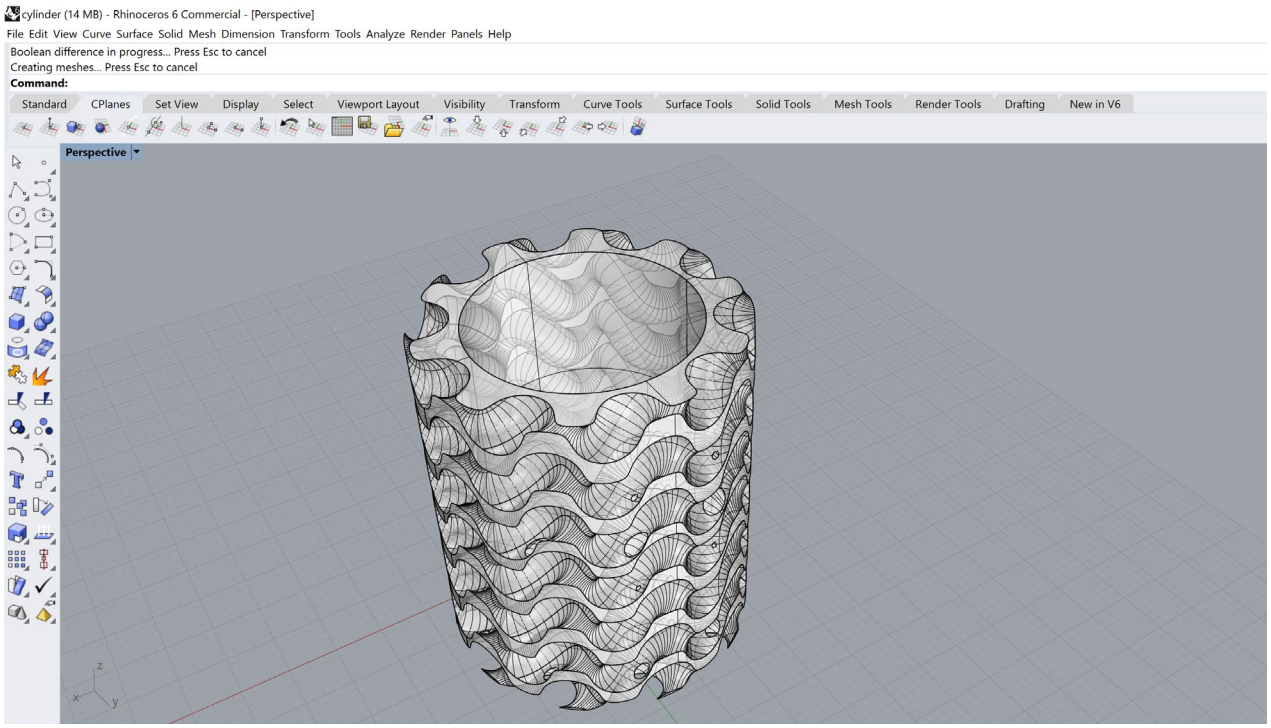


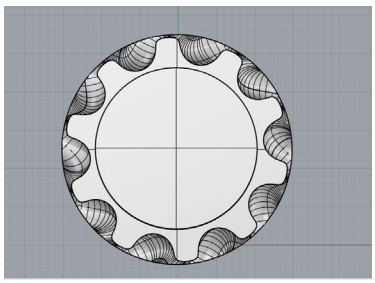
Step 11 : using **BooleanDifference** command to subtract volumes

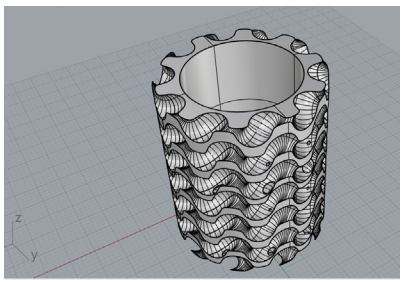


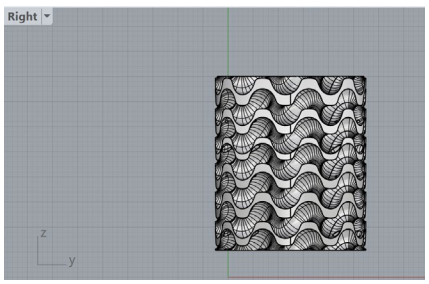


Step 12 : Volume of a pen holder created

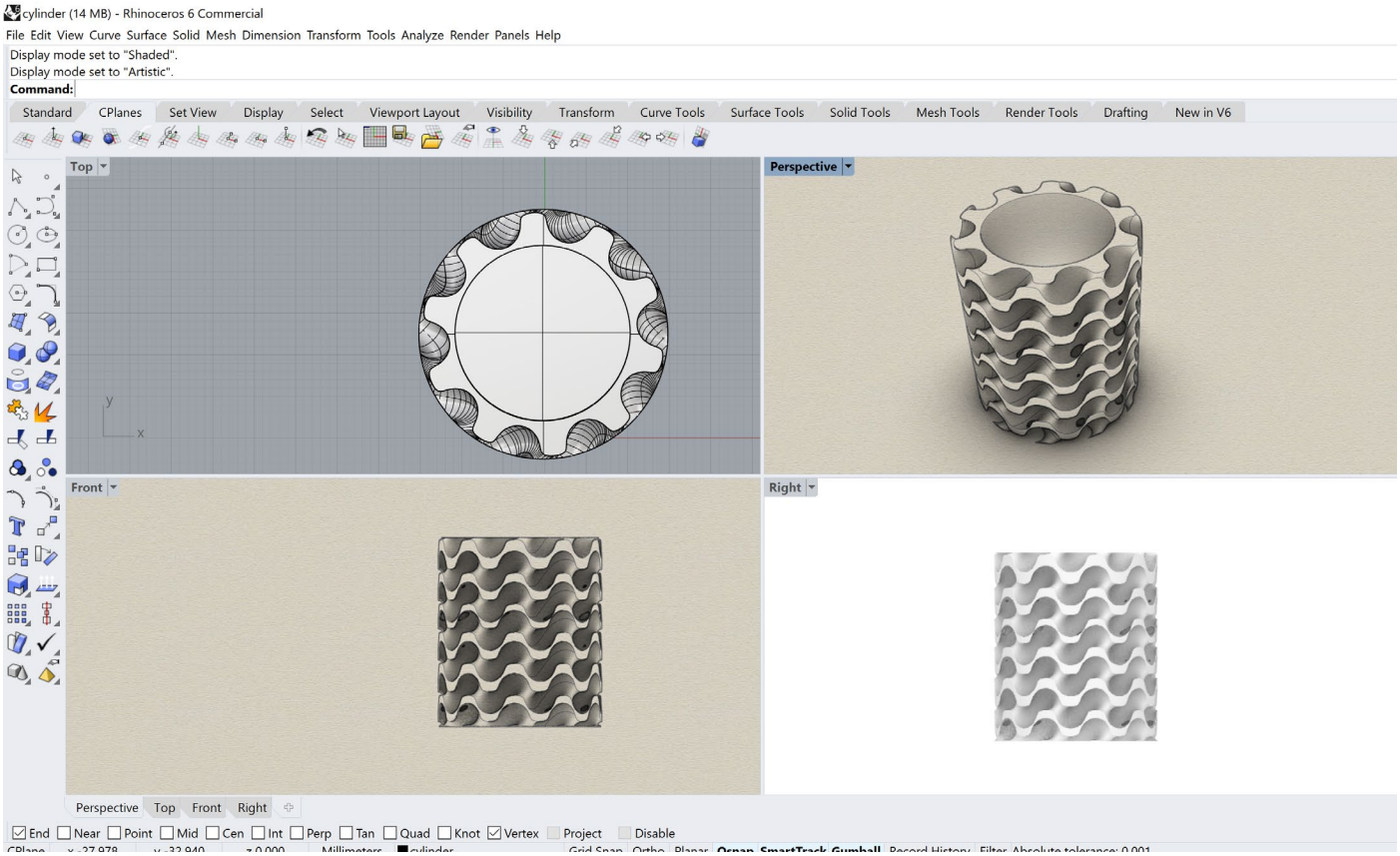


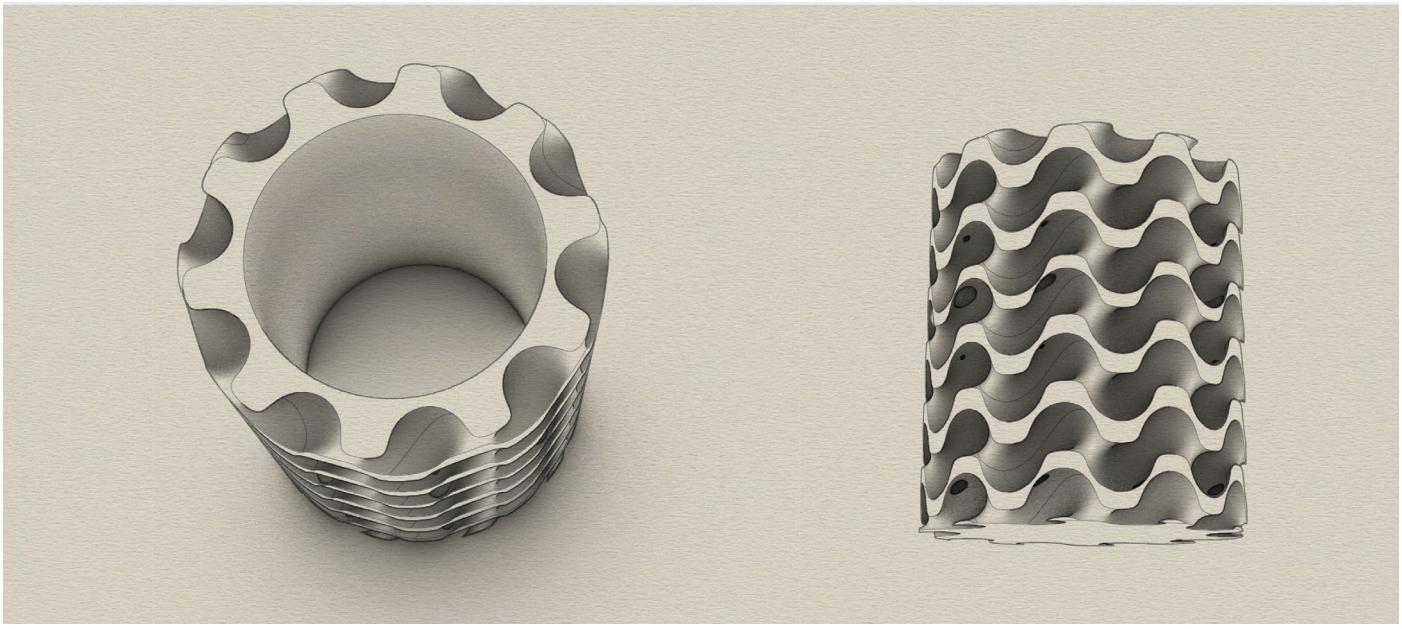




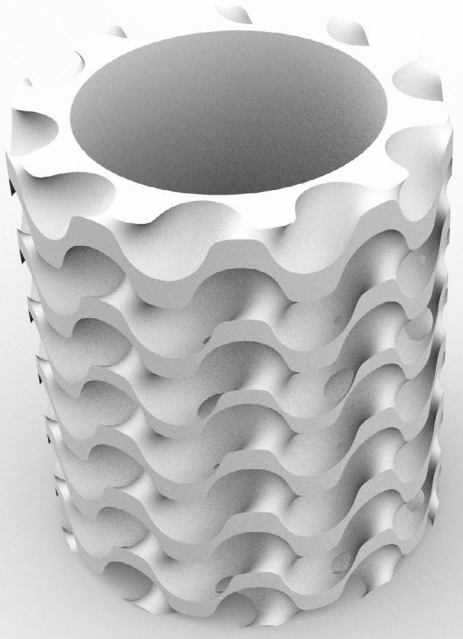


Step 13 : Trying different visible modes.





Step 14 : Rendering



THANKYOU

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