- In this lesson we will be covering the Revolve, extrude, multi-selections surface, fill, offset & blend commands and we will do this by creating a wine glass.

- So let's get started by opening up CATIA and getting into the wireframe and surface design workbench.

- To start we will create a sketch that will become the bowl of the glass, to do this we will simply select the front plain and create a spline that we will use the revolve command on.
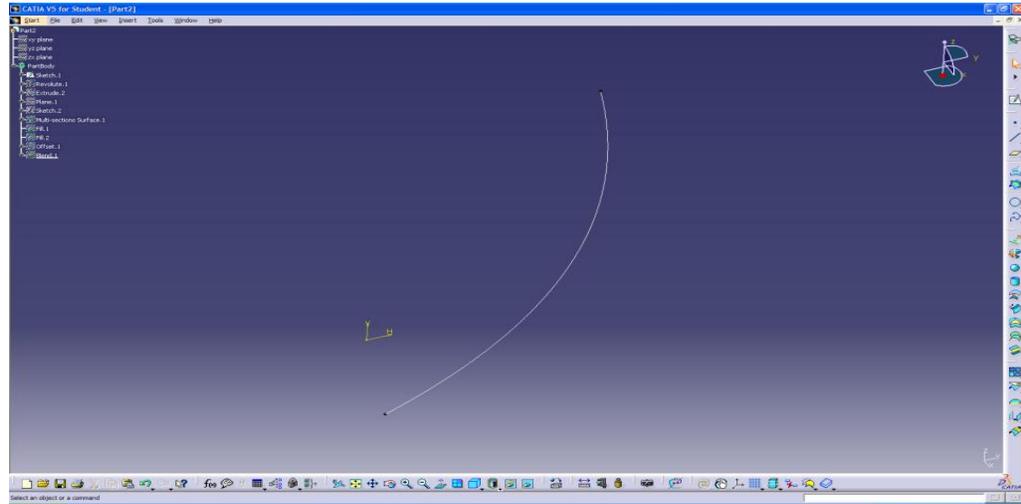
- Now that the sketch is created we will use the revolve command to create the bowl, after selecting the command we are asked for a profile; which I will select the sketch that was just created and then an axis for rotation, for this I will select the V axis.

- Notice how the revolve command is defaulted to rotate 180 degrees, for a complete rotation of 360 degrees we can do one of two things we can change the first angle limit to 360 degrees or change the second angle limit to 180 degrees which combined with the first limit would also produce a rotation of 360 degrees; after the revolve command has produced a preview that looks good we can hit ok.
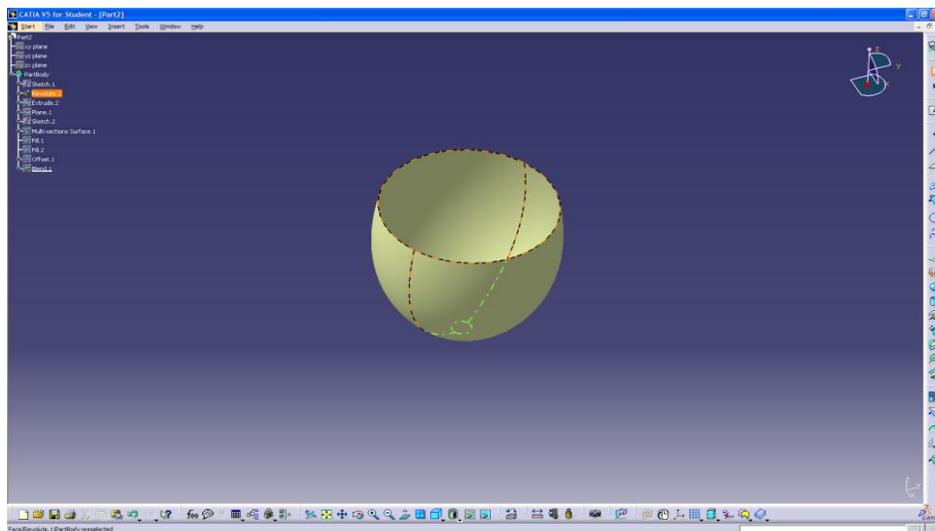
- Now that we have the bowl created we can move on to the stem, for this we will be using the extrude command which is very similar to the extrude command used in CATIA's basic part design with a few exceptions the biggest of those being that faces in the wireframe workbench do not have to be closed to produce an extruded, resulting in a surfaces with no thickness.

o After selecting the extrude command we are presented with the command box asking for a profile and a direction, for the profile we will select the circle that was created using the revolve command and for the direction we will select a plain normal to the direction we want the stem extruded.
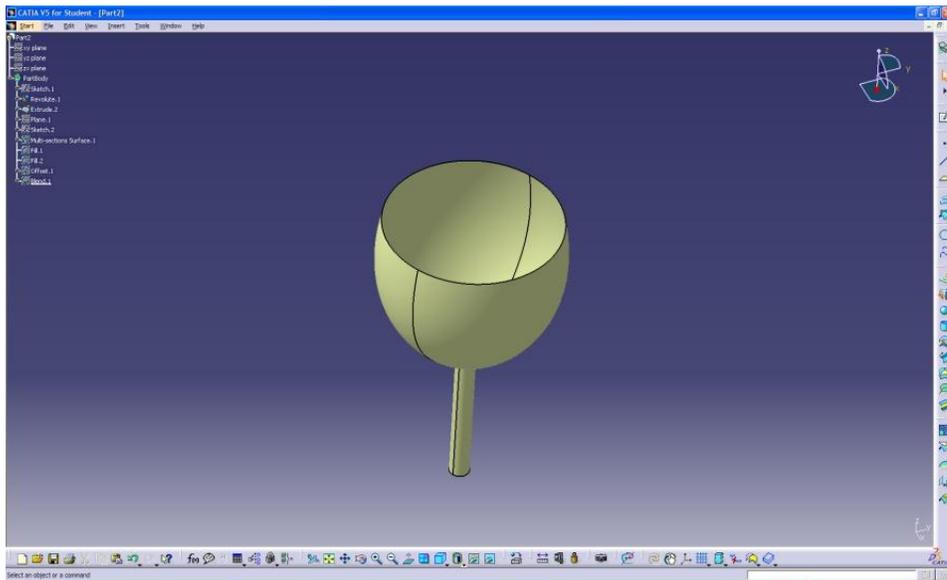
o Notice that the extrude preview of the stem is in the wrong direction, so we must use the reverse direction button to get the stem into the correct orientation.

o Also notice that we are presented with two limits for the extrude; this command is used for extruding in both directions but for our glass design we will only be using the first limit.

o Now that we have the stem looking alright we can hit ok and move on to creating a base.
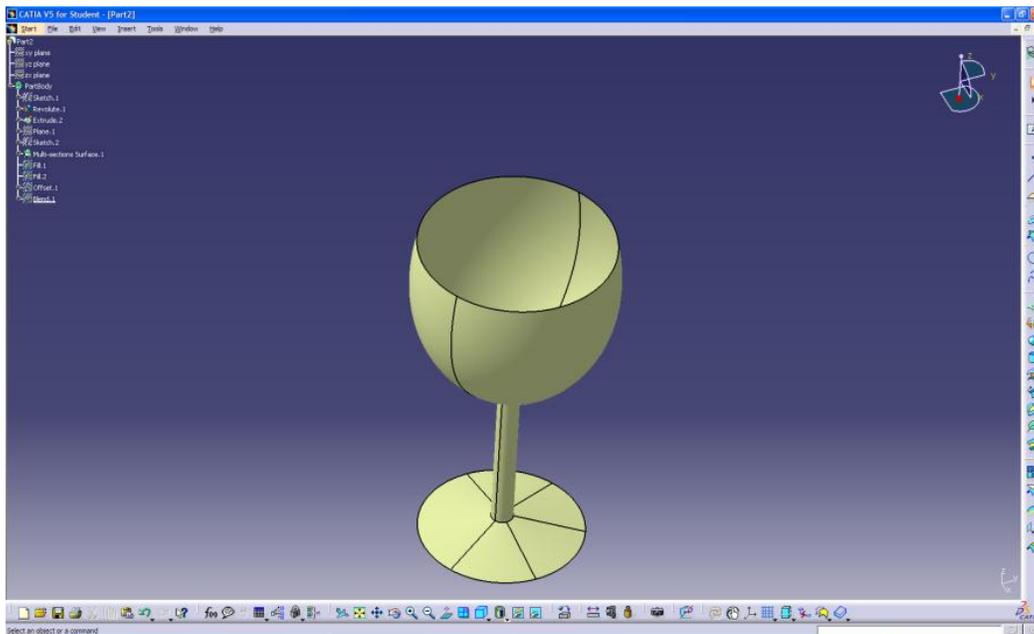
o For the base of the glass we will be using the multi-selection surface command, for this we will first need to create a reference plane that we can create a sketch on which will become the base, to do this we will select the reference geometry plane command and then select a plane we want our next plane to be normal to. The plane does not need to be an exact distance off of the stem for this design but notice

that if an exact distance is required that can be put into the command box; that looks good so I will hit ok and move on to the sketch.

o For this sketch I will simply create a circle for the base geometry and set the dimension inside the glass

o Now that we have a sketch for the base we can use the multi-selection surface command, after selecting the command we are presented with a large amount of options but for this part we will only be using the sketch/surface edge selection to create the base.

o Now that we have a preview of the surface and it looks correct I will go ahead and hit ok
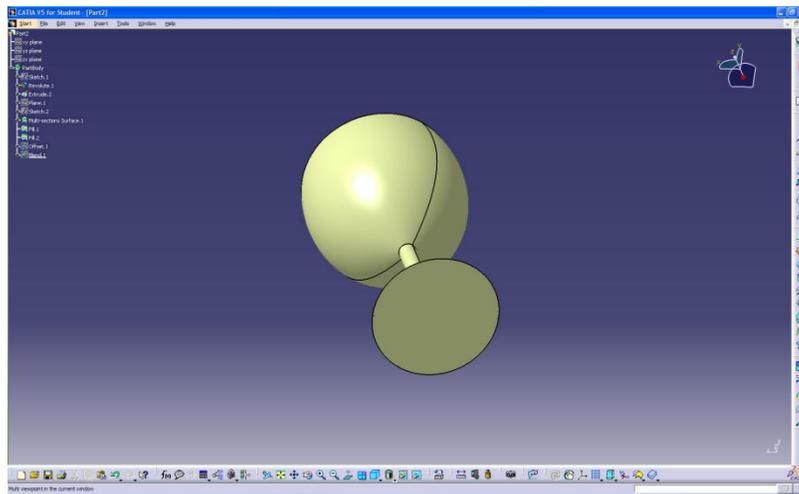
o Once the base surface is created we are left with an open concave surface on the base, to get rid of this we will use the fill command, this command creates surfaces to close holes or gaps in surface designs, once clicking on the command we are asked for all of the edges of the area we wish to fill, for this we will select the circular edge of the base and once the light blue box appears stating closed contour then the area is ok to fill.

o Now that the base is created and filled the next step is to give the bowl some thickness, to do this we will use the offset command to create an inside surface, to do this we select the offset command and then pick a surface to offset from, after selecting the surface and finding an appropriate offset distance, the offset can then be created.
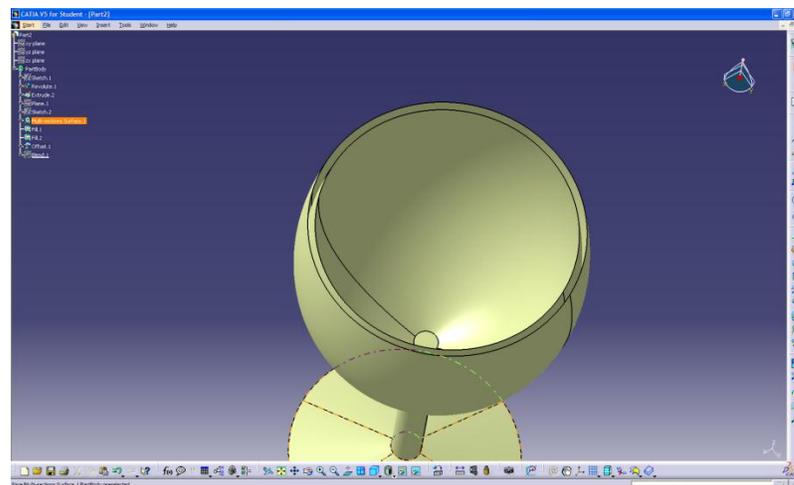
o After performing the offset we are left with a gap between the two surfaces to fill this and create a smooth rim the blend command will be used. After selecting the blend command we are presented with

a large amount of options just like the multi-selection command, for this command we need to select the surface and the edge of the inside and outside of the glass.

o   After getting all the selections done we are presented with a few options on how we want the blend to take shape, the curve can be created using tangency, curvature or a point for this design we will stick with the tangency blend and after previewing the shape and making sure there are no errors that will occur ok can be hit.
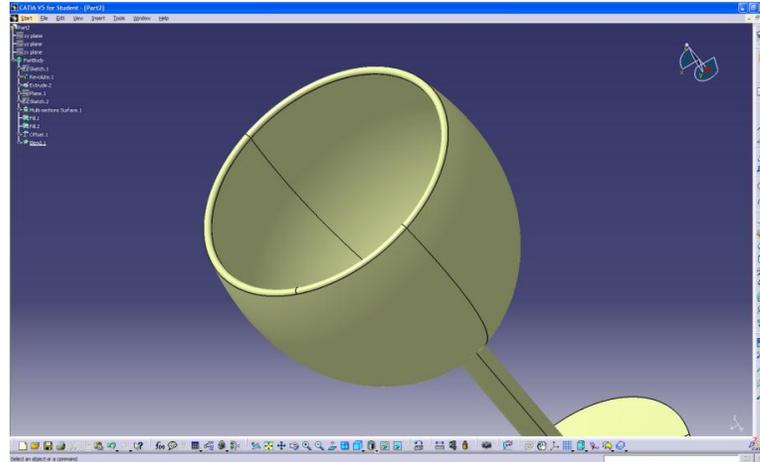
o   And that is how to create a wine glass using the wireframe and surface design workbench
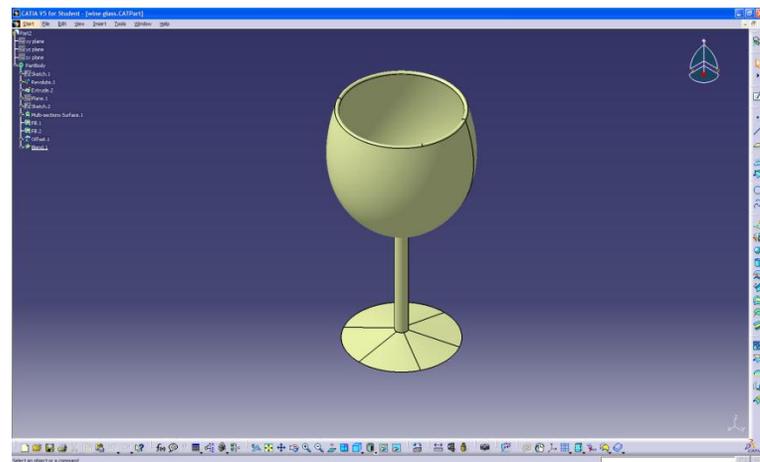
o   For other tutorials on how to use some of the commands not shown in the wireframe and surface design workbench lessons or to learn more about the commands used there is a list of tutorials located on the T: drive which can be found by going to my computer(show)…along with this list is a parts folder with some designs that were made using the wireframe and surface design workbench compiled to give an idea of the potential of this workbench

o   And that concludes the second part of the CATIA wireframe and surface design workbench lesson