Solidworks Personal Project: Violin
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I always liked string instruments, especially violins, because of the way that they seem almost effortless to play. The violinist moves so fluently with each note and makes the most beautiful music. In elementary school I got my violin handed down to me from my older sister, Kylie. She only played for a short period of time before she decided to stop playing altogether. I immediately started taking lessons and learning new songs, but, unfortunately, I quickly gave up on the instrument too. It turns out I only like listening to violinists and not actually being one. However, I did learn a lot in the short time that I played. I developed an appreciation for the skill required to be a violinist and especially for the physical design of the violin. Every part on the violin is so beautifully made which inspired me to recreate a violin on Solidworks.

I began my project with the body of the violin. I had to draw half of the outline of the body using lines and primarily tangent arcs. Then, I used “Mirror Entities” feature to mirror what I had drawn over the central line, ensuring the violin was perfectly symmetrical. After this was completed, I used the “Extruded Boss/Base” feature and pulled the body to be a few inches in thickness. I also used the “Extruded Boss/Base” feature to extend the neck to proper length and to make the chin rest and tailpiece thicker thickness. I used the “Shell” feature to remove the interior of the body, hollowing it out. On the tailpiece, I then had to use the “Extruded Cut” feature to make a hole for the strings to attach to. Finally, I used the “Fillet” feature on all of the parts in order to make the final project look more realistic.

I knew going into this project that making a violin would be difficult, but ultimately I’m happy with the way it turned out. The hardest part of this model to complete was definitely the scroll and the F-Holes. The scroll is the swirl at the top of the violin and the F-Holes are the cutouts on the body of the violin. For the scroll, I attempted to use planes to swirl the end of the neck but I was unsuccessful so I used the “Extruded Boss/Base” feature to make it appear to be swirled. For the F-Holes, I had to sketch the design and use the “Extruded Cut” tool to cut them out, revealing the hollow inside of the violin. It was very difficult to draw the holes using lines and arcs so I learned how to use a “Spline” drawing tool which allowed the design to look more realistic. Additionally, I ran into a lot of problems with dimensioning: when I brought all of the parts to the assembly, they were drastically different sizes. In order to properly dimension them, I learned how to use the “Scale” feature and got them back down to proportional sizes.

Coming into EDSGN 100, I had absolutely no idea what to expect. I didn’t have much knowledge about engineering in general and all I knew was that it was a required class. When we started with the Solidworks tutorials, I was completely blown away for two reasons. One reason was how cool it was because I had never seen any program like this before. The second was that this is extremely difficult and confusing to use. As the weeks progressed, I felt myself becoming more confident with my Solidworks skills. This portion of class gave me a greater appreciation for the designs of so many different parts and I know that is a valuable thing to have in this field. I’m so glad I’ve had this exposure to Solidworks so early on in my education, I know it will help me in my schooling and eventually my career.