Grade my Assignment

A STEP file is based on an object model (see Fig. **3.1**, page **3**, **Geometric Data Extraction from STEP Files.pdf**) that we will use in our solution as follows:

1. Load STEP file into memory (depending on file sizes, this can be optimized – Not in scope for V1)
2. Build the object hierarchy based on the file

This implies that the object hierarchy will replicate the file and not necessarily the object model. This aids in Boolean checks. ***Example***: *A hole in a structure is represented by a cylinder in a STEP file. Querying the object hierarchy for a cylinder will, first, tell me if the hole was even created.*

3. The object hierarchy will allow us to traverse down the chain with ease. We can find an object in the structure. For example, we can find the number of faces in a structure. For each face, we can drill down the hierarchy to find details.
4. For each object in the hierarchy, we can traverse upwards searching for parent relationships.

For an example of how the hierarchy is traversed, see section **3.2.4**, page **8**, **Geometric Data Extraction from STEP Files.pdf -** ***Finding the Surface and Radius***.

See table Table 3.1 for description of the different parts of a structure.

For a more friendly description of the STEP file, see **describing-the-step-file-format.pdf**.

I have also put some comments on page **10**, **GradeMyDrawing_MVP_0.2.1.pdf**.

Optional: If time permits, you can go through **A Comparative Study of Product Data Exchange among CAD Systems.pdf**.