ACTIVITY 9

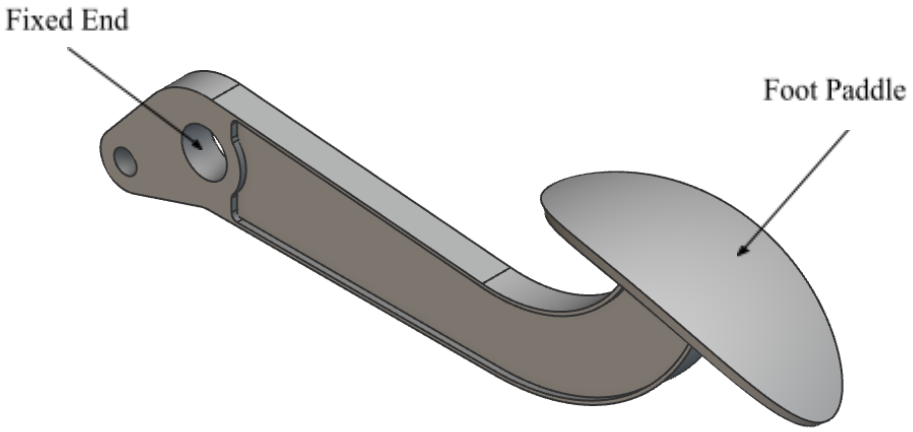
COURSE NAME - Additive Manufacturing

Submitted by - NIKHIL KUMAR

Roll No. - B21307

1. Use N-Topology's Topology Driven Latticing Tool to Optimize the material usage for Brake Pedal as per the Boundary Condition and Loads provided below.
    a. The Foot Pedal has a Static force of **-200 N** acting in -ve Z
    b. The Fixed End displacement is **Completely Constrained**.

    Compare the change in Stress, Displacement and weight reduction potential in all the cases.



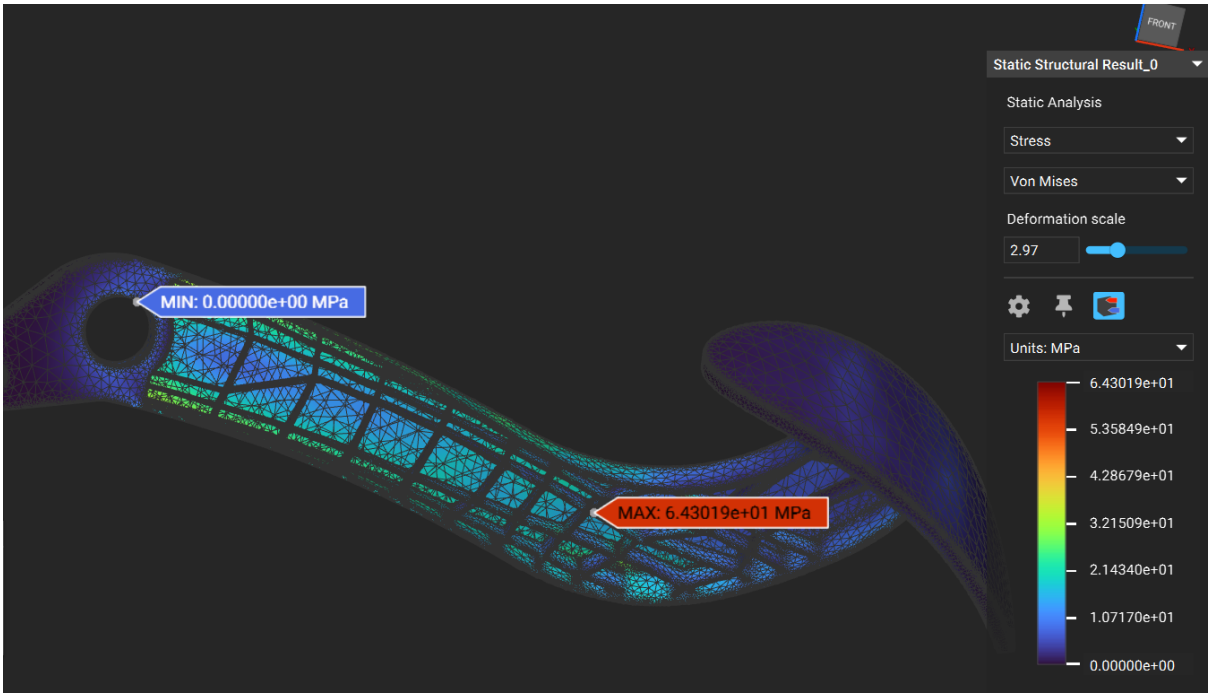
Ans:

Ribbing Type	Max Stress (Mpa)	Max Displacement (mm)	% Weight Reduction
Optimized Simple Cubic	6.430e+01	2.490e+01	33.0491
Optimized BCC	9.795e+01	1.832e+01	29.2004
Optimized FCC	6.441e+01	1.483e+01	22.4831

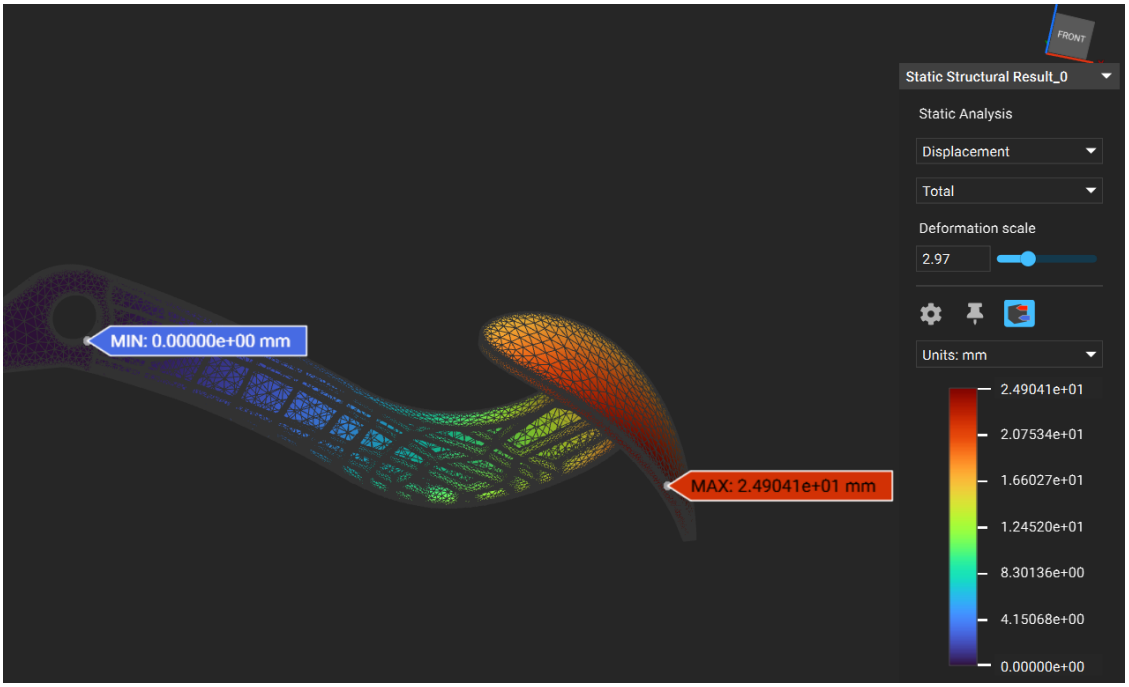
Screenshots of Optimized Lattice Parts-

Optimized Simple Cubic

for stress -

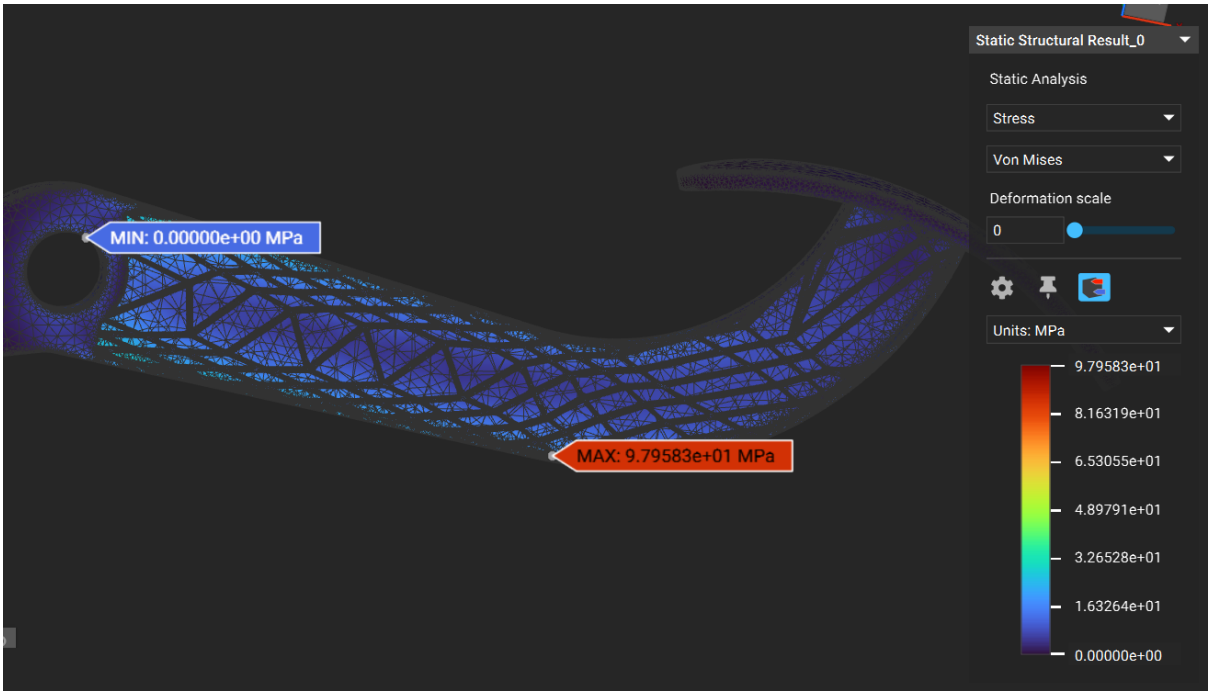


for displacement -

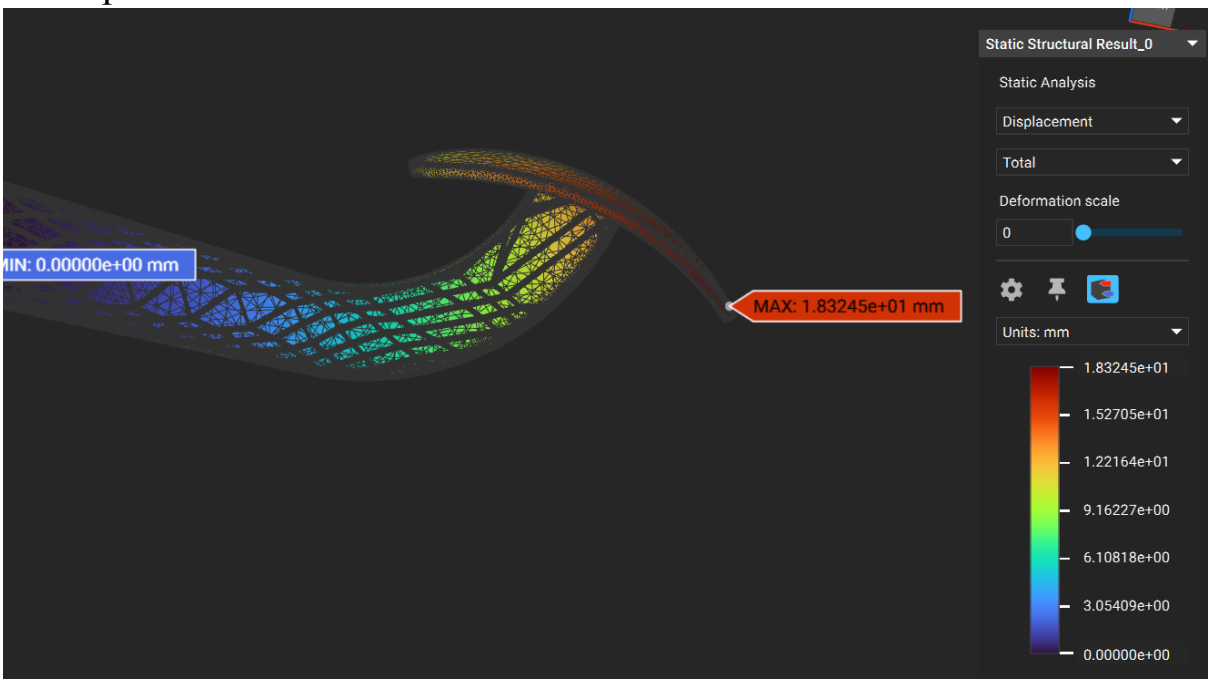


Optimized BCC

for stress -

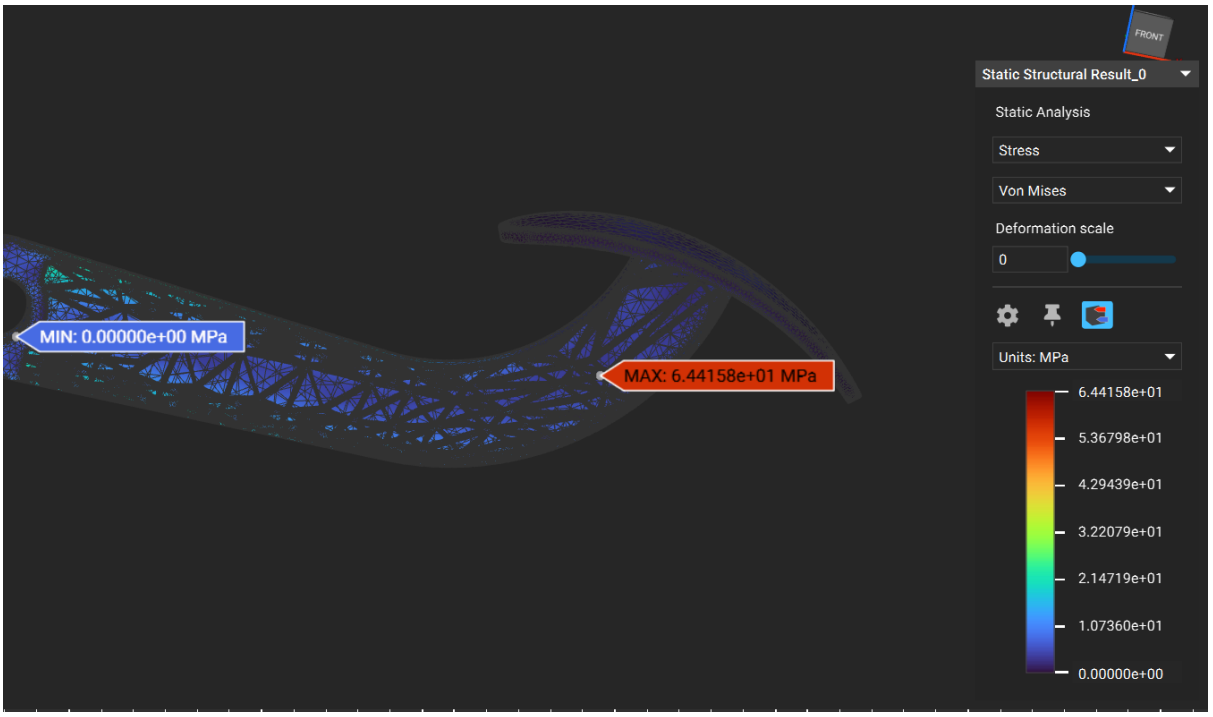


for displacement -



Optimized FCC

for stress -



for displacement -