Static analysis of beam using refined 1D beam models

- A cantilever beam having a square cross-section of edge length equal to **0.2m** and length **2m** made of isotropic material with **E = 75 GPa** and **v = 0.33**. The structure is loaded by a vertical force equal to –50 N at the centre of the free tip (0,L,0) in the negative Z-direction. (Taken from the book - Finite Element Analysis of Structures through Unified Formulation by Professor Carrera)

- Lagrange polynomials have been used for finding the cross sectional displacement field (X,Z)

- Linear and quadratic elements have been taken for discretization across the beam axis(Y)

- The problem has been solved using 1L4 element across the cross section.