Modal Analysis of a Wing - Numerical Solution

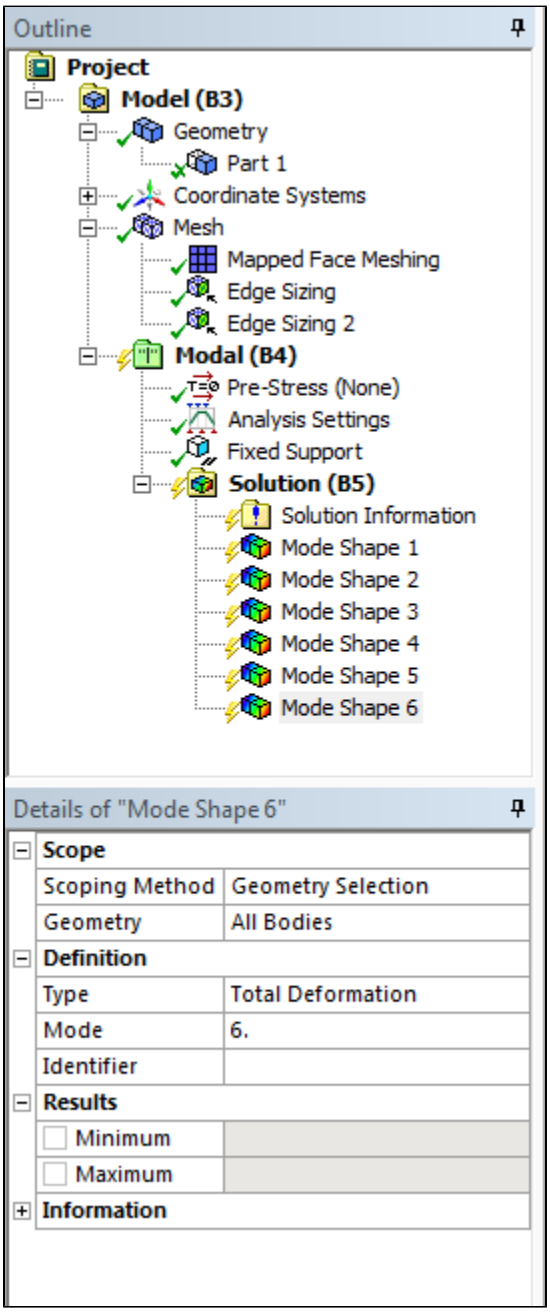
Author: Benjamin Mullen, Cornell University

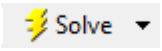
Numerical Solution

Total Deformation

ANSYS will by default solve for the frequencies of the first 6 vibration modes; however, we would also like to see how this affects the geometry. We can accomplish this task by looking at the total deformations of the airfoil to see where the nodes occur and how the geometry deforms. To tell ANSYS to solve for the deformation, first select ***Solution*** in the *Outline* window to bring up the Solution Menu bar. In the Solution Menu, select ***Deformation > Total***. In the *Details* Window, notice that the deformation is solving for Mode 1. Rename ***Total Deformation*** to `Mode Shape 1`.

Create another instance total deformation and rename it `Mode Shape 2`. Select it, and change ***Mode > 2***. Now, you will be solving for the deformation of the 2nd Mode. Repeat this step until you are solving for the total deformation of all 6 modes.



To solve the system, press 

Go to Step 6: Numerical Results

Go to all ANSYS Learning Modules