

5.) Numerical Analyses such as Finite Element Analysis are very useful for performing stress analysis of the actual design and are capable of handling complex geometries. But the main problem with such analyses is that they are resource-intensive and are used generally for refining designs only. While Simple analyses like Prandtl's lifting line theory are perfect for doing a preliminary design, where we try to get a rough estimate of the wing shape and size. We use these methods for estimating key parameters like wingspan, chord width, and Aspect ratio. This helps us narrow down the domain for the variables. This domain is then used for further design purposes, where the parameters are refined to produce the final design of the wings.