The development of computational fluid dynamics has given us a very powerful tool for investigation of fluid dynamics. However, in order to maintain the progress, it is necessary to improve the numerical algorithms. Nowadays, the high-order methods based on the discontinuous projection seem to have the largest potential for the future. In the work, we used open-source framework Nektar++, which provides the high-order discretization method. We tested the abilities of the framework for computing the compressible sonic and transonic flow. We successfully obtained simulations of the viscous and inviscid flow. We computed the lift and the drag coefficients and showed that for a higher polynomial order we can obtain the same accuracy with less degrees of freedom and lower computational time. Also, we tested the shock capturing method for the computation of the inviscid transonic flow and confirmed the potential of the high order methods.