ME-202 Project

In the project provided to the group, the value of Vinfinity = 90 and the angle of attack is 4 degrees. We generated 4 lists namely X, Y,H and K and initiated them to zero and modified them by using the formulas given and converting them into functions. We created a grid(P) using the concept of lists of lists and initiated the value at each and every point to zero and we also created two other grids (PP and act\_P) where one of the them was used to store the values of “phi” from the previous iteration and the other one is used to update the values of “phi”. Then using a while loop, we traversed into the grid using a for loop twice, once for i and once for j. inside this for loop we inserted conditions for special points given by the equations NN2-NN23 using if, elif condition. Else condition was used for NN1 condition.

The difference was calculated between PP and P at each and every point. Later its maximum value was calculated which is the major part of the project. If the maximum value is less than 0.001 then the while loop breaks thus completing the cyclic iterations or else, it continues until maximum value converges and it is less than 0.001.

Then the we calculated for velocities at points above and below the plate. Then we found the Cp values above and below the plate and

We found the values of change above and below the plate

we plotted the graphs V vs X and Cp vs X and Dela\_Cp vs X.

**Observations:**

From the graphs we observe that the values of velocities above and below converge and the velocity is higher for upper part of the plate

And lower for lower part of the plate.The the vice versa for the values of Cp.

Nalluri Pradeep Kumar

B.Sravan Kumar Reddy.

B.Sathwik.

K.Surya.

Mayur Gandhi.

Shivadeep