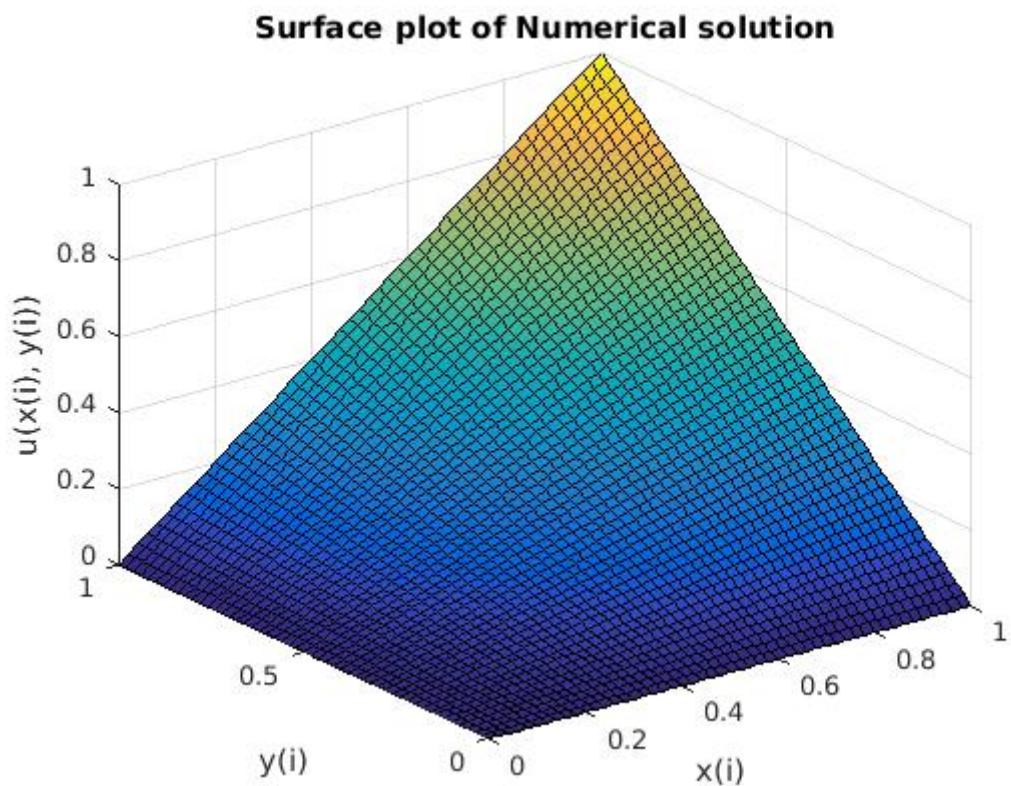


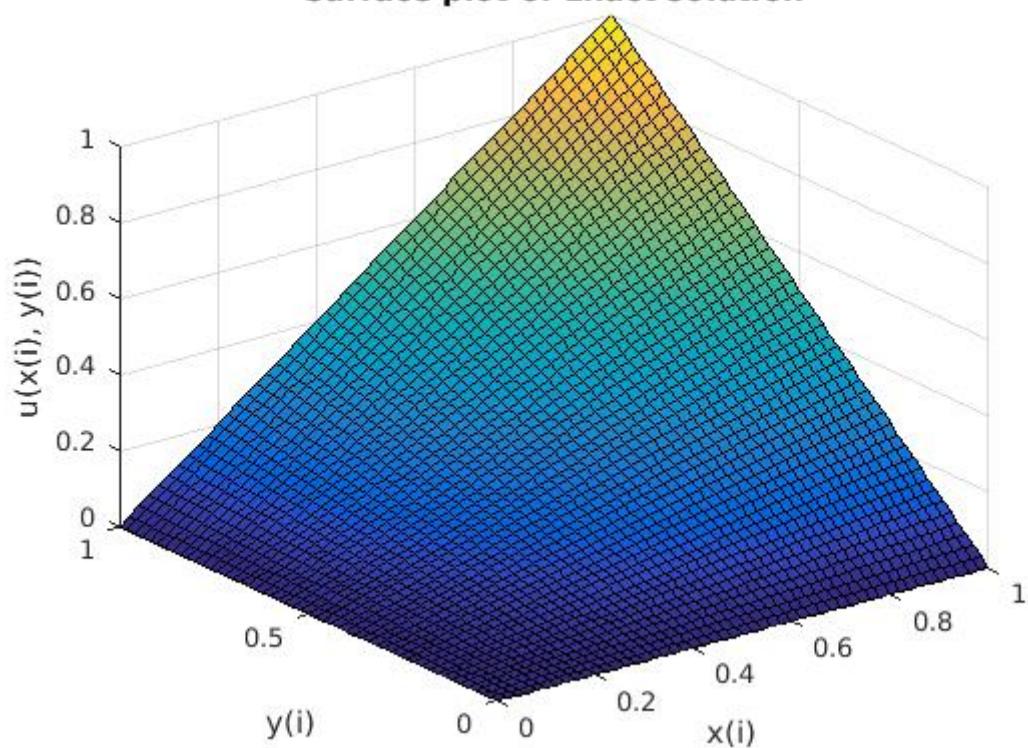
Lab 11

Problem 1:

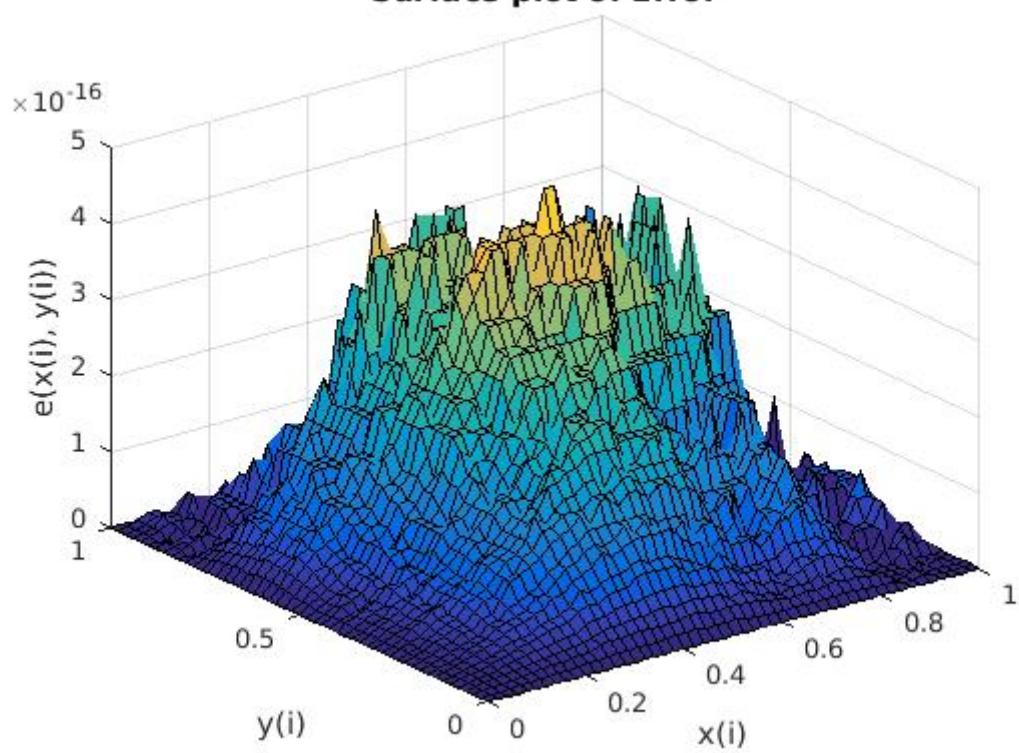
a) The obtained plots are as follows:



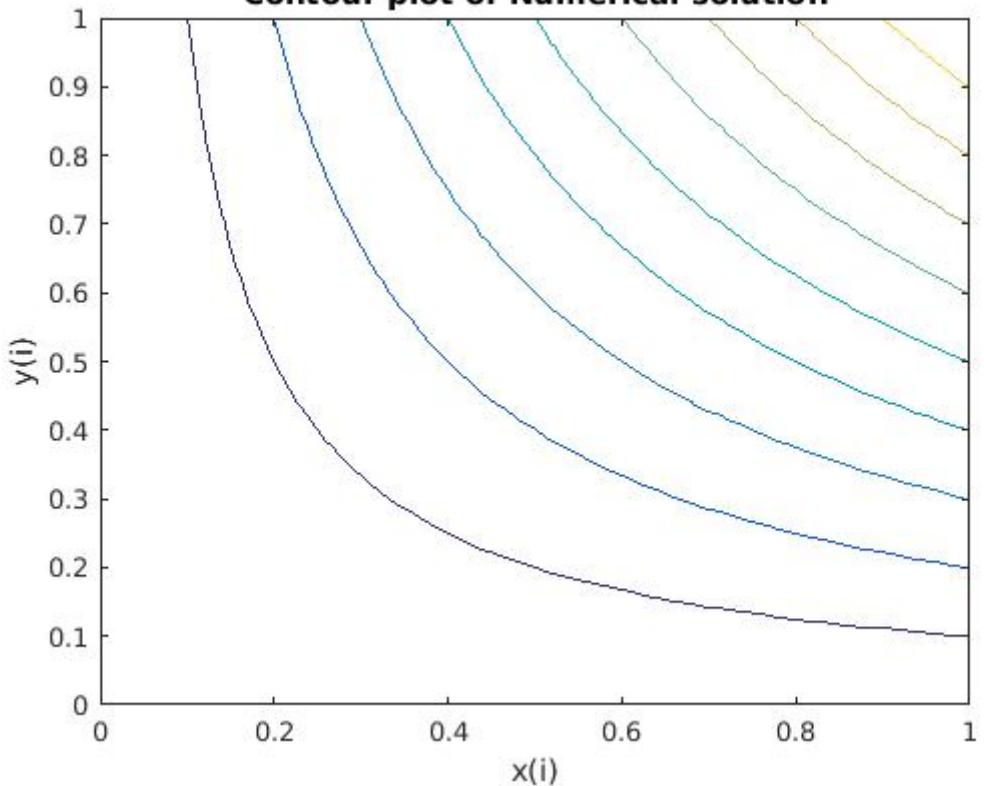
Surface plot of Exact solution



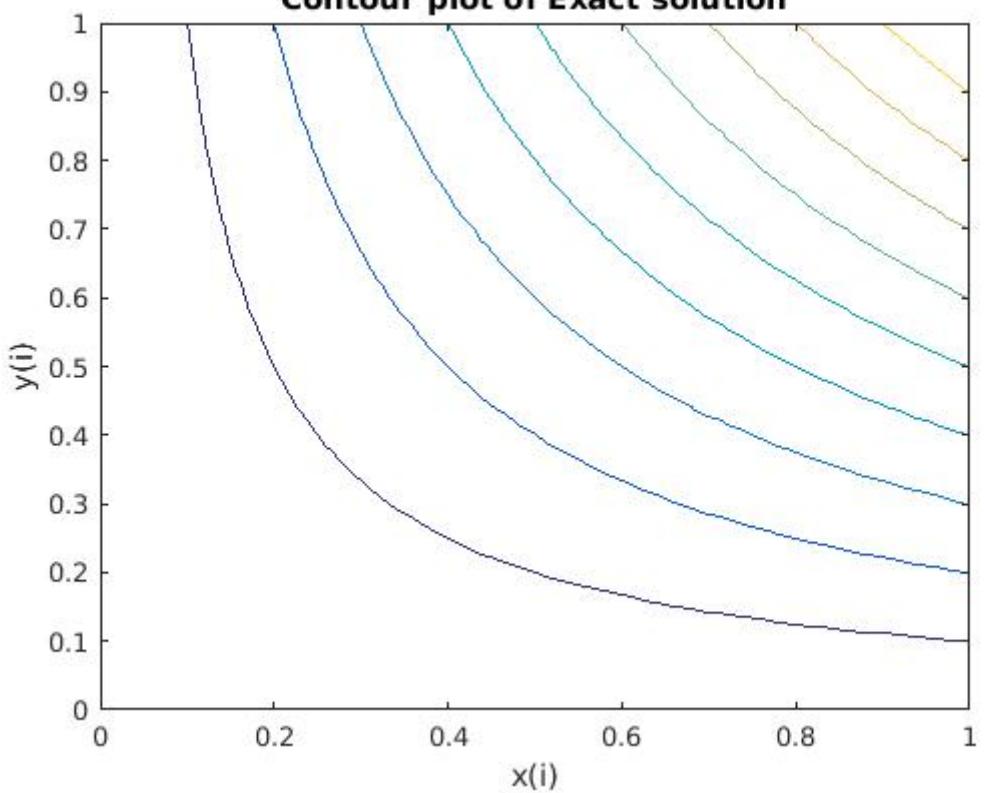
Surface plot of Error



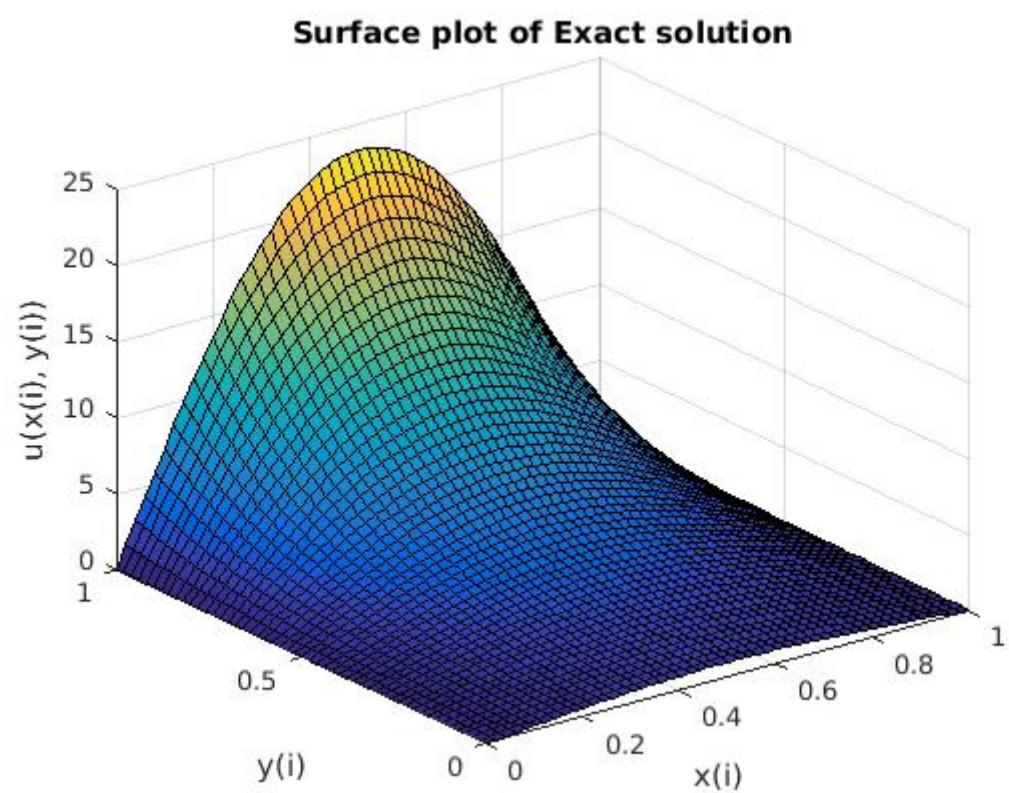
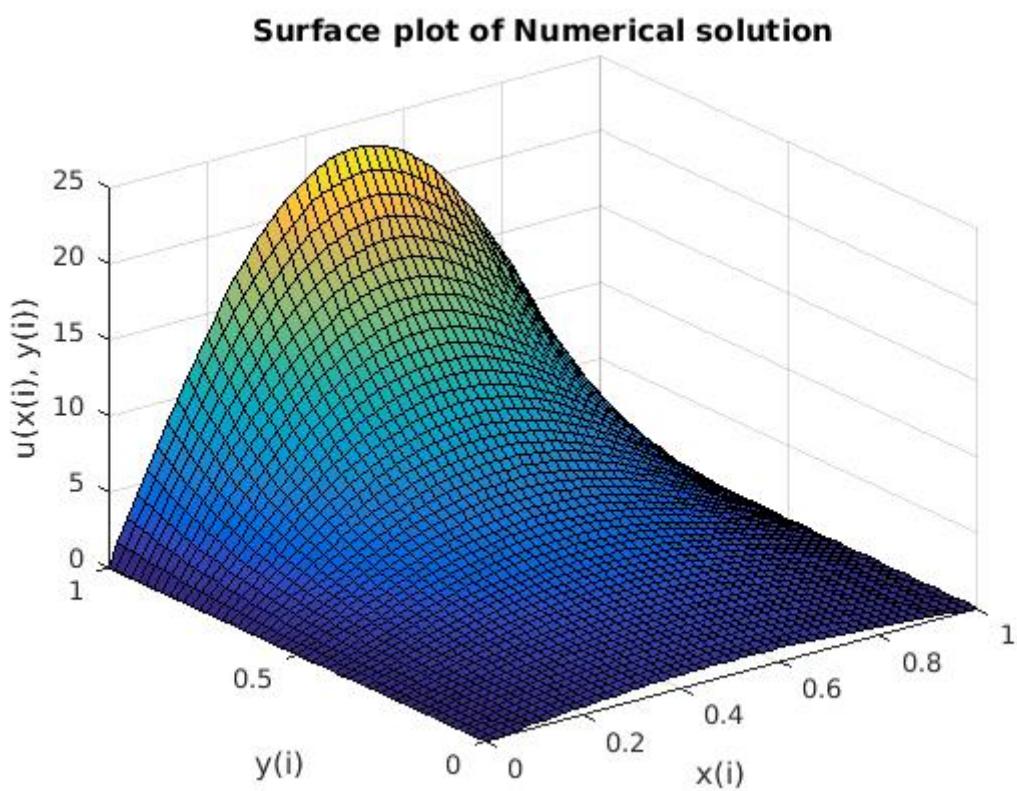
Contour plot of Numerical solution



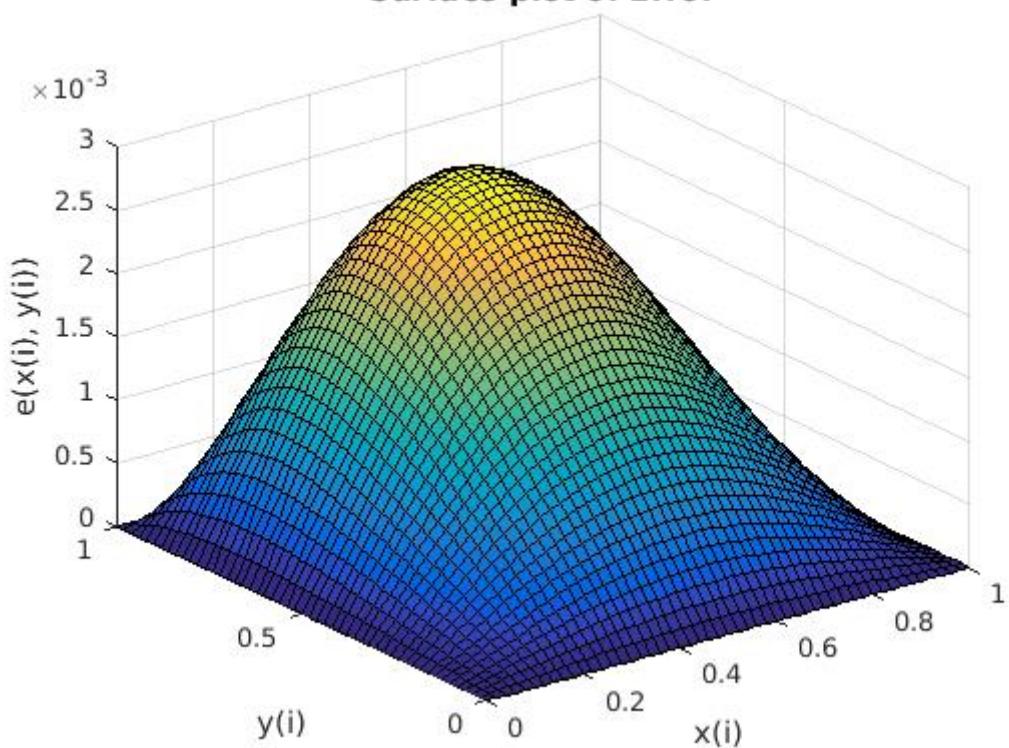
Contour plot of Exact solution



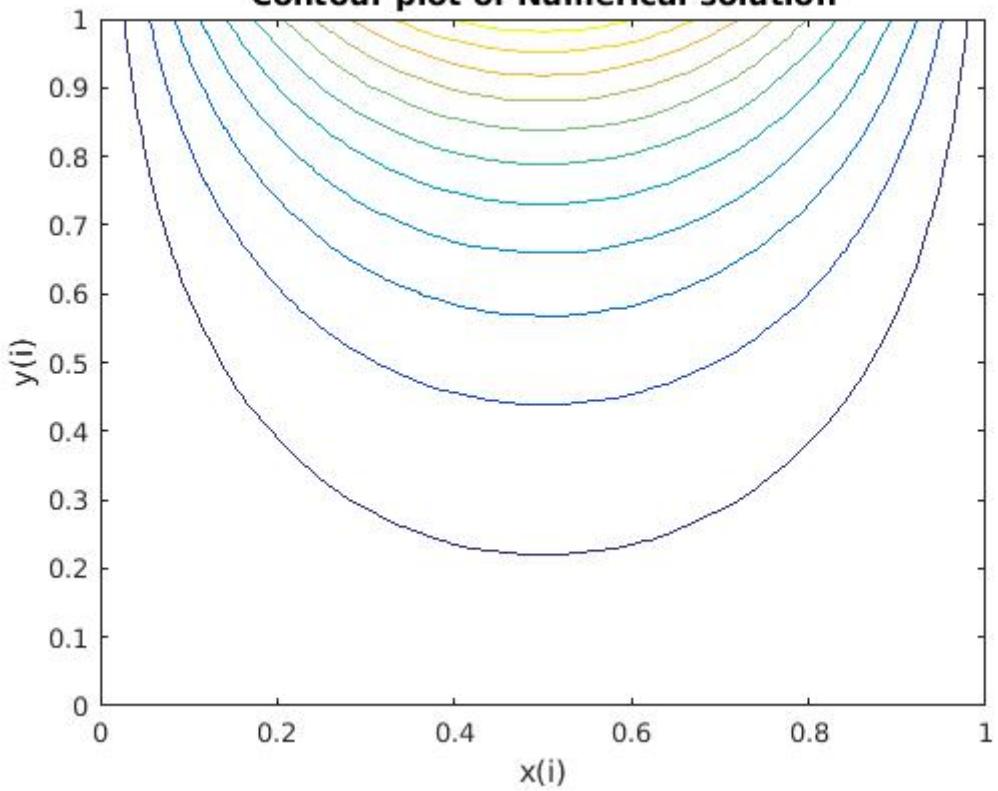
b) The obtained plots are :

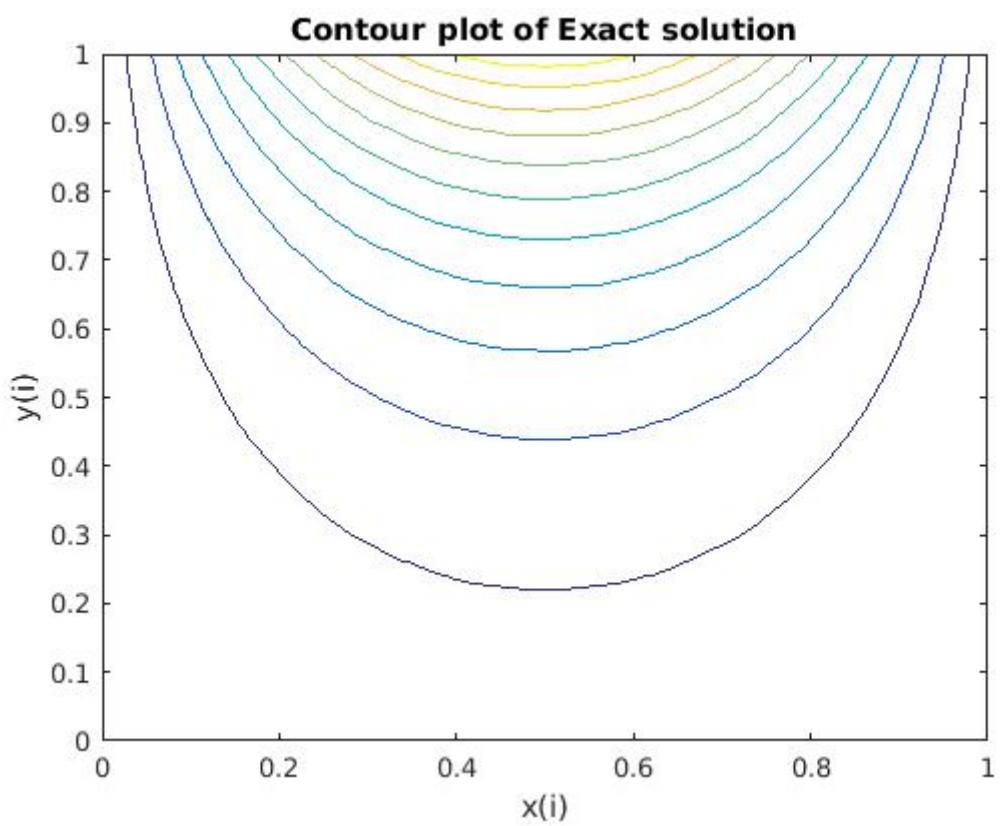


Surface plot of Error

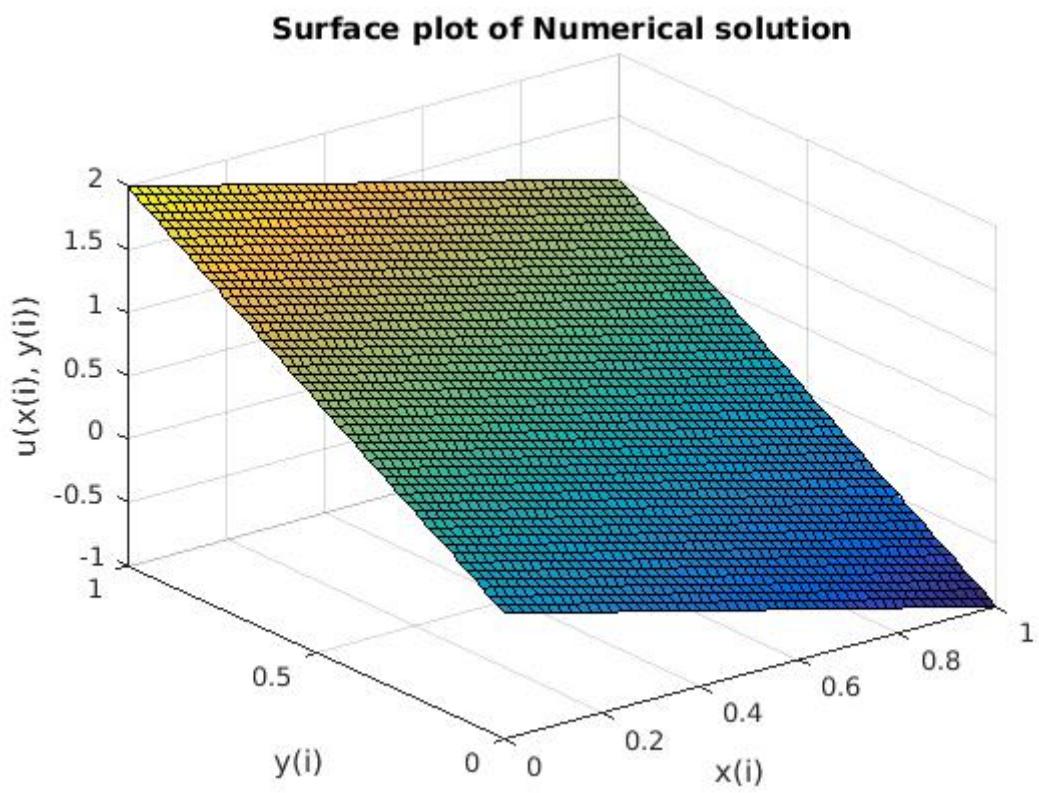


Contour plot of Numerical solution

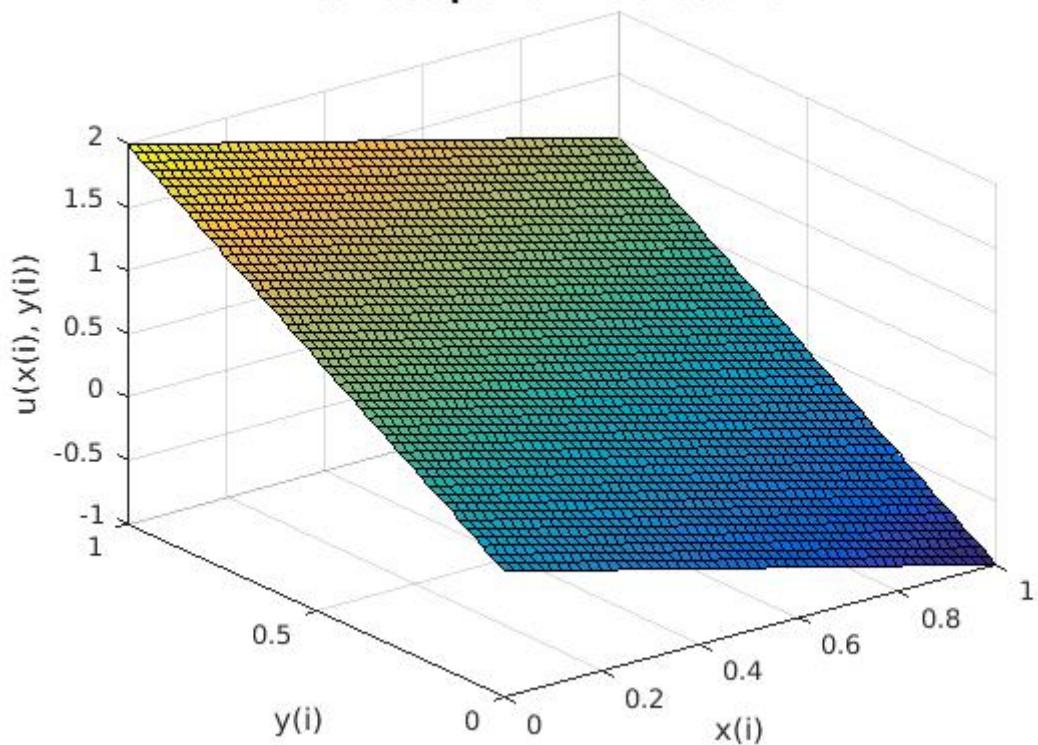




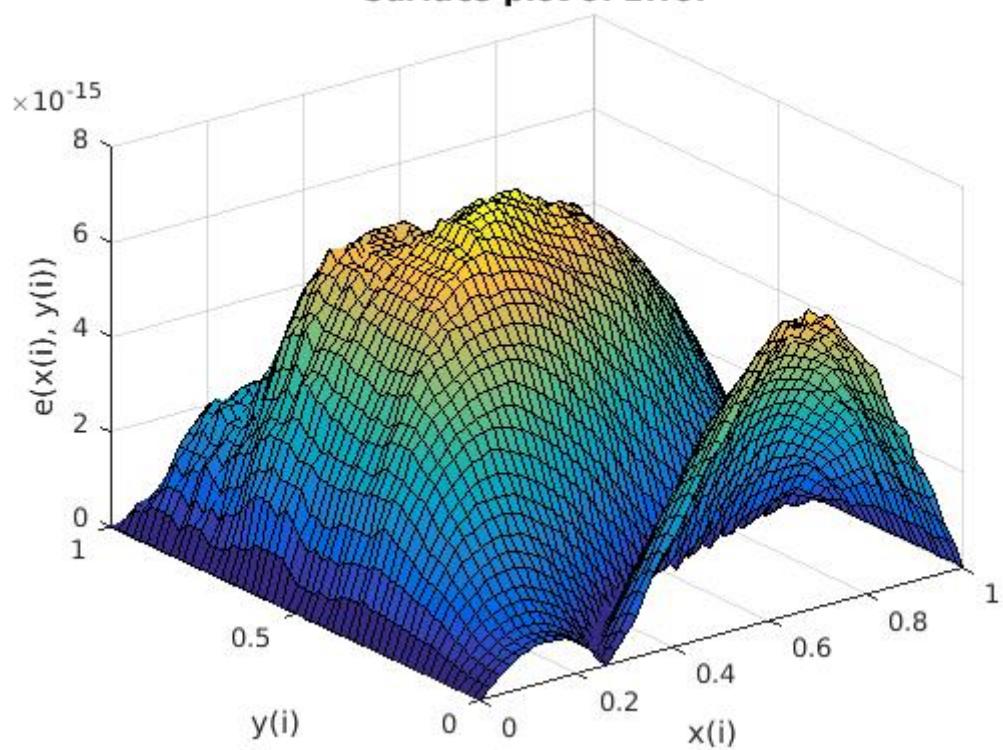
c) The obtained plots are:



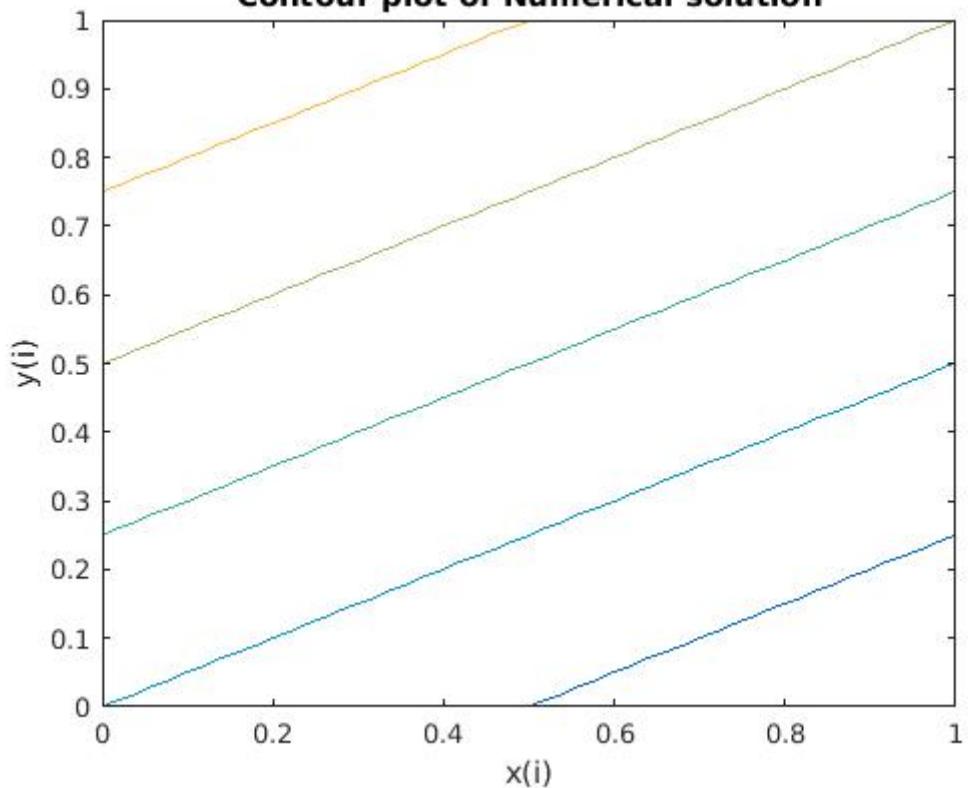
Surface plot of Exact solution



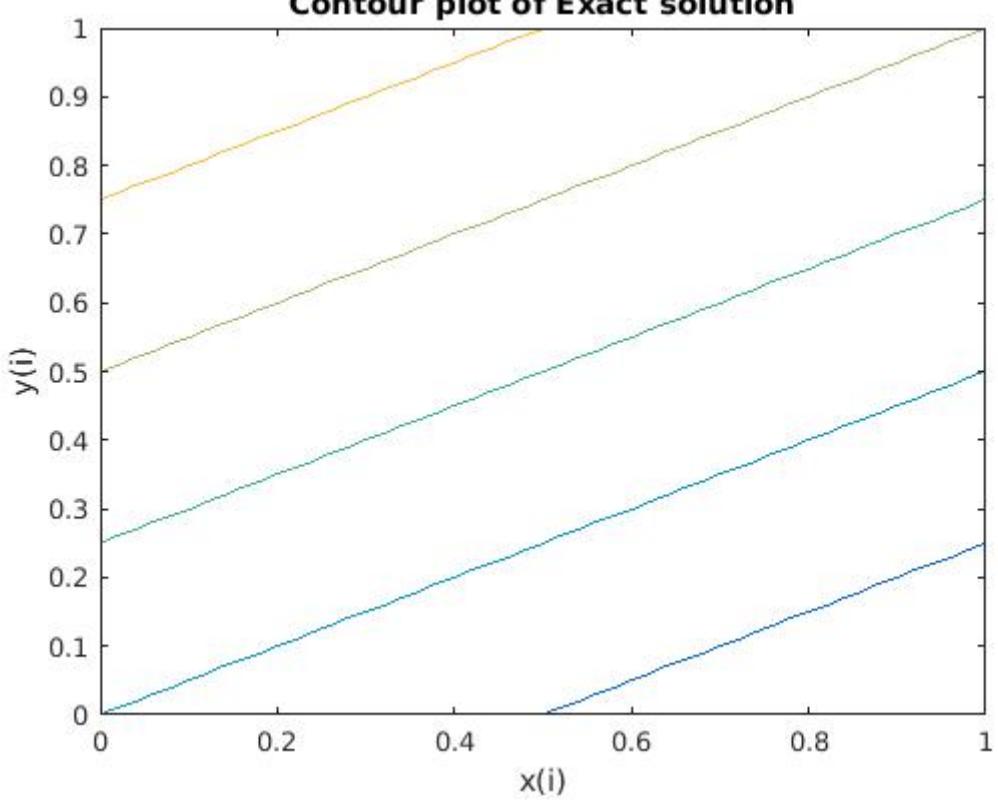
Surface plot of Error



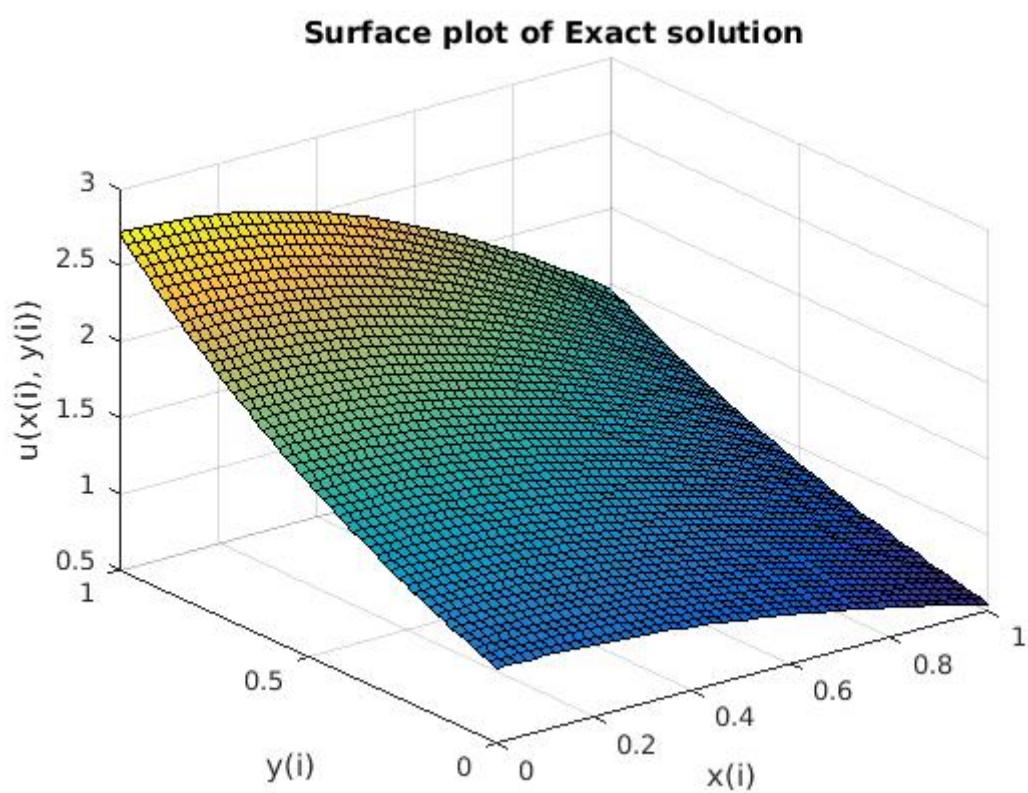
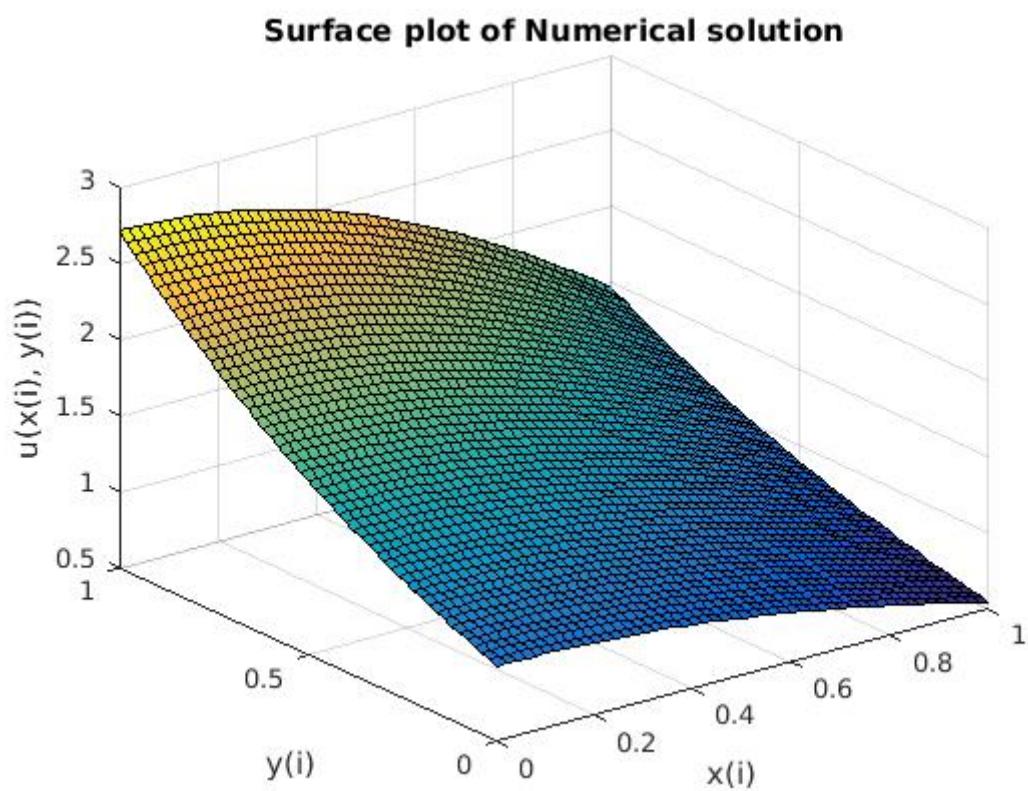
Contour plot of Numerical solution



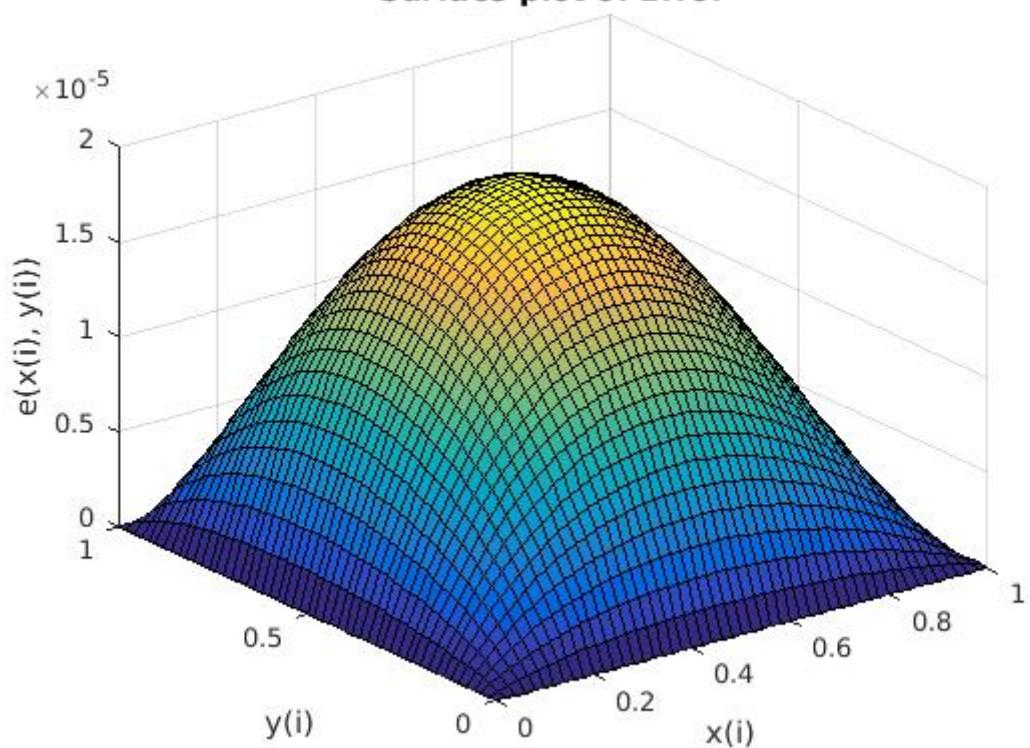
Contour plot of Exact solution



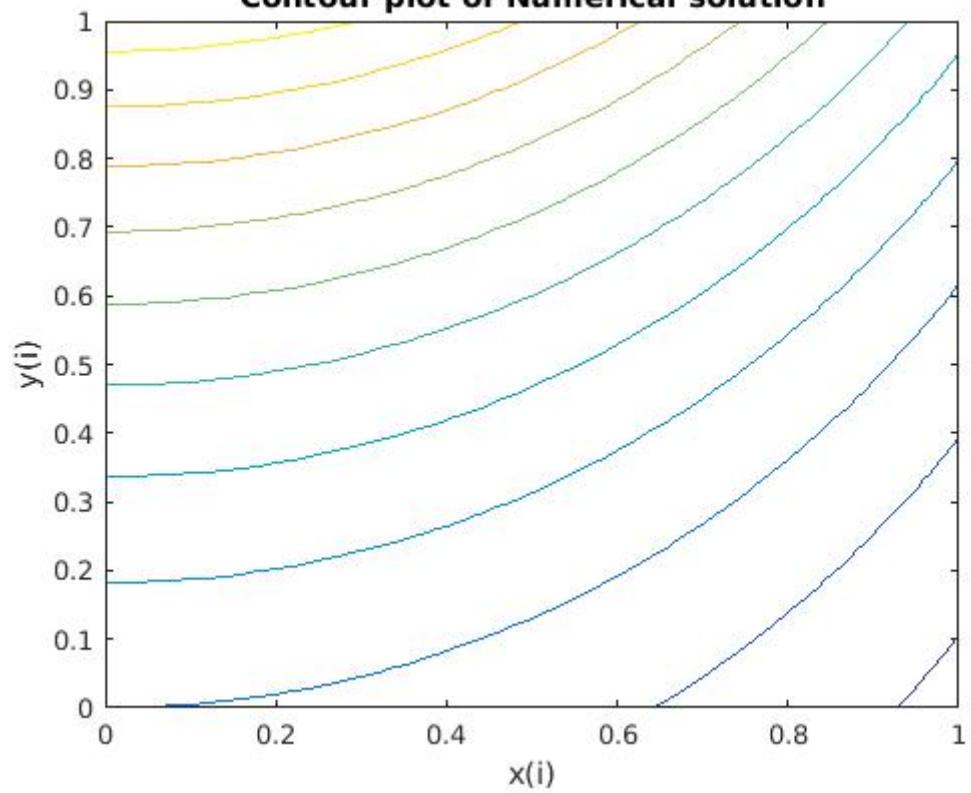
d) The obtained plots are:

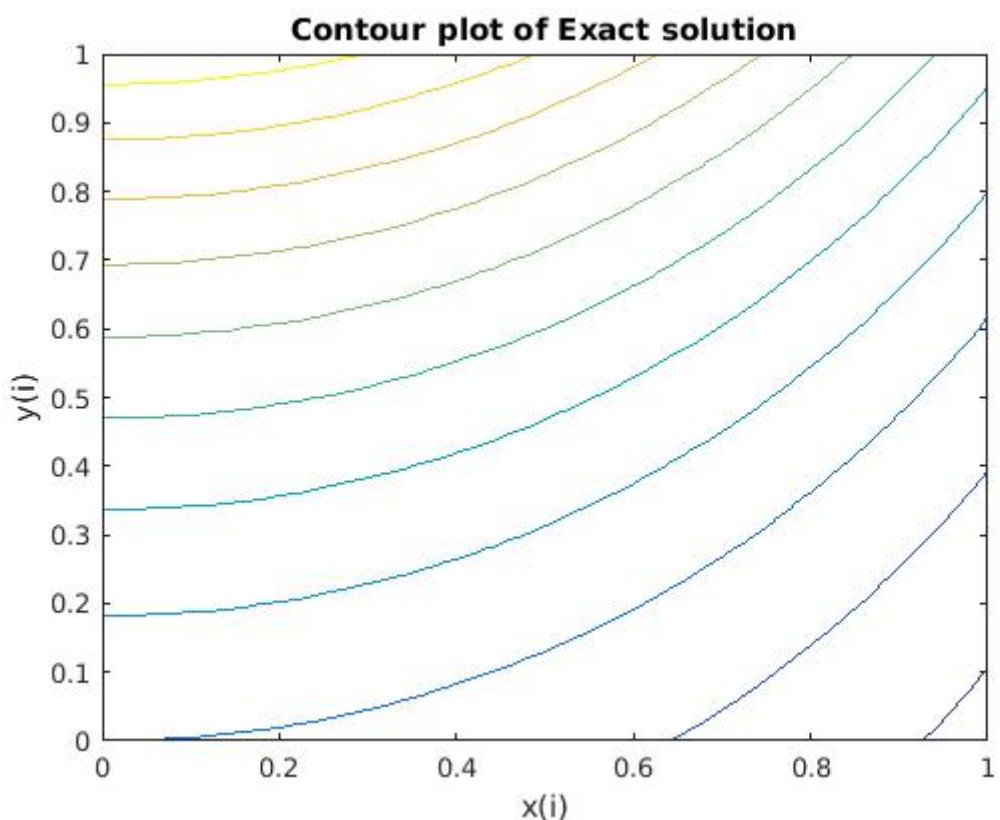


Surface plot of Error

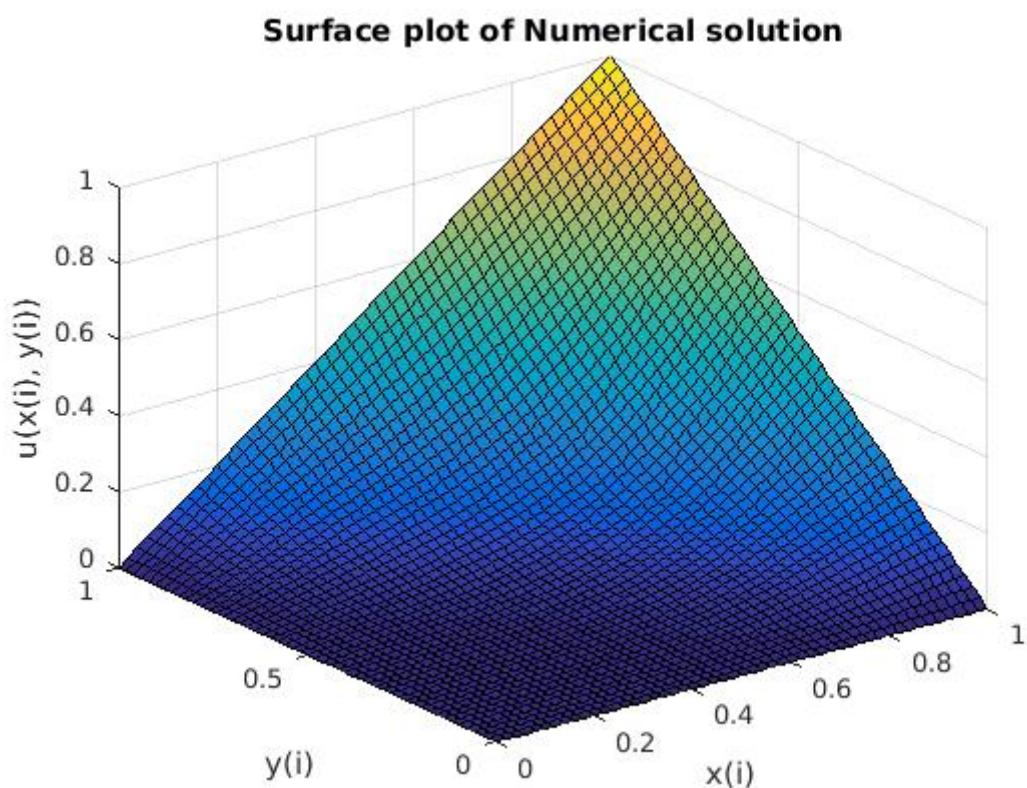


Contour plot of Numerical solution

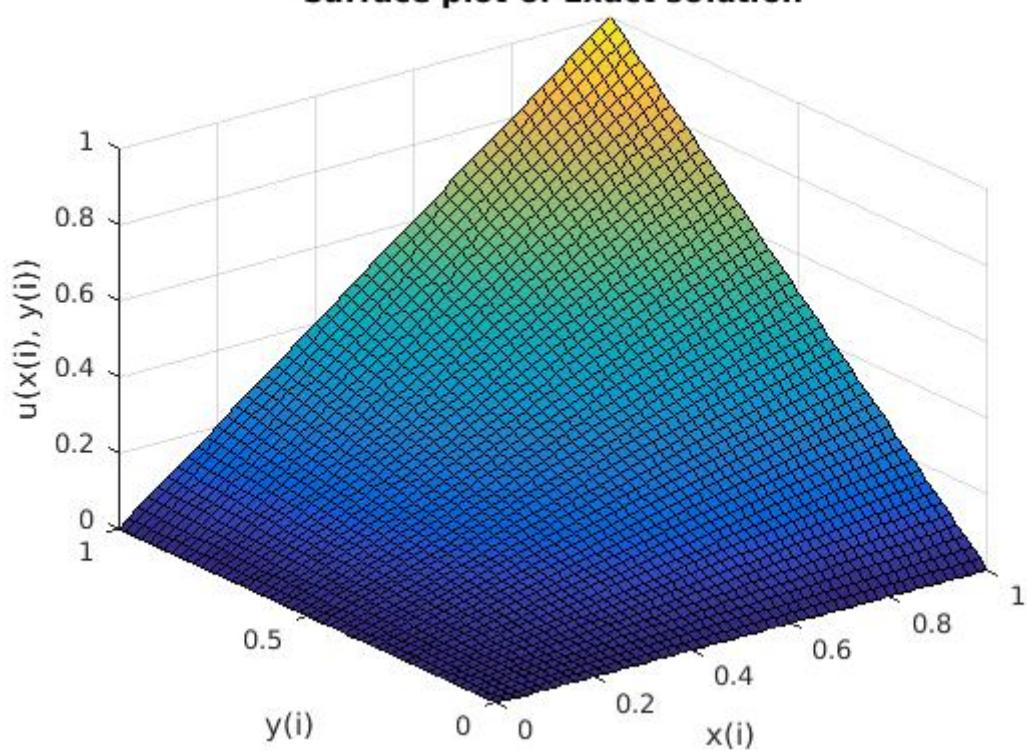




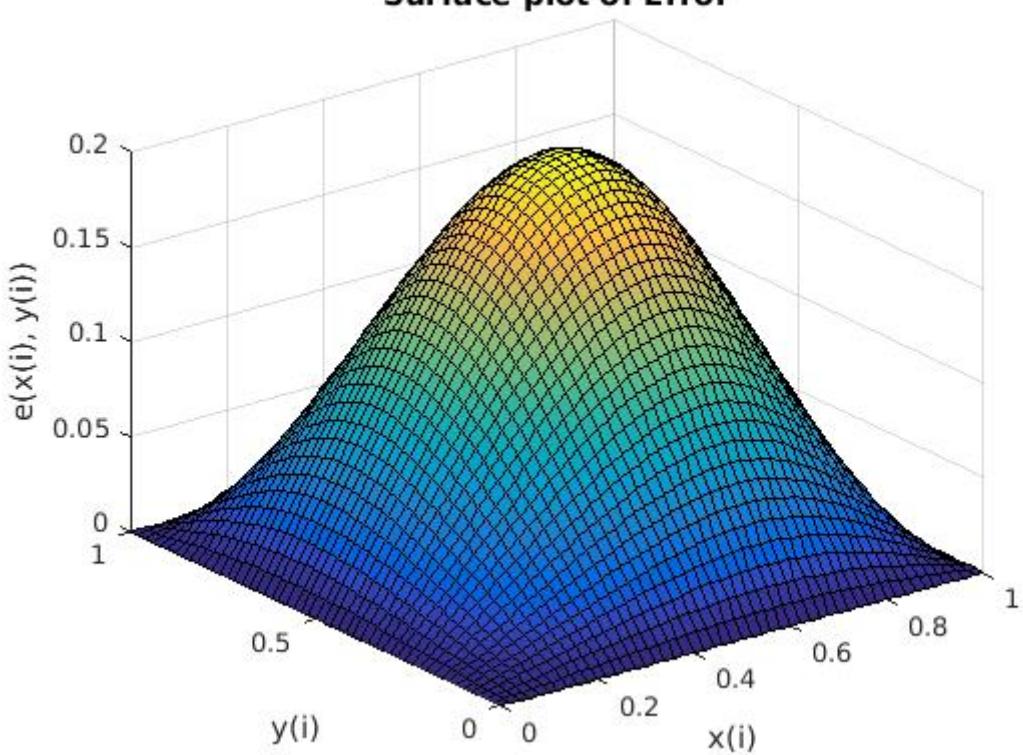
Problem 2: The plots obtained by Gauss Siedel for part a are shown below:

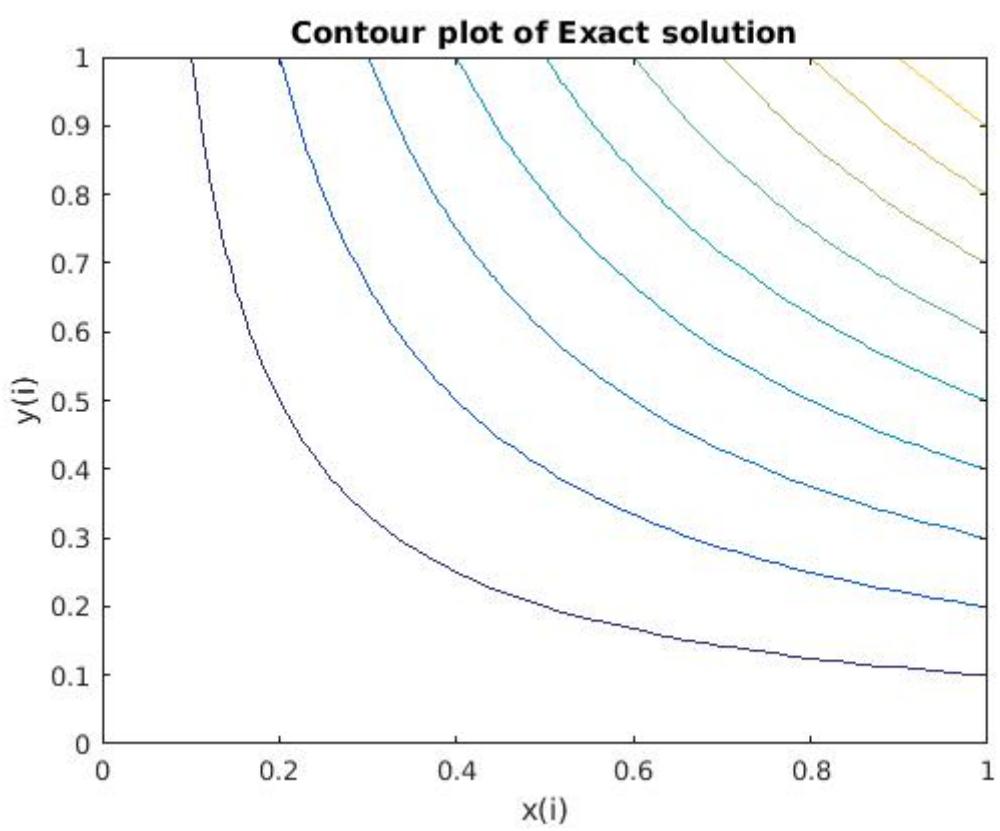
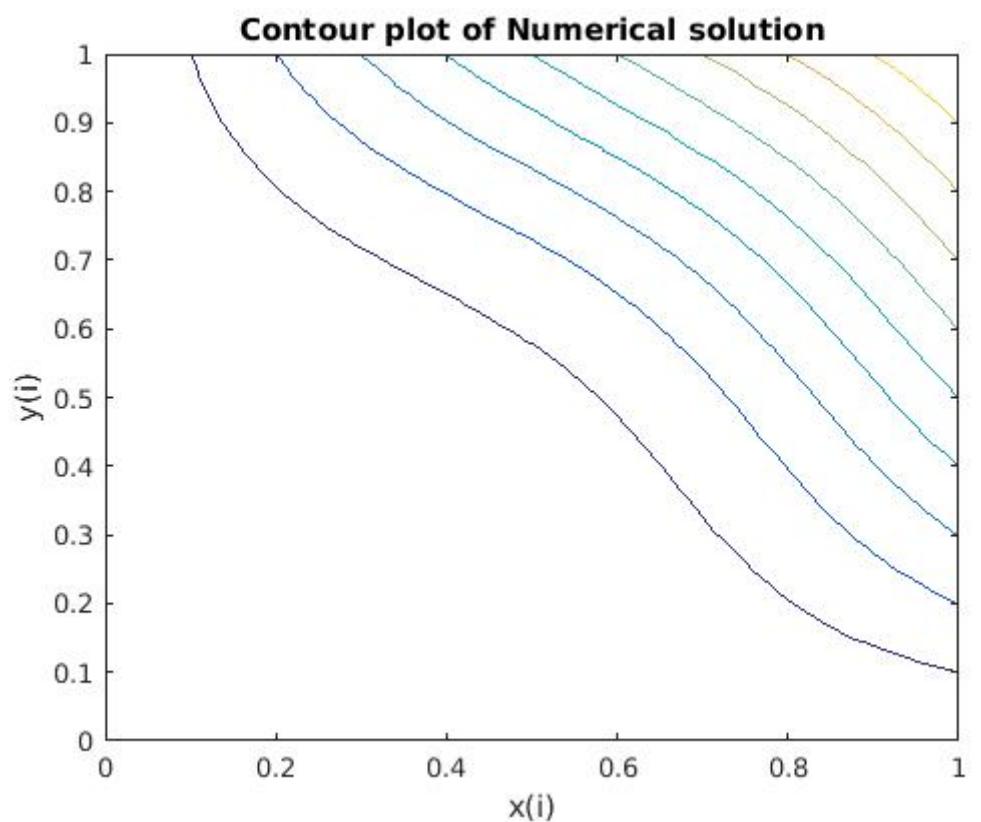


Surface plot of Exact solution

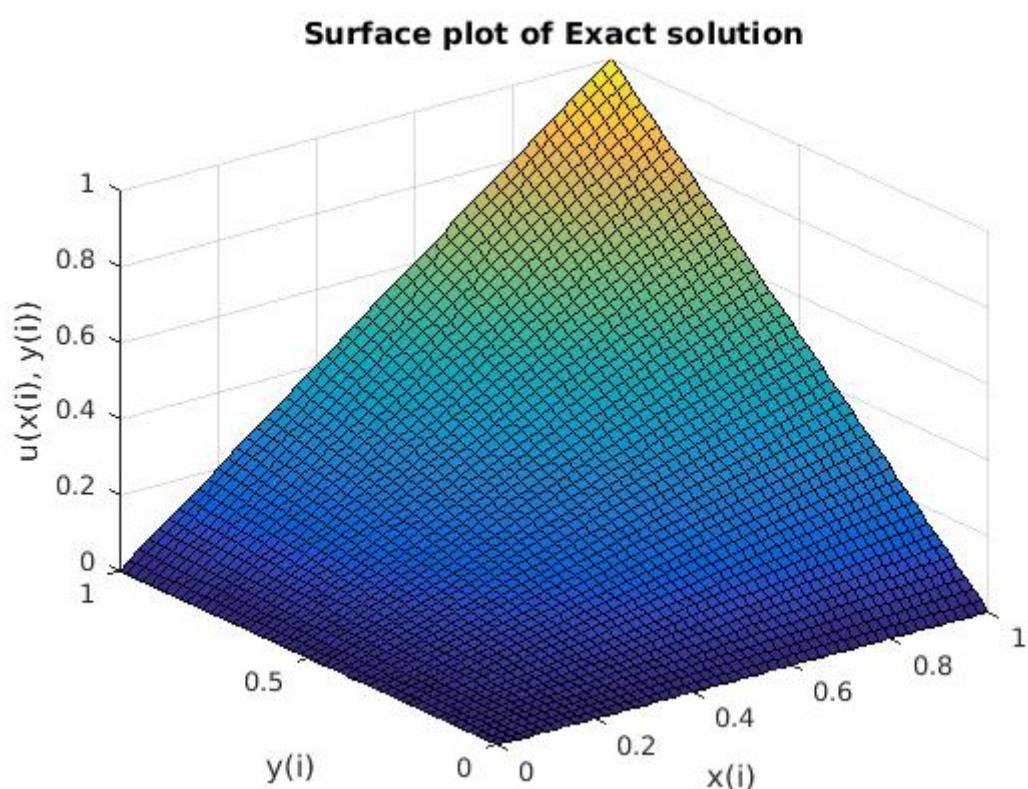
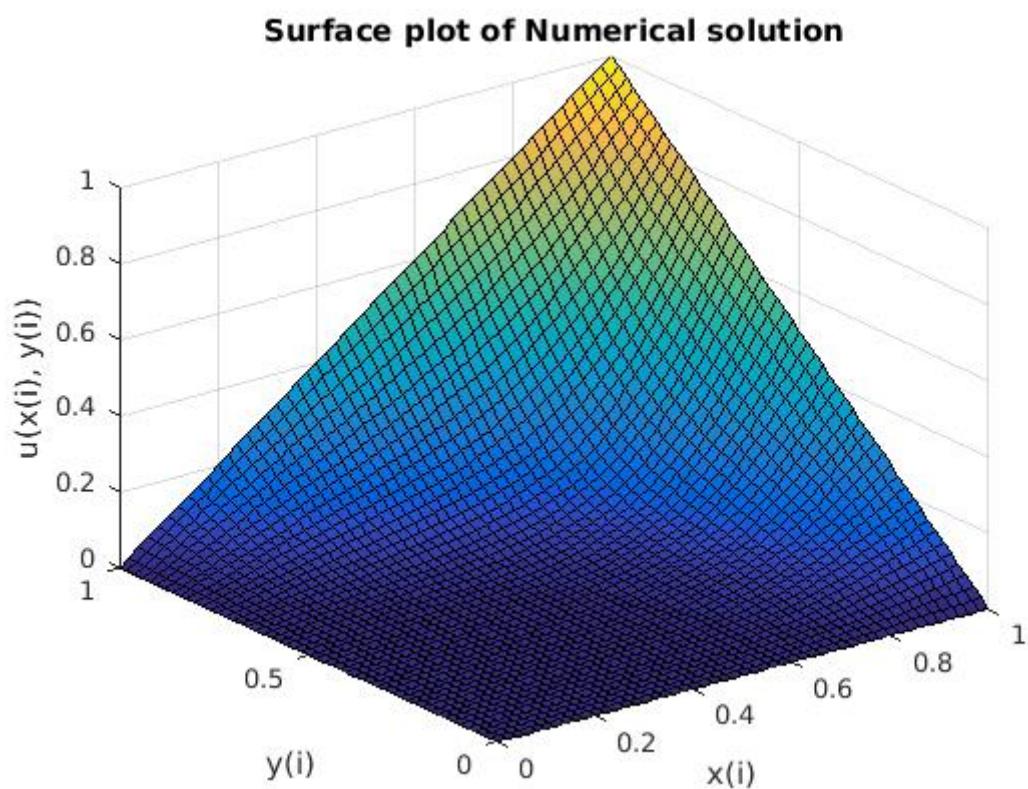


Surface plot of Error

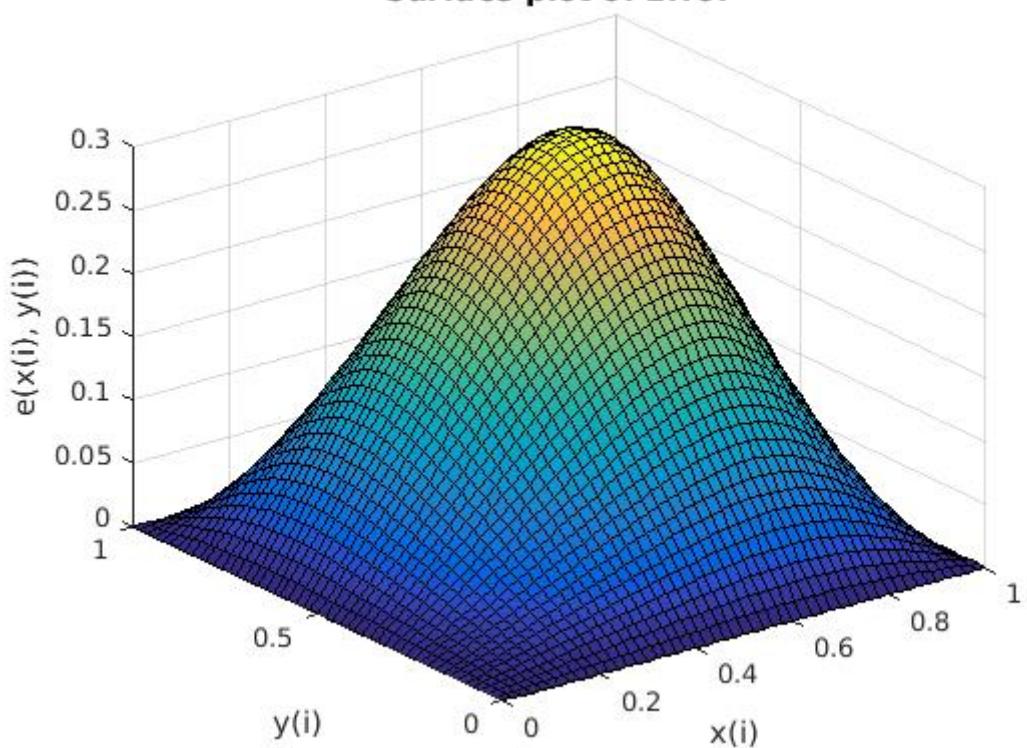




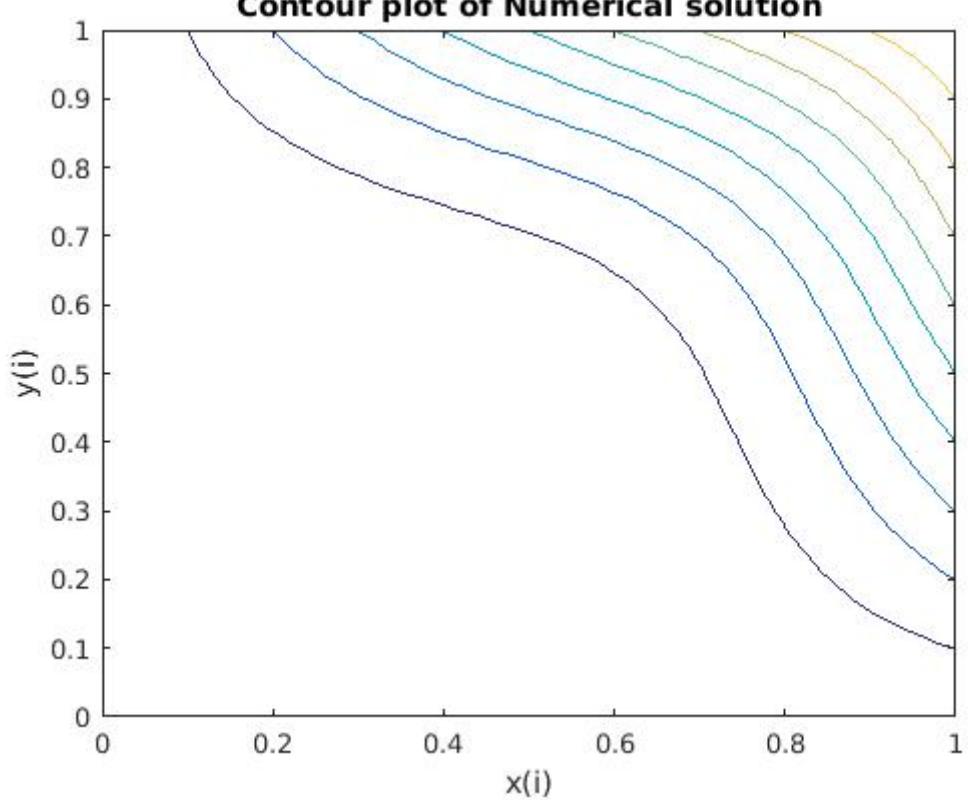
The plots obtained by Gauss Jacobi for part a are shown below:

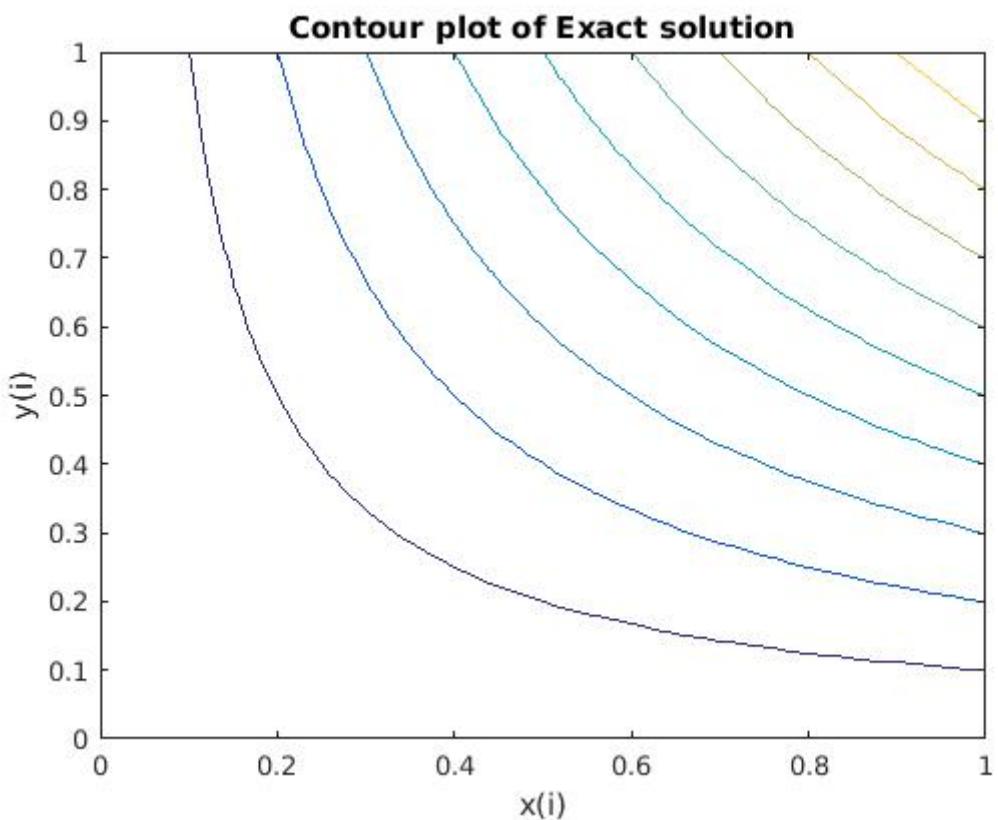


Surface plot of Error

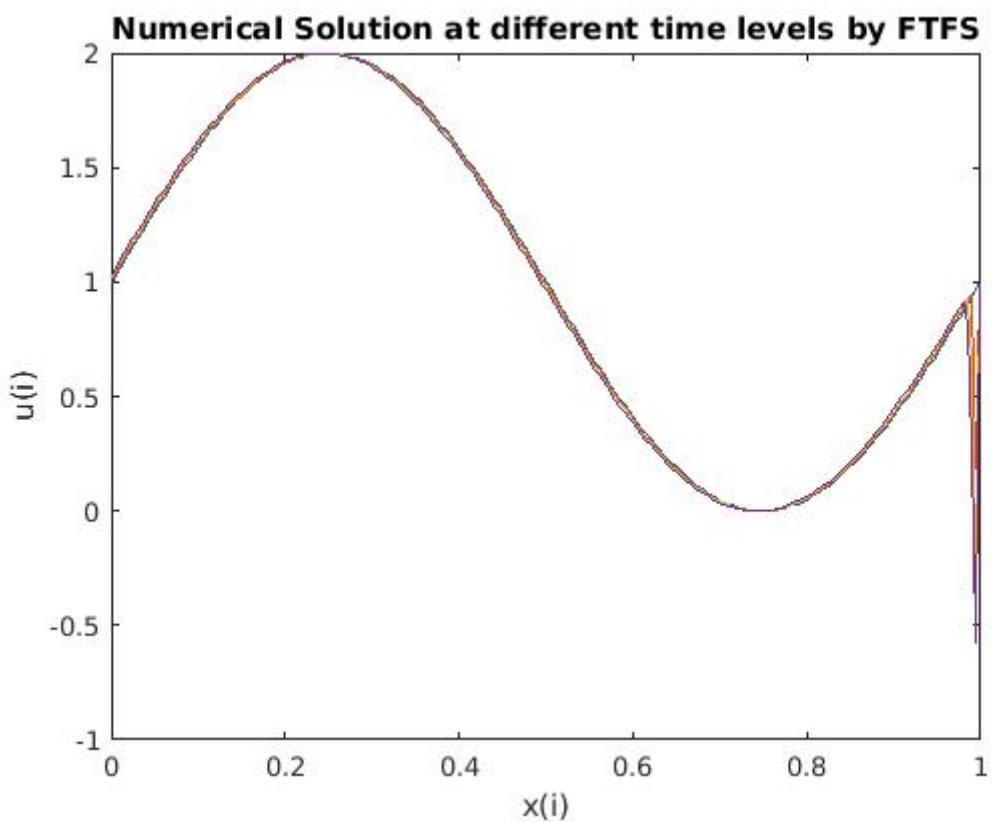


Contour plot of Numerical solution





Problem 3: The plots obtained are:



Numerical Solution at different time levels by BTFS

