CAD/CAE Systems
Homework 2

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Exercize 2

1. Prepare a vector of knots that generates a basis equivalent to the Lagrange basis of polynomials of the first order on four elements [0,1], [1,2], [2,3] and [3,4] along the x axis. Prepare a vector of knots that generates a basis equivalent to the quadratic B-splines basis of polynomials with C1 continuity on three elements [0,1], [1,2], and [2,3] along the y axis. Please run Octave code spline2D.m and draw base functions. Please return the knot vectors and the 3D plot

2. Prepare a vector of knots that generates a basis equivalent to the Lagrange basis of polynomials of the second order on two elements [0,1], [1,2] along the x axis. Prepare a vector of knots that generates a basis equivalent to the Lagrange basis of polynomials of the second order on three elements [0,0.1], [0.1,0.9], and [0.9,1] along the y axis. Please run Octave code spline2D.m and draw base functions. Please return the knot vectors and the 3D plot

3. Prepare a vector of knots that generates quadratic B-splines basis C1 on two elements [0,1], [1,2] along the x axis. Prepare a vector of knots that generates cubic B-splines C2 on three elements [0,1], [1,2], and [1,3] along the y axis. Please run Octave code spline2D.m and draw base functions. Please return the knot vectors and the 3D plot