Assignment 1

Write your own MatLab code by using Bezier Curves to draw the Ω omega shown in the figure passing through all points (their coordinates are given in the table).

Use 4th order Bezier Curve from points B (through L) to C, from H (through A) to I.

Use 3rd order Bezier Curve from points D to J, from E to K.

Use 2nd order Bezier Curve from points F to J, from D to H, from F to B, from G to C, from G to K, from E to I.

Ensure the same tangent in points B, C, I, H.

Use the formula of Bezier Curve and expand it for each case (2nd, 3rd and 4th order) and finalize the formulation in matrix form (for the case of 2nd order the matrix form is given in the lecture slides). Show how the matrices have been derived.

Use the matrix form to write your own MatLab functions for each order of Bezier Curves (2nd, 3rd,4th).

Use the functions to build your version of omega by adjusting the control points accordingly.

Upload the MatLab files and a pdf file with the matrices of all order Bezier Curves, a figure with your version of omega. In addition to the previous figure, another figure where the omega is shown with the control points and the lines that connect them.

When plotting the figures in MatLab do not forget to use *axis equal*, so that the scaling in both axes is equivalent.

DO NOT REPRODUCE THE SAME OMEGA SHOWN IN THE FIGURE, USE YOUR CREATIVITY TO BUILD YOUR OWN OMEGA AS FAR AS IT IS PASSING THROUGH THE POINTS AND SATISFIES THE TANGENTS REQUIRED. BUILD AN AESTHETICALLY PLEASANT OMEGA.

Coordinates	X	Y
A	6	12
B	3	4
C	9	4
D	3	1
E	9	1
F	4	0
G	8	0
H	1	5
I	11	5
J	0	4
K	12	4
L	6	10.5