

CS 779
Fall 2002
Assignment 1
Due: Monday, September 30

1. (5 points) Page 8, exercise 1.
 2. (10 points) Page 55, exercise 1.
 3. (5 points) Page 93, exercise 1.
 4. (10 points) Page 100, exercise 4.
 5. (20 points) Implement an interactive editor for Lagrange curves using Neville's algorithm, with the following features:
 - Left mouse to place new point
 - Right mouse to click-and-drag existing point
 - Menu option to clear curve from screen
 - Menu option to select between drawing
 - Just the curve
 - The curve plus the control points (which should be labeled P0, P1, etc.).
 - The curve plus the control points (labeled or unlabeled, your choice), plus the lower degree curves used to construct the curve. For example, for a degree curve, your display should look similar to Figure 2.2, expect that you do not need the labels $P_{01}(t)$, $P_{12}(t)$, or $P_{012}(t)$. For clarity, draw your curves in different colours.
- You will need to specify the nodex $t_0 \dots t_n$. Initially set t_0 to 0, and then set t_{i+1} to $t_i + 1$. Provide a reasonable mechanism allow the user to change the values of the nodes.
6. (Extra credit: 5 points) In your program, create a second window where you draw a diagram similar to Figure 2.5, except that (a) you provide a mechanism for selecting t and draw the diagram for the particular value of t ; (b) at the nodes you give the coordinates for the values rather than P_i , $P_{ij}(t)$ etc., and (c) in the other window, when drawing with the third option, you also draw the points whose coordinates you give in part (b).