To Generate a landscape for a given city map of 10 cities, first, the cost (or score) of each solution is calculated and written to a file by the C program. The solutions are generated with the Johnson Trotter algorithm. The rest of the processing is done in Matlab. The scores are read by a Matlab program. For a 10 city problem, Matlab program reshapes the array of scores in to a matrix with dimensions ((10!/7!)\*2) by 7!/2. This dimension is not important for this method but is needed for the tiling method. Next the Matlab program generates gradients by taking sections of the raw scores and repeatedly adding them to a zero matrix. The spot in the zero matrix that they are added to is determined by randomly choosing a spot in a given range, this range is swept through the matrix so sections are added evenly to the whole matrix. After the entire matrix has been swept through a second gradient is created. Then the gradients are integrated using poisson image editing.

C executable:

JohnsonTrotter: writes all the scores and the city map to the given file

MATLAB functions:

read\_10\_city\_file : loads raw scores into a structure and reshapes them into a rectangle

Section\_Generator: creates 2 gradients from the rectangle of raw scores

invGrad: integrates 2 gradients, up to the specified size

resize\_and\_write: scales the landscape up 10x and converts it ti uint16 and writes it to a file