Representing 2D Arrays

Method 1:

Use a 1D array of pointers to 1D arrays.

*Example:* To input and store a collection of variable length strings, first allocate a master array of length equal to the number of strings, and then each time a string is read in, allocate an array to hold that string, and place a pointer to it in the next position of the master array.

Method 2:

Pack the rows one after the other in memory.

*Example:* For integers stored in \( m \) rows (indexed from 0 to \( m-1 \)) of length \( n \) (indexed from 0 to \( n-1 \)) to be placed in memory starting at location \( x \), the integer in row \( i \) at position \( j \) is at location \( x + i*m + j \).

**Note:** Both methods can be done in C. Method 1 is more flexible, but uses a additional space for the master array that is not needed when all rows have the same length.