**PROGRAMMING FUNDAMENTALS  
LECTURE 15  
2d ARRAY / JAGGED EDGES**

|  |  |
| --- | --- |
| **SAME COLUMN SIZES**  int \*\*ptr;  int row\_size=3; // can be cin as well  int col\_size=4; // can be cin as well  ptr=new int\*[row\_size]; // first create all the rows and their pointers  for(int row\_no=0;row\_no<row\_size;row\_no++) // for each row  ptr[row\_no]=new int[col\_size]; // create number of columns (if pass same column size then no jagged edges) | **JAGGED EDGES**  int \*\*ptr;  int row\_size=3; // can be cin as well  ptr=new int\*[row\_size]; // first create all the rows and their pointers  int \*col\_size=new int[row\_size];  for(int row\_no=0;row\_no<row\_size;row\_no++) // for each row  {  cin>>col\_size[row\_no]; // initialize num of columns  ptr[row\_no]=new int[col\_size[row\_no]]; // create   num of columns (jagged edges)  } |

**Question 1: Create a one\_d integer pointer, and use it to create an integer array whose size is to be read from file in the very first line. Initialize that integer array with the comma separated values stored in the second line of file.**

**Question 2: Add three more numbers in the array read above, by taking input from user at the end of array.**

**Question 3: Remove the third element of the array created above.**

**Question 4: Ask the user to enter a 5 digit integer. Convert the integer to a bar graph stored in a 2-dimensional array of characters.**

**Print the bar graph as stored as follows:**

**For example if the user enters 19683, the displayed graph should be:**

**\*  
\* \* \* \* \* \* \* \* \*  
\* \* \* \* \* \*   
\* \* \* \* \* \* \* \*  
\* \* \*  
Question 5: Write a C++ function swap that receives a dynamic two-d array and row numbers lets call them x and y to swap and swap the position of the two rows.**