

SPIRAL TRAVERSING - LET'S ANIMATE 01

We have been looking at pretty straight forward programming questions, nothing has been very challenging a questions so far. I would now like to give you a question which actually isn't straight forward which requires a whole lot of thinking and of course programming time. So let me pose the question for you all, do you see the animation here? What's happening? You just seeing the white dots spiralling around and going to the centre in a particular way correct? How easy for us to do this? Well! Isn't all it appears though it's pretty straight forward it is not that easy, firstly how can you even do such an animation so let me go step by step and explain to you all how we can actually fill the entire screen with white dots in this particular fashion, forget what i showed you let us go step by step. Do you now see this four cross four entry of numbers there are numbers one two three four five six seven eight nine ten eleven twelve thirteen fourteen fifteen sixteen and i want the numbers to be displayed in the following way, firstly it should be one two three four and then you must climb down eight twelve sixteen and then towards your left fifteen fourteen thirteen and then up nine five and then right six seven down eleven left ten you should basically traverse this table with these numbers these way alright? What do i mean by that? All i mean is, you should display this numbers in this particular fashion only let me try to be more clear with a nice example so here is the exact question, if the input is four, you create a four cross four table like this in your program don't display it, just create it and each cell corresponds to a row and column isn't it? Look at this first cell it is first row first column i am gonna call it one comma one i will create a list or maybe a tuple whatever is comfortable for you and then use that term one comma one to denote this cell, the second one first row second column this will be one comma two likewise one comma three, one comma four, two comma one, two comma two, two comma three and so on up to four comma four so the input is the dimension of the table if the input was five you should come out with the five cross five table it was six, six comma six if its n in general it's going to be n cross n so given four i create this four cross four tuples one comma one, one comma two so on and then i want to display them in the following order only remember the spiral thing that i showed you, i want it in that order only by that i mean observe one one, one two, one three, one four, two four, three four, four four, four three, four two, four one, three one, two one, two two , two three, three three and three two should be the order in which you must display, you see where i am getting that given a n cross n table you must spiral n like this what is spiralling n you must simply display this addresses of the cells as simple as that, so input is a number some ten and you must create a ten cross ten table and spiral n on that table and display it. Remember we started off with this little graphics animation every simple and straight forward one, looks like the animation of animation that was done some forty years back animation is so sophisticated right now this is far to be regarded an animation but then as a practice exercise i wanted you to all understand doing something as simple as this requires good amount of thinking, i spoke to you about displaying the entries of table right? i am going to use that right now and i am going to show you how we can create this graphics animation using just simple idea of taking n and displaying n cross n cells in a particular way, you now know enough to go ahead and write a quick

program which will do the animation, let us see how this is done, amit will now show you how to use your knowledge of displaying the cells in the table and create this graphic animation.