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Algorithm

***Take 2 input (N and T) to main.**
***N will be use size of ground(i called board).**
***T will be how many iterative he have to do.**

***Start a for loop.(from 0 to T-1)**
***Take memory for ground.**
***Generate random numbers**
***Starts another loop(for is the ground transmit?)**
***Dig the ground with random numbers**
***Look it is our first row?**
***Yes, fill the water**
***No, just dig.**
***If it is not first row look up,down,left,right for have water?**
***Yes, fill the water**
***No, just dig**
***If we filled the water then look the cell have space its enviroment**
***if we have fill with water (i do that with recursive)**
***No, just pass**
***When ground is transmit break the loop.**

***Start 2 loop for count open cells.**
Then divide to size of ground send to mean function

***Hold in a array open cells.**
***When loop arrive T-1 break the loop**

***Open function mean and calculate the average. Send average to Standartdev function**

***In StandartDev calculate the stddev.**

***Then write the ground, mean and stddev to output.txt.**

My Functions

***main_function:**

It is C's main funtion.

I prepare random number's time for generate always random numbers

Take memory for our arrays.

It have a for loop to how many times we do iterative.

It is related to dig_the_ground() and mean() functions because i am sending to dig_the_ground() our ground array(board) and N(length) argument and sending to mean() our open cells array(stddev_array) , iteration number(T) and open cells/ ground size(o_divide_t).**

***dig_the_ground(**board,length)**

This function is the function which digs our ground.

It is related to fill_the_water() and fill_the_water_2() because this function send them the random numbers for fill the water.

***fill_the_water(**board,length,number_row,number_coloumn)**

This function looking for up,down,right,left and if they have water the cell will fill with water.

***fill_the_water_2(**board,length,number_row,number_coloumn)**

In fill_the_water our cell filled with water.In this function we look for around for spaces because we will send them the water.

***mean(double o_divide_t,double T,double *stddev_array)**

Calculate the mean and send to open cell's array. it is related with standart_dev().

***standartdev(double *stddev_array,double mean,double T)**

To calculate standard deviation.It related to writer() for write our mean and stddev.

***writer(double mean, double stddev)**

It is our writer for mean and stddev to output.txt.

writer_board(int **board,int length)

Another writer for print our last ground to output.txt

I wrote performance analysis to last page.

PERFORMANCE ANALYSIS

(i7 2.4 Ghz)	N	T	Time(s)
small			
	10	100	0.007
	10	1000	0.014
	10	10000	0.090
average			
	100	100	0.280
	100	1000	2.694
	100	1000	27.217
large			
	200	100	1.944
	200	1000	19.109
	200	10000	194.786