Important Functions

calculateCost : This is our evaluate function, which calculates the threats of every queen.

Our queens are initially stated randomly, but we make sure that in every column, there is only one queen. In fact, queens are randomly placed in each column.

simulatedAnnealing: We will define a double as temperature which is decreased during time and every iteration. In every iteration, we randomly choose a queen in a column, and we decide to move it to a random row, in order to decrease the evaluate function. But before it happens, we check the Delta E of this movement.

Delta E is defined = evaluate function of current state – evaluate function of the next state.

-If Delta E is positive, we surely move to the next state.

-If Delta E is negative, we will go to the next state only with a probability(we defined it as a double).

Probability= e^(DeltaE/temperature)

probabilityToMove : This function generates a random number. If the number is less than or equals to our previously defined probability, we will move to the next state.

If not, we will stay on our current state.