**COMPLEXITY ANALYSIS OF THE ALGORITHM**

**TIME COMPLEXITY**

The time complexity of an algorithm can be expressed in terms of the number of operations used by the algorithm when the input has a particular size.

Operations performed in our algorithm are that first we have taken input which would take basic n unit of time . Then, we declared a string variable which would take square of that six digit number.Then a while loop will add zeroes to that number until it's length is 12 digits which will take some time and for loop will repeat the whole process for 5 times. If whole process takes n time for loop will take 5n because whole process repeats for 5 times.

**SPACE COMPLEXITY**

Pseudo random number generation by mid square method period is usually very short and it is repeated enough times, the middle-square method will either begin repeatedly generating the same number or cycle to a previous number in the sequence and loop indefinitely.

we are restricting the length of s to 12. So the space complexity of the above code is in the order of "s" i.e. if s will increase, the space requirement will also increase accordingly. Even when you are creating a variable then you need some space for your algorithm to run. All the space required for the algorithm is collectively called the Space Complexity of the algorithm which we will see in the algorithm when the value of s will increase.