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# A New Concept of Time Complexity of same Type of Infinite Instructions

Sohel Aman Khan

BCA (3<sup>rd</sup> Sem) Panskura Banamali College

**Abstract:** Computer is growing up day by day in the world around us and it's also become optimized physically and logically. For measuring logical optimization we have space complexity and time complexity. we write those things by the help of asymptotic notation. Now a days, space complexity not give us much problem for inventing large scale storage device at cheap cost. But, time complexity is still a big issue for programmers and Researchers. There are many methods and algorithms to optimize algorithms and many are under process. But, as for human nature, we want more optimize and try to know the unknown things of it.

**Keywords:** Space complexity, Time complexity, asymptotic notation, algorithms

## I. INTRODUCTIONS

Time complexity shows the execution time of any statement or algorithms. It can be polynomial or exponential. It depends on that algorithm. Basically, it's calculated on finite number of statement. But for infinite number of statement there are less amount of work than finite number of statement. Many mathematical formulas can easily present the time complexity of infinite number of statement, theoretically. But for we cannot present this practically by current technology, researcher has less interest for this. My research is to present time complexity of some type of infinite statements in finite form. By this we can get brief idea about time complexity of some type of infinite statements.

## II. METHOD

To prove this concept, we should create an example which is given below-

```
while(1)-----(True)
```

```
{printf("It is my Research Paper\n");}
```

We know that the time complexity of one printf execution is 1 and for above program, it is  $1+1+1+\dots$  Infinity

We also know that, in zeta function of Reimann Hypothesis,  $1+1+1+\dots$  Infinity is  $-1/2$

we accustomed that time complexity is positive. But, in Physics, time can be negative.

So we can see that time complexity can be negative.

## III. RESULT

By the above method we see that many type of infinite instructions have a time complexity which can represent in finite negative form. By seeing the trends of those time complexity, we get a brief idea that time complexity of other infinite instructions may be a finite negative number.

## IV. CONCLUSION

The main intention of this presentation is to speed up the curiosity for infinite computation problem. The advantage of this research is to get brief idea of computation of infinite statement and create technology to compute this type of computation problem. The research will help the future researchers to do their research in this field as well as related fields.

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