



# SNS College of Engineering Coimbatore - 641107



## Emphrical Analysis

AP/IT



# General Plan for the Empirical Analysis of Algorithm Time Efficiency

- Understand the experiment's purpose.
- Decide on the efficiency metric  $M$  to be measured and the measurement unit (an operation count vs. a time unit).
- Decide on characteristics of the input sample (its range, size, and so on).
- Prepare a program implementing the algorithm (or algorithms) for the experimentation.
- Generate a sample of inputs.
- Run the algorithm (or algorithms) on the sample's inputs and record the data observed.
- Analyze the data obtained.



## ALGORITHM

*SortAnalysis(A[0..n - 1])*

//Input: An array  $A[0..n - 1]$  of  $n$  orderable elements

//Output: The total number of key comparisons made  $count \leftarrow 0$

for  $i \leftarrow 1$  to  $n - 1$  do

$v \leftarrow A[i]$   $j \leftarrow i - 1$

while  $j \geq 0$  and  $A[j] > v$  do  $count \leftarrow count + 1$

$A[j + 1] \leftarrow A[j]$   $j \leftarrow j - 1$

$A[j + 1] \leftarrow v$  return  $count$