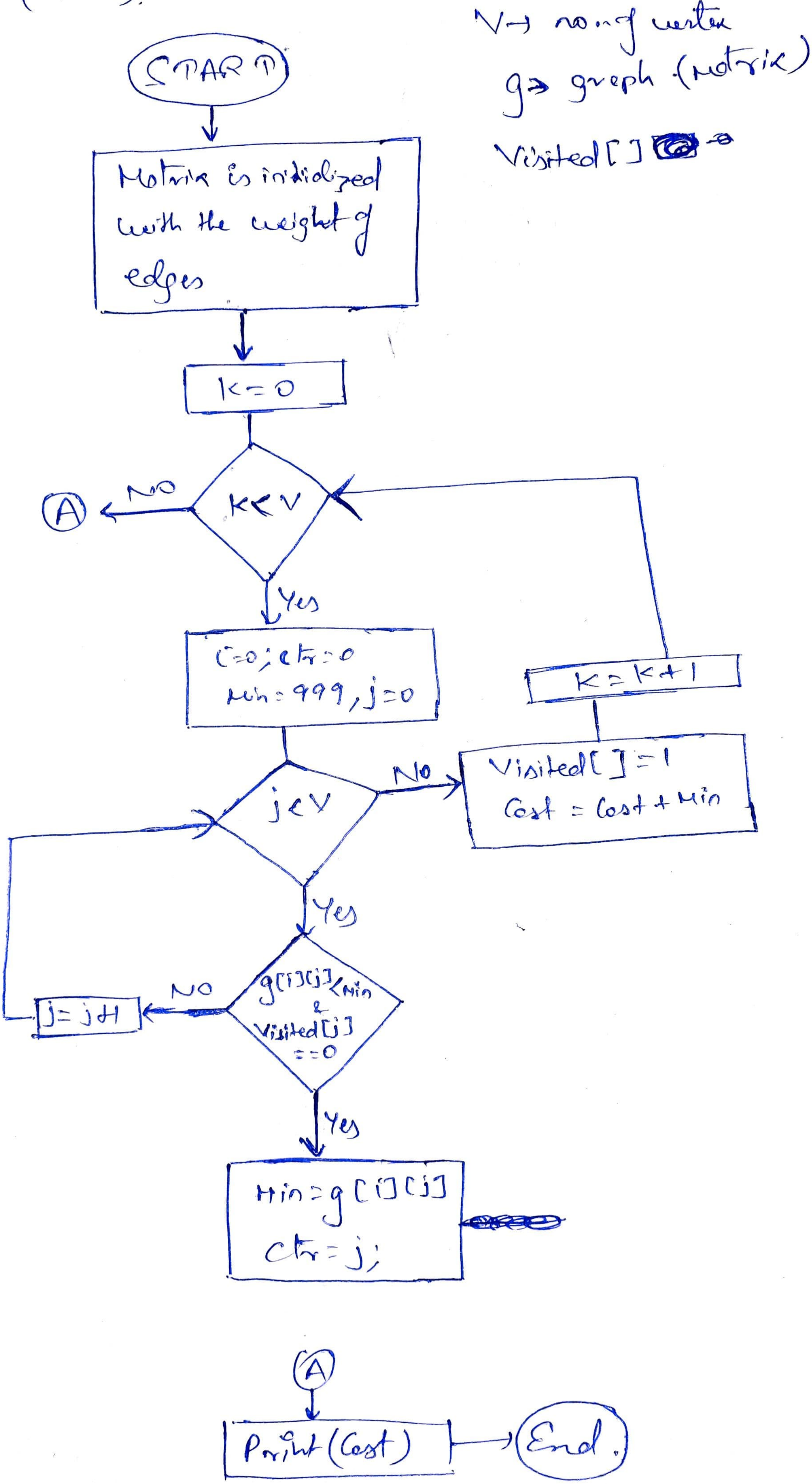
Flow Chart (TSP)



Time Complexity (Travelling Salesman problem)

Recursive eqⁿ:

$$T(i, S) = \min\left((i,j) + T(j, S - \{j\}) \right); \; S \neq \phi; \; j \in S;$$

$$= (i, 1); \; S = \phi \text{ (base Condition)}.$$

$T(i, S) \rightarrow$ Vertex $i \longrightarrow$ visite each of the element of set S.

$(i, j) \rightarrow$ Cost of path i to j.

∴ DP approaches to Sub-problem Solⁿ approach.

Here after reaching i^{th} node finding remaining minimum distance to that i^{th} node is the Sub problem

On Solving eqⁿ: we get $(n-1).2^{n-1}$ Sub problem

∴ $O(n 2^n)$.

Also; each Subproblem will take $O(n)$ time (find the path to remaining ~~node~~ not ~~visited~~ nodes)

∴ Total time Complexity is $= O(n 2^n) * O(n)$

$= O(n^2 2^n)$.

∴ time Complexity : $\underline{O(n^2 2^n)}$