QUANTUM COMPUTATION

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PROBLEM STATEMENT

QUANTUM SEARCH AND IT'S BREADTH OF APPLICATIONS

- One of the most basic problems in computer science is unstructured search. Any improvement to the problem of searching through an unstructured database will benefit many applications.
- For Eg :- Telephone Directory. Consider that you wish to find a person's name by her phone number but the list is sorted by name.

QUANTUM SEARCH ALGORITHMS

- **Task of a quantum search algorithm is to locate a particular element, commonly referred to as the target item or the solution, among the enormous number of other items in a database.**
- **The interesting aspect of quantum algorithms is that they could be able to solve some problems more quickly than classical algorithms.**
- **Quantum algorithms are helping us understand the computational power of quantum versus classical systems**

CLASSICAL SEARCH	QUANTUM SEARCH
Sequentially try all N possibilities	Simultaneously try all possibilities
Average search steps : N/2	Average search steps : N^(½)

WORK PLAN

- Learn about the different quantum search algorithms and assess their ability to compete with traditional search techniques.
- Gauge about the practical significance of quantum algorithms.
- Focus on reading and analyzing various research papers related to the topic.
- Study about the applications of the quantum search algorithms.

THANK YOU