In this course, we will study complexity and not any complexity but only Computational Complexity of algorithms. However, it is necessary to know that there are other important properties of algorithms.

The most important is correctness. If you design an algorithm and if it is not correct, i.e., it does not solve the necessary problem, then you don’t do your work properly and who needs employee who don’t do their work properly.

Note as one famous physicist said,

Any problem has many easy and … incorrect solutions.

Sometimes it’ll be necessary to prove that your algorithm is correct. Sometimes it’ll be enough only to demonstrate that your algorithm is correct. In this course, it’ll be necessary to prove that your algorithm is correct and I will teach you how to do this.

Another important property of algorithms is tractability, which means that it is possible to implement the algorithm and it’ll work properly. However, tractability depends on complexity and that’s why we study here complexity as an indicator of tractability.

There are other important properties of algorithms such as Reliability, Safety, Robustness, Efficiency, Security, but we don’t study them here due to the limitations in time.

Safety of an algorithm means that it does not cause damage to the system that uses it.

Security of an algorithm means that it cannot be damaged by other systems.