Introduction

The term “bioinformatics” dates back to the early 1980s. However, the underlying concept of biological information processing is much older. During the 1960s, molecular biology needed formal modeling, which led to the creation of “biomathematics”

1-Définition –

Definition There are a large number of definitions depending on the meaning of the term and the preponderance of "bio" over "computer science" or the reverse.

➢ Bio information is information linked to biological molecules: their sequence, their number, their structure(s), their function(s), their “kinship” links, their interactions and their integration into the cell, etc.

➢ This bioinformation comes from various disciplines: biochemistry, genetics, structural genomics, functional genomics, transcriptomics, proteomics, structural biology (spatial structure of biological molecules, molecular modeling, etc.), ...

➢ A definition of bioinformatics: analysis of bioinformation by computer means Bioinformatics is the science of using computers in the acquisition, processing and analysis of biological information. The term, very vague at first, now tends to be limited to molecular biology. The data processed by bioinformatics are all those that interest the biologist: DNA or protein sequences but also bibliographic references, images, raw experimental results, software, etc. The exploitation of all this biological data, rapid and reliable access to Data available in international banks and the analysis of experimental data produced on a large scale require powerful and constantly developing IT tools. Assembling raw sequences, finding the functional units of genomic sequences, comparing sequences with each other, predicting the structures and functions of macromolecules, understanding the interactions between genes and their products in terms of metabolic networks but also the evolution of species: all these questions require the use of bioinformatics and its development. Just as cartographers drew maps of the ancient world, biologists have painstakingly mapping human DNA over the past three decades of the 20th century. The goal is to determine the position of genes on the different chromosomes, in order to understand the geography of the genome. 2- Domain and use: She is interested in data from: - genome (all of the genetic material of the cell), - transcriptome (transcribed mRNA), - proteome (all bio-synthesized proteins), - metabolome (organic molecules such as lipids, carbohydrates, part of the metabolic activities of the living cell).

3- Objectives:

Bioinformatics offers methods and software that allow:

The collection, storage and management of biological data and their distribution across networks.

- The development of tools to analyze molecular biology problems.
- Analysis, comparison and prediction of gene structure.
- Modeling and prediction of protein structure and function.
- Phylogenetic studies and the molecular evolution of living beings. So the interest in the study of bioinformatics aims to: Identification, taxonomy, evolution