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BIOINFORMATICS: BIG DATA IN BIOLOGY

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Bioinformatics was able to take shape and reach the public only at the turn of the century. Thanks to this science, it is now possible to make phylogenetic branches, sequence the genome, identify the functions of proteins, and model the proteins themselves.

In a general sense, bioinformatics is defined as an interdisciplinary field that combines general biology, molecular biology, cybernetics, genetics, chemistry, computer science, mathematics, and statistics.

Bioinformatics as a science solves large-scale biological problems that require analysis of large amounts of data solved by bioinformatics from a computational point of view. Here is the most general look at the approaches and methods of working with data with the reference to the type of a technical task it suggests:

- Development of algorithms and programs for more efficient work with data
- Storing and transmitting information or working with databases

However, bioinformatics methods of analysis are also inextricably linked to many scientific fields, which involve the search for answers to specific biological questions. In this case, the main directions can be identified on the basis of the objects under study (Sequence bioinformatics, Expression analysis, Structural Bioinformatics, Study of cellular organization, Systems Biology).

Modern biological systematic to establish the relationship and systematization of different biological species widely uses methods based on the comparison and determination of the similarity of the structures of different molecules (proteins, RNA and DNA). Such trees allow not only to answer the question “Who is related to whom?”, but also to evaluate who, from whom and when it came, that is, to reconstruct the evolution.

The purpose of this work is to convey the relevance of this tool in our time. After all, even before the computerization of bioinformatics, thanks to the effort of the specialists with the help antediluvian, however, very ingenious solutions for that time, a number of important tasks were solved.

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