search, comparison, identification of identical pages and link structures, and other operations.

If all the properties of each web page A_i are saved in the database, the website can be fully restored to the form in which it was saved in the database.

The structure of web sites has been studied and several possible models for their representation have been proposed, such as the list model and the graph representation. The representation of a website model as a graph has been formalized, and an algorithm for constructing the graph based on the website has been developed. To implement the algorithm, the structural elements of a website, namely the page and the link, have been identified.

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«HOW TO BECOME A MILLIONAIRE?» OR THE SEVEN PROBLEMS OF THE MILLENNIUM

Who wants to become a millionaire? For this, you do not need to buy a lottery ticket or do any tricks. The Clay Mathematical Institute in the USA is gladly ready to pay a million to someone who simply solves at least one of their mathematical problems. It sounds simple, but who can solve even one of them?

In 1900, at the International Mathematical Congress in Paris, David Hilbert announced 23 mathematical problems that, in his opinion, should be solved in the 20th century. At the end of the 20th century, mathematicians tried to formulate similar strategic tasks for the next 21st century. Thus, in May 2000, experts from the Clay Mathematical Institute (Cambridge, Massachusetts, USA) selected the seven most important problems of modern mathematics. The number of problems in the list (seven) was chosen based on the fact that the founder of the institute, Boston millionaire Clay, allocated seven million dollars as a prize, that is, a million for solving each problem. These important problems have been called the «Millennium Challenges».

There is a historical parallel between the Millennium Problems and Hilbert's list of problems in 1900, which had a significant impact on the development of mathematics in the 20th century. Of Hilbert's 23 problems, most have already been solved, and only one – the Riemann hypothesis – has entered the list of problems of the millennium.

As of the end of 2022, only one of the seven millennium problems (the Poincare hypothesis) has been solved. First, let's find out if these tasks are simple:

- **The P vs. NP problem**.

The question is whether, for all problems for which a computer can quickly verify a given algorithm (i.e., in polynomial time), it can also quickly find this solution. The equality problem of complexity classes P and NP is one of the most important problems in the theory of algorithms and has many implications in mathematics, philosophy, and cryptography. The official statement of the problem belongs to Stephen Cook.

The following interesting and transparent wording is also found on the Internet: *"Suppose you, being in a large company, want to make sure that your acquaintance is also there. If you are told that he is sitting in the corner, then a fraction of a second will be enough to make sure of the truth of the information by taking a look. In the absence of this information, you will be forced to walk around the room, examining the guests"* [2, p. 9].

In this case, the question is whether there is such an algorithm of actions, thanks to which, even without information about a person's location, you can find him as quickly as if you knew where he is. This problem is of great importance for various fields of knowledge, but they have not been able to solve it for more than 40 years.

- **The Hodge conjecture.**

An important problem in algebraic geometry. The conjecture describes classes of cohomology on complex projective manifolds realised by algebraic submanifolds. In fact, there are many simple and much more complex geometric objects. Obviously, the more complex an object is, the more time-consuming it becomes to study it.

- **The Birch and Swinnerton-Dyer conjecture.**

The hypothesis is related to the equations of elliptic curves and the set of their rational solutions. For complex equations, the search for solutions becomes extremely difficult, it is enough to recall the history of proofs of the famous Fermat's theorem to be convinced of this. This hypothesis is related to the description of algebraic equations of the 3rd degree – the so-called elliptic curves. And in cryptography, they form a whole section of their name, and some digital signature standards are based on them.

- **Yang-Mills theory.**

The problem comes from the field of elementary particle physics. It is necessary to prove that for any simple compact gauge group G, the Yang-Mills quantum theory for R^4 space exists and has a non-zero mass defect. This statement is consistent with experimental data and numerical simulations, but it has not yet been proven. Based on the Yang-Mills theory, a standard model of elementary particle physics was built, within the framework of which the Higgs boson was predicted and discovered.

- **The Riemann hypothesis.**

The conjecture states that all non-trivial zeros of the Riemann zeta function have a real part of ½. Its proof or refutation will have far-reaching consequences for number theory, especially in the part of the distribution of prime numbers. The Riemann hypothesis was part of Hilbert's eighth problem. For a long time, people have been trying to find a regularity in their placement, but no one has been lucky so far. As a result, scientists applied their efforts to the distribution function of prime numbers, which shows how many primes are less than or equal to a certain number. Many statements about the computational complexity of some integer algorithms are proven under the assumption that this hypothesis is true.

- **The Navier-Stokes equation.**

The Navier-Stokes equation is a system of equations describing the motion of a viscous fluid, one of the most important problems of hydrodynamics. Despite the importance of the problem, the existence of smooth solutions with finite kinetic energy has not been mathematically proven. For some individual cases, solutions have already been found, in which, as a rule, parts of the equations are discarded as not affecting the final result, but in general, the solutions of these equations are unknown, and at the same time, it is not even known how to solve them.

- **The Poincaré hypothesis (proved).**

It is considered the most famous topology problem. Informally speaking, it states that any three-dimensional object that has some properties of a three-dimensional sphere must be a sphere with accuracy up to deformation. In 2002, the mathematician H. Perelman published a paper from which the validity of the Poincaré hypothesis follows [1; 2].

Nowadays, mathematics is associated with scientists who look strange and talk about equally strange things. Many people talk about its isolation from the real world. Many people, both younger and quite conscious, say that mathematics is a useless science, that it was useless after school/institute. But in fact, this is not true – mathematics was created as a mechanism by which to describe our world, and in particular many observable things. It is everywhere, in every home. As Vasil Klyuchevsky said: «*It is not the flowers' fault that the blind man cannot see them*» [3]. Our world is far from as simple as it seems, and mathematics is also becoming more complex and sophisticated, providing an increasingly solid foundation for a deeper understanding of the existing reality.

All these tasks at the moment are key for the further development of humanity. The main question: is it even possible to solve all the above tasks within the millennium? As the saying goes: nothing is impossible! Patience and hard work are the way to solve these problems.

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REVOLUTIONIZING HEALTHCARE: THE TRANSFORMATIVE POWER OF AI IN MEDICINE

Artificial intelligence (AI) is revolutionizing the healthcare industry by transforming the way medicine is practiced. From diagnosis to treatment, AI is being used to improve patient outcomes, reduce costs, and increase efficiency in the healthcare system. In this article, we will explore how AI is being used in medicine and its potential benefits and challenges.

One of the most promising applications of AI in medicine is in diagnosis. AI can help doctors make more accurate and faster diagnoses by analyzing large amounts of patient data, such as medical images, lab results, and medical histories. For example, AI can be used to analyze medical images and identify abnormalities that may be missed by human doctors. This can help detect diseases such as cancer at an earlier stage, which can improve patient outcomes [2, p. 247-250].

Another way AI is being used in medicine is in drug discovery. AI can help researchers analyze vast amounts of data and identify new potential drug targets. This can significantly speed up the drug discovery process, which traditionally takes years and costs billions of dollars. By using AI to identify new drug targets,