to conduct research for their bachelor's and master's theses using Enamine's laboratories and facilities.

In conclusion, Enamine is just one example of an important Ukrainian research and business institution, whose development became threatened due to Russian aggression, but whose scientists continue to withstand the war despite enormous difficulties. Many other scientific research groups in Ukrainian universities and institutions successfully work and make a significant contribution to modern science. Prioritizing those research areas where Ukrainian scientists already have had remarkable achievements might facilitate the country's fast and efficient renewal. Although this article is centered on Ukrainian chemistry, we believe the above suggestions can be applied to other areas. Ukraine is definitely not a "failed state for science," and systematic international support for Ukrainian education and science is essential to make significant progress in rebuilding Ukraine that may have a long-lasting positive effect on the entire world.

References:
1. https://www.pnas.org/doi/10.1073/pnas.2210686119
2. A. Alon et al., Structures of the σ2 receptor enable docking for bioactive ligand discovery. *Nature* 600, 759–764 (2021).
3. A. A. Sadybekov et al., Synthon-based ligand discovery in virtual libraries of over 11 billion compounds. *Nature* 601, 452–459 (2022).

HISTORY OF COMPUTER SCIENCE DEVELOPMENT

ANASTASIA KONKOVA, student
YAROSLAV M. KUNDENKO, Associate Professor, PhD in engineering, Scientific Adviser
Radul G. Makoviei, Senior Teacher, Language Adviser
O. M. Beketov National University of Urban Economy in Kharkiv

The emergence of computers in the 1950s created the hardware support necessary for the formation of computer science, which was needed to store and process information. But, of course, people have been working with information long before computers appeared. Starting with the outdated abacus, which has survived to this day in the form of office accounts, devices for processing numerical information were created. Mechanical devices such as arithmetic calculators, electric key machines, counting and analytical equipment, and many other devices were aimed at solving the same tasks that computers have begun to fully implement.

In addition to numerical information, specialists have always been aware of symbolic information, which is represented by well-known texts in natural language: from adventure stories to reports on work performed, certificates from institutions, letters, etc. Various devices and tools were likewise invented and

created to store and process relevant information. The simplest example is a rack with drawers in which cards containing information are stored. Such catalogs are an indispensable attribute of libraries. But the cards can also store any other information written in some natural or special language in a systematic way.

The desire to somehow mechanize and then automate the procedures related to the search for the necessary information in the catalog led to the emergence of techniques that became part of the arsenal of a special science, namely documentary studies. Manual and automated information retrieval systems have become the brainchild of documentary filmmaking.

The computer combined the storage and processing of both numerical and textual (symbolic) information in one system. That is why its appearance marked the beginning of a new science.

The word "computer science" did not catch on in our country immediately. Initially, research related to the use of information in control systems (which seemed to be the central problem of information use) was called cybernetics, and this term became synonymous with computer science. But gradually it became clear that cybernetics is a completely independent scientific discipline, constituting only a part of computer science. In English-speaking countries, the new science was called Computer Science, and in French-speaking countries, the term "Informatique" appeared. It was from French that this term was borrowed, and since the mid-1970s it has been firmly in use.

Informatics is a young scientific discipline that studies issues related to the search, collection, storage, transformation and use of information in a variety of areas of human activity. Informatics is genetically related to computing, computer systems and networks, as computers allow generating, storing and automatically processing information in such quantities that a scientific approach to information processes becomes both necessary and possible.

To date, the interpretation of the term "informatics" (as it is used in modern scientific and methodological literature) has not yet been established and generally accepted. Let's turn to the history of the issue, going back to the time of the emergence of electronic computers.

After the Second World War, cybernetics emerged and began to develop rapidly as a science of general patterns in control and communication in various systems: artificial, biological, and social. The birth of cybernetics is usually associated with the publication in 1948 of the famous book "Cybernetics or Control and Communication in Animal and Machine" by the American mathematician Norbert Wiener. This work showed ways to create a general control theory and laid the foundations for methods of considering control and communication problems for various systems from a single point of view. Developing simultaneously with the development of electronic computers, cybernetics eventually evolved into a more general science of information transformation. In cybernetics, information is understood to be a set of signals, influences or data that a system perceives from the environment (input information

X), issues to the environment (output information Y), and also stores in itself (internal, intra-system information Z).

In the USSR, the development of computer science encountered obstacles due to the ideology of the period. The totalitarian ideology of the time fought against dissenting opinions. The ideology did not even recognize some sciences, such as genetics and cybernetics, they were considered "pseudoscience". A.I. Berg said that the country was misguided in its assessment of the importance and possibilities of computer science. This caused great losses in the development of this science, and likewise delayed the process of developing computers. It also caused difficulties since the progress of this science in this period faced great obstacles in the implementation of large state projects. One of these projects was the creation of automated control systems (ACS).

Despite its short history as an official scientific discipline, computer science has made fundamental contributions to science and society. In fact, computer science, along with electronics, is one of the fundamental sciences of the current era of human history, called the information age.

References:
1. Information systems and technologies in the management of labor resources: Textbook - 2nd edition, revised and supplemented - K.: KNEU, 2000. 279 p.
2. Dniprovetskyi K. In step with the times // Business Ukraine. - 2001. - №3. - p. 14-15.
3. Soliychuk S. Management and computers - K., 2000.

POST WAR URBAN RECONSTRUCTION IN UKRAINE

ALINA KOROLKOVA, Student
OLEKSANDR V. SHEPEL Teacher
O. M. Beketov National University of Urban Economy in Kharkiv

Despite the ongoing war in Ukraine, the reconstruction and recovery planning process has already started. The general trend is to provide housing and rebuilding solutions quickly to meet the immediate and urgent needs of the population. Concurrently, there also is a need to fully engage all stakeholders in the recovery process to make it more sustainable, and to make sure all tangible and intangible dimensions of recovery are included, such as those dealing with trauma, people's hope for the their future homes, as well as environmental considerations (e.g., green recovery , net-zero cities). Failing to be fully inclusive could result in "temporary" unsustainable solutions and miss the opportunity to build forward better.

To ensure that Ukraine's recovery is sustainable, inclusive and leaves no one behind, there is a need for more multilevel and multistakeholder research. This research should address, among other things, the following questions:

•What are the peoples' hopes for their new homes, city, country?