**My Future Profession**

Hello. My name is Nikita. I am a 3rd year student of Software Engineering at Bauman Moscow State Technical University.

I would like to become a big data analyst.

This profession involves analyzing large datasets to uncover patterns, trends, and insights that can help

organizations make informed decisions.

Big Data Analysts play a crucial role in interpreting complex data and presenting it in a meaningful way.

In this role, I will be responsible for collecting and processing data from various sources.

I will also clean and organize this data to ensure it is accurate and usable.

By applying statistical and analytical techniques, I will identify significant trends and correlations within the

data.

One of the key tasks of a Big Data Analyst is to create reports and visualizations that clearly communicate

findings to stakeholders.

This helps businesses understand their data and use it to drive strategy and innovation.

Additionally, I will develop models to predict future trends and outcomes based on historical data.

Working as a Big Data Analyst requires strong problem-solving skills and attention to detail.

I will need to be curious and constantly willing to learn, as the field is always evolving.

Effective communication is also important, as I will often need to explain complex data concepts to nontechnical team members.

I am excited about the potential to make a significant impact through data analysis.

By turning raw data into valuable insights, I will help organizations improve their operations and achieve their goals.

The combination of technical challenges and the opportunity to influence business decisions makes this career appealing to me.

In the future, I aim to become proficient in this field.

In conclusion, I want to tell, that the role of a Big Data Analyst is both challenging and rewarding, and I am eager to begin my journey in this profession.

**Computer Architecture**

Hello. My name is Nikita. I am a 3rd year student of Software Engineering at Bauman Moscow State Technical University.

A computer is an electronic machine that accepts data, processes it, and provides results as information in a specified format.

Information can include texts, tables, drawings, photos, sound recordings, and more, stored and processed digitally in bytes, kilobytes (KB), megabytes (MB), and gigabytes (GB).

Data is entered into the computer's memory, processed by a program, and results are displayed on the screen or printed.

New computers require software to function, with the operating system acting as an intermediary between application software and hardware.

The three most common operating systems are Microsoft Windows, macOS, and Linux.

A computer system consists of software and hardware. Hardware includes the monitor, CPU, circuits, displays, power supplies, cables, keyboards, printers, and mice.

Software, which lacks a physical form, includes programs, data, and protocols, such as web browsers, games, and word processors.

The three basic hardware sections are the central processing unit (CPU), main memory, and peripherals.

The CPU, or microprocessor, is the computer's "heart," located on the motherboard, and controls processing speed.

The main memory (RAM) holds instructions and data for the CPU.

Peripherals, attached to the computer, provide input or output, including storage devices (hard drives, DVD drives, flash drives) and input/output devices (keyboard, mouse, display, printer).

Peripherals also include hard disk drives, floppy disk drives, and optical disk drives, serving as both input and output devices.

Various ports on the computer allow connection of devices like modems, cameras, and scanners, facilitating communication.

Modern PCs have USB ports and memory card readers on the front panel.

**Operating system**

Hello. My name is Nikita. I am a 3rd year student of Software Engineering at Bauman Moscow State Technical University.

When a new computer comes off the factory assembly line, it can do nothing: hardware needs software to make it work.

An operating system is a set of programs that lies between applications software and the computer hardware.

The most important program in the operating system is the supervisor program, most of which remains in memory; this program is called resident.

The supervisor controls the entire operating system and loads other operating system programs (called non-resident) from disk storage only as needed.

An operating system has three main functions: managing the computer's resources, establishing a user interface, and executing and providing services for applications software.

Much of the work of an operating system is hidden from the user.

Operating systems usually come pre-loaded on any computer you buy.

Most people use the operating system that comes with their computer, but it's possible to upgrade or change operating systems.

The three most common operating systems for personal computers are Microsoft Windows, macOS, and Linux.

Modern operating systems use a graphical user interface (GUI).

A GUI lets you use your mouse to click icons, buttons, and menus, displaying everything clearly on the screen using graphics and text.

Microsoft created the Windows operating system in the mid-1980s.

MacOS, created by Apple, comes preloaded on all Macintosh computers, or Macs.

Only 10% of people use macOS because Apple computers tend to be more expensive.

Linux is a family of open-source operating systems, meaning they can be modified and distributed by anyone.

The advantages of Linux are that it is free, and there are many different distributions you can choose from.

Mobile devices, such as phones and tablets, run operating systems designed specifically for them, like Apple iOS and Google Android.

**NETWORK**

Hello. My name is Nikita. I am a 3rd year student of Software Engineering at Bauman Moscow State Technical University.

A network is a system of computers and other devices linked together.

It can range from two computers connected with cables to millions spread over a large area connected by telephone lines, fiber-optic cables, or radio waves.

The Internet is an example of a very large network, being a global system of interconnected networks that link devices worldwide using the Internet protocol suite.

This network of networks includes private, public, academic, business, and government networks, linked by electronic, wireless, and optical technologies.

The World Wide Web has decentralized information on a large scale compared to traditional media.

A website is a collection of related web pages with multimedia content, typically identified by a common domain name and published on at least one web server.

Websites serve various functions, from personal to corporate, government, and organizational purposes, dedicated to topics ranging from entertainment to education.

A web browser is a software application designed to bring information resources to the user, allowing them to view and access information.

Popular web browsers include Chrome, Internet Explorer, Edge, Safari, Opera, and Firefox.

Modern technologies are constantly evolving, including wireless communication means like 3G and 4G, which each generation being faster, more secure, and reliable.

3G set the standards for web browsing, email, video downloading, and picture sharing, while 4G offers better connectivity for tasks like video chats and conferences, allowing faster streaming and easier information sharing.

In the 21st century, the trend in software is to lease applications from application service providers instead of buying them.

**PROGRAMMING LANGUAGES**

Hello. My name is Nikita. I am a 3rd year student of Software Engineering at Bauman Moscow State Technical University.

Computers can deal with different kinds of problems if they are given the right instructions for what to do.

Instructions are first written in one of the high-level languages, depending on the type of problem to be solved.

A program written in one of these languages is often called a source program.

The source code of a program has to go through some kind of translation into machine code and the machine can actually run.

An applications program is a program written in one of these high-level languages is designed to do a specific type of work.

Software packages are a set of programs designed to perform certain applications which conform to the particular specifications of the user.

Institutions either purchase these programs as packages or commission their own programmers to write them to meet the specifications of the users.

There are some kinds of programming languages:

1. Compiled languages

Compiled languages get translated into runnable files of binary machine code by a special program called a compiler.

Once the binary has been generated, you can run it directly without looking at the source code again.

Compiled languages tend to give excellent performance and have the most complete access to the OS, but also to be difficult to program in.

Compiled languages are: C and C++, the languages in which Unix itself is written; FORTRAN, COBOL.

2. Interpreted languages

An interpreted language depends on an interpreter program that reads the source code and translates it on the fly into computations and system calls.

The source has to be re-interpreted each time the code is executed.

Interpreted languages tend to be slower than compiled languages, but they tend to be easier to program.

Interrupted languages are: Basic , Lisp.

3. P-code languages (pseudo code)

P-code languages are like compiled languages in that the source is translated to a compact binary form, but that form is not machine code, it's pseudo code (or p-code), which is usually a lot simpler but more powerful than a real machine language.

In the P-code, programming speed is still slower than compiled but is faster than interpreted.

Important p-code languages include Python, Perl, and Java.

**Databases**

Hello. My name is Nikita. I am a 3rd year student of Software Engineering at Bauman Moscow State Technical University.

A database is a collection of information organized for easy access, management, and updating.

Databases can be classified by content types: bibliographic, full-text, numeric, and images.

They are also categorized by organizational approaches:

Relational databases organize data in tables, allowing flexible access.

Distributed databases are spread or replicated across network points.

Object-oriented databases align with data in object classes and subclasses.

NoSQL databases handle large, distributed data sets efficiently.

Document-oriented databases store data in formats like XML, JSON, and BSON.

Key features of database data include being organized, related, shareable, constant, secure, and easily accessible.

Databases typically contain aggregated records or files, such as sales transactions, product catalogs, and customer profiles.

They are used in various applications, including storing patient details and medical images in hospitals.

Data is entered into databases via fields, grouped into records.

A record about an employee might include fields like name, address, and salary.

Multi-user databases are managed by database management systems (DBMS), which allow users to insert, retrieve, update, and delete data.

The DBMS provides an abstracted view of the data above the hardware level and handles user requests written in higher-level languages.

Users access databases through DBMS using data-manipulation languages.

The DBMS checks syntax, inspects schemas, and performs necessary operations on stored data.

Users include administrators, developers, and other users who interact with the database for various tasks.

**Datamining**

Hello. My name is Nikita. I am a 3rd year student of Software Engineering at Bauman Moscow State Technical University.

Data Mining is a process of finding potentially useful patterns from huge data sets.

It is a skill that uses machine learning, statistics, and AI to extract information to evaluate future events probability.

The information derived from Data Mining is used for marketing, fraud detection, scientific discovery.

The most popular tool used when mining is AI.

AI technologies try to work the way the human brain works, by making intelligent guesses, learning by example, and using deductive reasoning.

Some of the more popular AI methods used in data mining include neural networks, clustering, and decision trees.

• Neural networks look at the rules of using data, which are based on the connections found or on a sample set of data.

• Clustering divides data into groups based on similar features.

Clusters are used when data isn't labelled in a favourable way to mining.

• Decision trees, like clusters, separate the data into subsets and then analyse the subsets to divide them into further subsets, and so on.

The final subsets are small enough that the mining process can find interesting patterns and relationships within the data.

When the process is complete, the mining software generates a report.

An analyst check to see if further work needs to be done, such as refining (уточнение) parameters, using other data analysis algorithm, or even delete data if it's unusable.