

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.

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

Computer Architecture

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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 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 includes programs, data, and protocols, such as web browsers, games, and word processing.

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 and input/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

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Computer hardware requires software to operate.

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.

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

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

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, run operating systems designed specifically for them, like Apple iOS and Google Android.

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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.

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.

Wireless communications are constantly evolving, such as 3G and 4G, which are becoming faster, safer and more reliable.

3G set the standards for web browsing, email, video downloading, and picture sharing.

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.

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

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++, 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.

Databases\Data mining

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 can be categorized by organizational approaches: relational databases organize data in tables for flexible access; distributed databases are spread across network points; object-oriented databases align data in object classes; NoSQL databases handle large data sets efficiently; document-oriented databases store data in formats like XML and JSON.

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

Databases contain aggregated records or files, with data entered via fields grouped into records, and are used in various applications.

Multi-user databases are managed by database management systems that allow users to insert, select, update, and delete data through data-manipulation languages, performing necessary operations on stored data.

Users include administrators, developers, and other users.

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

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

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

AI methods in data mining include neural networks, which analyze data rules based on connections, clustering, which divides data into groups with similar features, and decision trees, which separate data into subsets for further analysis.

Upon completion, mining software generates a report, which analysts review to determine if further refinement or additional analysis is needed.