PROGRESS: GLOBAL TADQIQOTLAR

THE MAIN ASPECTS OF INFORMATION AND DATA SYSTEMS.

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Abstract: This paper is based on the main aspects of information and data. Data is different types of information usually formatted in a particular manner. All software is divided into two major categories: programs and data. We already know what data is now, and programs are collections of instructions used to manipulate data.

Keyword: Data, data analysis, data store, database, database developer, accuracy, e-commerce, data processing cycle, big data, data analysis, qualitative research, software technology.

INTRODUCTION.

Since the invention of computers, people have used the term data to refer to computer information, and this information was either transmitted or stored. But that is not the only data definition; there exist other types of data as well. So, what is the data? Data can be texts or numbers written on papers, or it can be bytes and bits inside the memory of electronic devices, or it could be facts that are stored inside a person's mind. We use data science to make it easier to work with data. Data science is defined as a field that combines knowledge of mathematics, programming skills, domain expertise, scientific methods, algorithms, processes, and systems to extract actionable knowledge and insights from both structured and unstructured data, then apply the knowledge gleaned from that data to a wide range of uses and domains.

Information is defined as classified or organized data that has some meaningful value for the user. Information is also the processed data used to make decisions and take action. Processed data must meet the following criteria for it to be of any significant use in decision-making:
- Accuracy: The information must be accurate.
- Completeness: The information must be complete.
- Timeliness: The information must be available when it's needed.
- Types and Uses of Data

Growth in the field of technology, specifically in smartphones has led to text, video, and audio is included under data plus the web and log activity records as well. Most of this data is unstructured.

The term Big Data is used in the data definition to describe the data that is in the petabyte range or higher. Big Data is also described as 5Vs: variety, volume, value, veracity, and velocity. Nowadays, web-based e-Commerce has spread vastly, business models based on Big Data have evolved, and they treat data as an asset

itself. And there are many benefits of Big Data as well, such as reduced costs, enhanced efficiency, enhanced sales, etc.

The meaning of data has grown beyond the processing of data in the field of computer applications. For instance, we've already touched upon what data science is. Accordingly, finance, demographics, health, and marketing also have different definitions of data, which ultimately results in different answers to the persistent question, "What is data?"

Computers represent data (e.g., text, images, sound, video), as binary values that employ two numbers: 1 and 0. The smallest unit of data is called a "bit," and it represents a single value. Additionally, a byte is eight bits long. Memory and storage are measured in units such as megabytes, gigabytes, terabytes, petabytes, and exabytes. Data scientists keep coming up with newer, larger data measurements as the amount of data our society generates continues to grow.

Data can be stored in file formats using mainframe systems such as ISAM and VSAM, though there are other file formats for data conversion, processing, and storage, like comma-separated values. These data formats are currently used across a wide range of machine types, despite more structured-data-oriented approaches gaining a greater foothold in today's IT world.

Unit	Abrivation	Binary Value	Decimal value	Decimal Size
Bit	b	0 or 1	0 or 1	1/8 of a byte
Byte	B	8 bits	8 bits	1 byte
Kilobyte	KB	1024^1 bytes	1000^1 bytes	1000 bytes
Megabyte	MB	1024^2 bytes	1000^2 bytes	1,000,000 bytes
Gigabyte	GB	1024^3 bytes	1000^3 bytes	1,000,000,000 bytes
Terabyte	TB	1024^4 bytes	1000^4 bytes	1,000,000,000,000 bytes
Petabyte	PB	1024^5 bytes	1000^5 bytes	1,000,000,000,000,000 bytes
Exabyte	EB	1024^6 bytes	1000^6 bytes	1,000,000,000,000,000,000 bytes
Zettabyte	ZB	1024^7 bytes	1000^7 bytes	1,000,000,000,000,000,000,000 bytes
Yottabyte	YB	1024^8 bytes	1000^8 bytes	1,000,000,000,000,000,000,000,000 bytes

Table 1. Common data storage measurments

The field of data storage has seen greater specialization develop as the database, the database management system, and more recently, relational database technology, each made their debut and provided new ways to organize information.

What's the data processing cycle? Data processing is defined as the re-ordering or re-structuring of data by people or machines to increase its utility and add value for a specific function or purpose. Standard data processing is made up of three basic steps: input, processing, and output. Together, these three steps make up

the data processing cycle. You can read more detail about the data processing cycle here.

- Input: The input data gets prepared for processing in a convenient form that relies on the machine carrying out the processing.
- Processing: Next, the input data's form is changed to something more useful. For example, information from timecards is used to calculate paychecks.
- Output: In the final step, the processing results are collected as output data, with its final form depending on what it's being used for. Using the previous example, output data becomes the employees' actual paychecks.

So how do data analysts and scientists analyze data in the first place?

How do we analyze data?

Ideally, there are two ways to analyze the data:

1. *Data Analysis in Qualitative Research*
2. *Data Analysis in Quantitative Research*

1. Data Analysis in Qualitative Research. Data analysis and research in subjective information work somewhat better than numerical information since the quality of information consist of words, portrayals, pictures, objects, and sometimes images. Getting knowledge from such entangled data is a daunting task, so it's usually used for exploratory research in addition to being employed in data analysis.

Finding Patterns in the Qualitative Data

Although there are a few different ways to discover patterns in printed data, a word-based strategy is the most depended on and broadly utilized global method for research and analysis of data. Significantly, the process of data analysis in qualitative research is manual. Here the specialists, as a rule, read the accessible information and find repetitive or frequently utilized words.

2. Data Analysis in Quantitative Research

Preparing Data for Analysis

The primary stage in research and analysis of data is to do it for the examination with the goal that the nominal information can be changed over into something important. The preparation of data comprises the following.

1. *Data Validation*
2. *Data Editing*
3. *Data Coding*

For quantitative statistical research, the utilization of descriptive analysis regularly gives supreme numbers. However, the analysis is never adequate to show the justification behind those numbers. Still, it is important to think about the best technique to be utilized for research and analysis of data fitting your review survey and what story specialists need to tell.

Consequently, enterprises that are prepared to work in today's hypercompetitive world must have a remarkable capacity to investigate complex research information, infer noteworthy bits of knowledge, and adjust to new market needs.
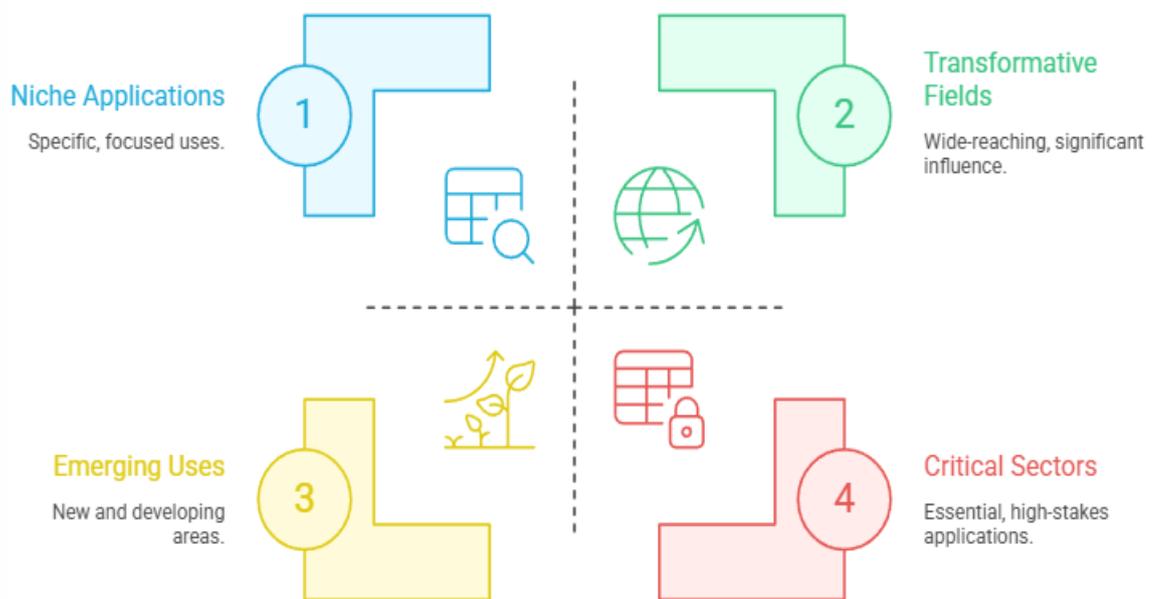
Figure 2. Data science applications

The field of data, data procession, and data science is immense. We listed just five data-related careers, but there are so many others out there. For instance, you can get certified as a Data Engineer, or a Data security administrator. Any field in Data Science and Business Analytics is a promising one, so check out Simplilearn today, and plan a new future in the world of data!

Therefore, the scope in the field of data is immense. These were just five that we listed; there are many others like the Data Engineer certification course, Data security administrator. This shows that a career in any field of Data Science and Business Analytics is a promising one.

REFERENCES

1. Ishmanov, Farruh, et al. "Trust management system in wireless sensor networks: design considerations and research challenges." *Transactions on Emerging Telecommunications Technologies* 26.2 (2015): 107-130.

2. Begalov, B. A., and A. B. Abdusalomov. "STATISTIKA FAOLIYATIGA BULUTLI TEXNOLOGIYALARNI JORIY ETISH ISTIQBOLLARI." *Scientific Journal of Actuarial Finance and Accounting* 6.01 (2026): 26-33.

3. Abdulakhatov, M. M. "Models and methodologies software development." Scientific electronic journal of Management and Future Technologies 1.2 (2024).

4. Abdulakhatov, M. M., Mirzarakhmatov Sh, and O. Sanakulov. "RAQAMLI TRANSFORMATSIYA DAVRIDA PEDAGOGIK TA'LIMNI RIVOJLANTIRISH ISTIQBOLLARI."

5. Abdulaxatov, Muzaffar. "SCIENTIFIC AND METHODOLOGICAL ASPECTS OF THE PREPARATION OF A MODERN COMPUTER SCIENCE TEACHER." *Nordic_Press* 3.0003 (2024).

6. Abdulaxatov, Muzaffar. "THE MAIN VALUES OF PHYSICAL EDUCATION AND SPORT." *Nordic_Press* 3.0003 (2024).

7. Information systems in economics: a textbook for academic baccalaureate. / Under the editorship of V.N. Volkova, V.N. Yuryev. – Yurayt Publishing House, 2018

8. Lapidus L.V. Digital economy: management of electronic business and electronic commerce: monograph / L.V. Lapidus. – M.: INFRA-M. 2019.-381 p.

9. Titorenko G.A. Information technology management. Tutorial. - M: UNITY-DANA, 20 - 439C

10. Asanov R.K. Formation of the concept of "digital economy" in modern science / R.K. Asanov // Socio-economic sciences and humanitarian research. – 20– No. – S. 143–148.