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| **WORKSHEET** | | | |
| **Topic:** | Introduction to Information Technology | **Week No.** | 4 Lecture |
| **Course Code:** | IT001 | **Term** | 2nd Semester |
| **Course Title:** | Introduction to Information Technology, Word Processing/ Spreadsheet | **Academic Year** | 2024-2025 |

**What you will learn!**

1. What is Data?
2. What is Information?
3. Why data is important?
4. Categories of Data
5. Types of Data

**Difference between Information and Data**

Data and Information are important concepts in the world of computing and decision-making. Data is defined as unstructured information such as text, observations, images, symbols, and descriptions on the other hand, Information refers to processed, organized, and structured data. It gives context to the facts and facilitates decision-making.

**What is Data?**

Data is a raw and unorganized fact that is required to be processed to make it meaningful. It can be considered as facts and statistics collected together for reference or analysis.

Data are individual units of information. In analytical processes, data are represented by variables. Data is always interpreted, by a human or machine, to derive meaning. So, data is meaningless. Data contains numbers, statements, and characters in a raw form.

Data is a word we hear everywhere nowadays. In general, data is a collection of facts, information, and statistics and this can be in various forms such as numbers, text, sound, images, or any other format.

**What is Data?**

According to the Oxford “Data is distinct pieces of information, usually formatted in a special way”. Data can be measured, collected, reported, and analyzed, whereupon it is often visualized using graphs, images, or other analysis tools. Raw data (“unprocessed data”) may be a collection of numbers or characters before it’s been “cleaned” and corrected by researchers. It must be corrected so that we can remove outliers, instruments, or data entry errors. Data processing commonly occurs in stages, and therefore the “processed data” from one stage could also be considered the “raw data” of subsequent stages. Field data is data that’s collected in an uncontrolled “in situ” environment. Experimental data is the data that is generated within the observation of scientific investigations.

It can often generated anywhere where any information is generated and stored in structured or unstructured formats.

**What is Information?**

Information is data that has been processed, organized, or structured in a way that makes it meaningful, valuable and useful. It is data that has been given context, relevance and purpose. It gives knowledge, understanding and insights that can be used for decision-making, problem-solving, communication and various other purposes.

**Why data is important?**

1. Data helps in make better decisions.
2. Data helps in solve problems by finding the reason for underperformance.
3. Data helps one to evaluate the performance.
4. Data helps one improve processes.
5. Data helps one understand consumers and the market.
6. Categories of Data

**Data can be categories into two main parts**

1. Structured Data: This type of data is organized data into specific format, making it easy to search, analyze and process. Structured data is found in a relational databases that includes information like numbers, data and categories.
2. Unstructured Data: Unstructured data does not conform to a specific structure or format. It may include some text documents, images, videos, and other data that is not easily organized or analyzed without additional processing.

Introduction to data storage: files, folders, cloud storage

**What is Cloud Storage?**

Cloud computing in general is termed as a different service through the Internet. It has various resources which include tools and applications like data storage, databases, servers, networking, etc. It has applications, platforms, and infrastructure which is surrounded by servers, laptops, desktops, phones, and tablets.

**What is Cloud Storage?**

In Cloud Computing, Cloud storage is a virtual locker where we can remotely stash any data. When we upload a file to a cloud-based server like Google Drive, OneDrive, or iCloud that file gets copied over the Internet into a data server that is cloud-based.

So, if our data gets somehow lost we will not lose our data because it will be backed up by another location. This is known as redundancy which keeps our data safe from being lost.

**How does Cloud Storage work?**

Cloud storage lets you store, manage, and access your data over the internet instead of relying on your computer’s hard drive or a physical server. Here’s how it works:

**1. Uploading Data**

You upload your files—documents, photos, videos, or anything else—to the cloud through a website or app. The data is sent securely over the internet to the cloud provider’s servers.

**2. Storing Data**

Once uploaded, your files are stored on servers in large data centers managed by the provider. To keep your files safe, the provider often creates multiple copies of your data and stores them in different locations. This way, even if one server goes down, your files remain accessible.

**3. Accessing Your Files**

You can log in to your cloud account from any device—your phone, laptop, or tablet—to view or download your files. As long as you have an internet connection, you can access your data from anywhere.

**4. Syncing Across Devices**

When you make changes to a file in the cloud (e.g., editing a document), those changes are automatically updated across all your devices. This ensures you always have the latest version of your files.

**5. Keeping Data Secure**

Cloud storage providers encrypt your files to protect them from unauthorized access. They also require login credentials, and many offer extra security features like two-factor authentication (2FA).

**6. Backups and Redundancy**

To avoid data loss, cloud providers back up your files and store them in multiple locations. Even if something happens to one server, your data is safe.

**7. Scalability**

One of the best things about cloud storage is that it grows with your needs. If you need more space, you can upgrade your plan. If you don’t, you only pay for what you use.

**8. Sharing and Collaboration**

Cloud storage makes it easy to share files with others. You can send a link or invite people to access specific files or folders. Many platforms even let multiple people work on the same document at the same time.

**9. Disaster Recovery**

Since your files are stored in multiple locations, cloud storage acts as a reliable backup. Whether it’s a hardware failure or a natural disaster, you can recover your data without worry.

