Lecture 2

APPLICATIONS OF COMPUTERS

Today computers find widespread applications in all activities of the modern world. Some of the major application areas include:

1. **Military.**

2. **Scientific, Engineering and Research.**

3. **Business.**

4. **Healthcare:** Computers have become an important part in hospitals, labs, and dispensaries. They are being used in hospitals to keep the record of patients and medicines. It is also used in scanning and diagnosing different diseases. ECG, EEG, ultrasounds and CT scans, etc. are also done by computerized machines.

Following are some major fields of healthcare in which computers are used:

- ❖ **Diagnostic System** - Computers are used to collect data and identify the cause of illness.
- ❖ **Lab-diagnostic System** - All tests can be done and the reports are prepared by computer.
- ❖ **Patient Monitoring System** – These are used to check the patient's signs for abnormality such as in Cardiac Arrest, ECG, etc.
- ❖ **Pharm Information System** - Computer is used to check drug labels, expiry dates, harmful side effects, etc.
- ❖ **Surgery** - Nowadays, computers are also used in performing surgery.

5. **Information:** This is the age of information. Television, Satellite communication, Internet, networks are all based on computers.
6. **Education.**
7. **Games and Entertainment.**
8. **Communication.**

Computer System and the Human Mind

The content of the human mind can be classified into four categories:

1. **Data**: symbols.
2. **Information**: data that are processed to be useful; provides answers to "who", "what", "where", and "when" questions.
3. **Knowledge**: application of data and information; answers "how" questions
4. **Wisdom**: evaluated understanding.

Advantage of Computer vs. Human Mind:

1. **Speed:** Smaller computers can execute thousands of instructions per second, while the more complex machines can execute millions of instructions per second.

2. **Accuracy:** They are capable of executing hundreds of instructions without any errors.

3. **Efficiency:** The computers can perform repeated tasks with the same efficiency any number of times without exhausting their selves.

4. **Storage Capability:** Computers are capable of storing large amounts of data in their storage devices.

5. **Versatility:** They are capable of performing no numerical operations fielding like: air-line reservation, electricity bills, data base management etc.

Limitations of Computers:
Although the computers of today are highly intelligent and sophisticated, they have their own limitations.

1. **No Intelligence:** A computer cannot take any decision on its own.

2. **Dependency:** It functions as per the user's instruction; thus, it is fully dependent on humans.

3. **Environment:** The operating environment of the computer should be dust free and suitable.

4. **Feeling:** It cannot make judgment based on feeling, taste, experience, and knowledge unlike humans.