



FACULTY OF ENGINEERING & TECHNOLOGY

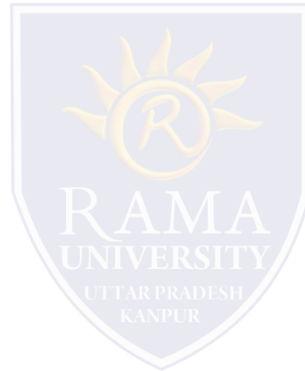
Brajesh Mishra

Assistant Professor

Department of Computer Science & Engineering

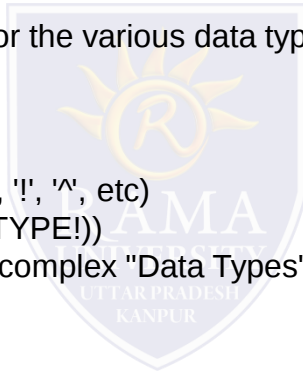
Data types

CLASSES OF DATATYPES



Data types

- A data type represents a type of the data which you can process using your computer program
- Below are some more examples and specifics for the various data types.
 - Numbers
 - Booleans (true or false)
 - Characters ('a', 'b', ... 'z', '1', '2', ... '9', '!', '^', etc)
 - Arrays (a lists of data (of the SAME TYPE!))
 - Structures are a way to create more complex "Data Types" than the basics.



CLASSES OF DATATYPES

•Primitive data types

- Primitive data types are typically types that are built-in or basic to a language implementation

•Machine data types

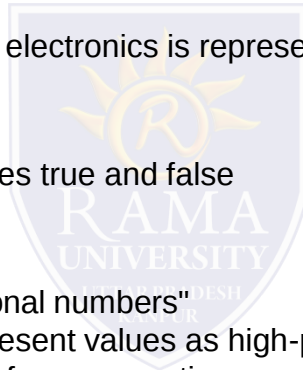
- All data in computers based on digital electronics is represented as bits (alternatives 0 and 1) on the lowest level

•Boolean type

- The Boolean type represents the values true and false

•Numeric types

- The integer data types, or "non-fractional numbers"
- Floating point data types, usually represent values as high-precision fractional values
- Fixed point data types are convenient for representing monetary values
- Bignum or arbitrary precision numeric types lack predefined limits



CLASSES OF DATATYPES

- **Composite types**

- Composite types are derived from more than one primitive type.
- An array (also called vector, list, or sequence) stores a number of elements and provide random access to individual elements.
- Record (also called tuple or struct) Records are among the simplest data structures
- Union. A union type definition will specify which of a number of permitted primitive types may be stored in its instances,
- A set is an abstract data structure that can store certain values, without any particular order, and no repeated values
- An object contains a number of data fields, like a record, and also a number of subroutines for accessing or modifying them, called methods.

- **Enumerations**

- The enumerated type has distinct values, which can be compared and assigned, but which do not necessarily have any particular concrete representation in the computer's memory; compilers and interpreters can represent them arbitrarily.