

Tender Heart High School, Sec 33 B, Chandigarh

Class: 10Subject: Computer ApplicationTopic: Values and Data types continue..Subject Teacher: Prabhddeep kaur

Good Morning

This lesson is of Class 10 for the Subject of Computer Application topic values and datatypes Continue part of previous chapter.

Encoding of characters: A character encoding is a way to convert text data into binary numbers. In Computer character entered from the keyboard are not directly stored in the computer memory. It is because the memory stores a character in binary number. These binary numbers later can be converted back to original characters based on their values. There are two types of encoding schemes are used in computer to encode the characters. They are ASCII and Unicode.

ASCII Codes: Stand for American Standard Code for Information Interchange. It uses 7 bits code for representing each character. It includes 256 characters but only 128 characters are used while designing and executing a program.

Codes	Characters
48 - 57	0 - 9
65 - 90	A - Z
97 - 122	a - z
32	Blank

Class: 10

Subject: Computer Application

Topic: Values and Data types continue..

Subject Teacher: Prabhdeep kaur

Unicode: is a universal character encoding standard that assigns a code to every character and symbol in computer language. The code contains hexadecimal digits from 0x0000 upto 0xFFFF that is 16-bits code. It can address 1,37,000 characters from 146 modern and historic scripts.

Escape Sequences: There are some characters, known as escape sequences, that are used to control the cursor while displaying the values on the screen. Each escape sequence starts with backslash (\) followed by a specific character.

Example: "\t". Some escape sequences are given below:

Escape Sequences	Non-Graphic Character
\t	Horizontal tab
\v	Vertical tab
\\	Backslash
\'	Single quote
\"	Double quote
\b	Backspace
\f	Form feed
\0	Null
\r	Carriage return
\n	New line feed

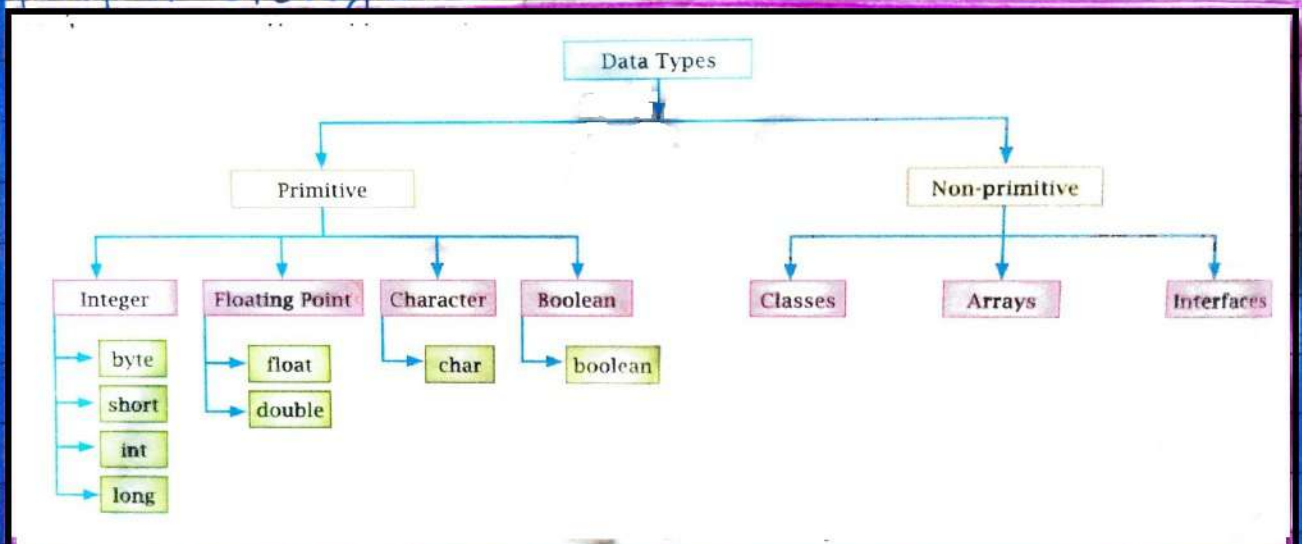
Class: 10

Subject: Computer Application

Topic: Values and Data types continue..

Subject Teacher: PrabhdEEP kaur

Data Types : refers to the type of data, a memory location can hold. whenever we need to store a value, the respective data type must be mentioned so that memory is ready for its proper storage.



Primitive data types :- A primitive data types cannot be further split into a simpler data type. They are the basic or fundamental data type used to declare a variable. They are further classified

NUMERIC DATA TYPES

Integer type

- * byte : It is used to store integer data up to 8 bits (=1 byte), example: byte b; b = 5;
Variable Name Value

- * Short : used to store a small range of integer up to 16 bits (= 2 bytes)
example: Short b; b = 25;

Class: 10

Subject: Computer Application

Topic: Values and Data types continue..

Subject Teacher: Prabhdeep kaur

* int: Is used for integers storing upto 32 bits (= 4 bytes) example: `int n;`
`n = 365;`

* long: is used for storing large integers upto 64 bits (= 8 bytes) example: `long l;`
`l = 1234;`

Real type: A variable declared under this type contains floating point data that is the fractional numbers including decimal point

* Float: It represents a fractional number with a small range upto 32 bits (= 4 bytes)
example: `Float f;` `f = 3.63;`

double: It represents a fractional number with wide range values upto 64 bits (= 8 bytes)

example: `double d;` `d = 0.1325632;`

These all above given data types are categories of Numeric data type which are used to declare variables that can store numbers.

Non-numeric data types: These data types do not deal with numbers rather they are used to declare a character or a set of characters.

character type: A variable is declared to be a character type when it holds a character literal.

example: `char c;` `c = 'x';`

A set of characters enclosed within double quotes is termed as a String. example: `String S;`

`S = "Computer"`

Class: 10

Subject: Computer Application

Topic: Values and Data types continue..

Subject Teacher: Prabhddeep kaur

Boolean type: Boolean literals are true or false.

example: `boolean b; b = true;`

Non-Primitive Data types: A number of primitive data types are used together to represent a non-primitive data type. It is one that is derived from primitive data types. It is also called a composite data type. example: Array, Class and interface.

Comments In Java: Comments are usually added in a program to give an overview of the code and provide additional information that is not readily available in it. The primary purpose of comments is to document the code so that even a layperson can understand the purpose of the written code. Comments are ignored by the java compiler and do not affect the execution of the program. Java programs can have three styles of comments: Single line, multiple line and documentation comments.

Single line - begins with a double slash
// class belongs to fruit

Multiline - Starts with /* Slash asterisk
and ends */

Documentation - Starts with /** Slash two asterisk
and ends */.

Class: 10

Subject: Computer Application

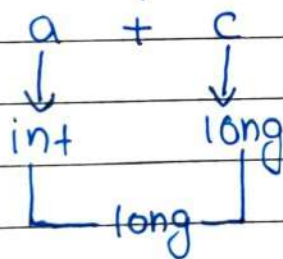
Topic: Values and Data types continue..

Subject Teacher: Prabhdeep kaur

Type Conversion: when a number of data types used together in an expression then what type of result it will return after execution. That result which the system converts into a specific data type known as Type Conversion. It further divides in two ways:

1. Implicit type conversion: when the data type of the result gets converted into the higher most data type available in the expression without any intervention of the user, is known as implicit type conversion.

example: `int a; int b; long c;`



2. Explicit type conversion: In this mixed type conversion expression gets converted into a specific type as per user's choice. The choice of data type must be written within braces () before the expression. example: `int a, float b, char c;`
`d = (char) (a + b + c);`

Class: 10

Subject: Computer Application

Topic: Values and Data types continue..

Subject Teacher: Prabhdeep kaur

Declaration and Initialization

Declaration is the term used to declare the type of a variable whereas initialization refers to assigning or storing a specific value to the variable. example

```
int a;      declaration
a = 5;      initialization
```

Default Initialization: When the variable is not initialized but is used in the program, then the system initializes it implicitly with a specific value called Default initial value.

Static Initialization: This is the way to store a value directly to a variable by using assignment operator (=) example:

```
int a = 10;
```

Dynamic Initialization: This type of initialization is used to initialize a variable at run time.

Example:

```
int a, b, c;
c = a + b;
```

Tender Heart High School, Sec 33 B, Chandigarh

Class: 10

Subject: Computer Application

Topic: Values and Data types continue..

Subject Teacher: Prabhdeep kaur

Answer the following:

Q1. Difference between primitive data types and composite data types.

Q2. What is variable initialization in Java?

Q3. What is Static and Dynamic Initialization?

Q4. State different type conversion?