Smart Programming : YouTube Channel

An investment in Knowledge pays the best interest….

Data Types in Java

=> Programming Language Fundamentals / Terminologies :-

-> Data Types

-> Variables

-> Tokens

      -> Literals

      -> Operators

      -> Separators

      -> Punctuators

      -> Comments

      -> Keywords / Reserved Words

      -> Identifiers

=> Data Types :-

-> The type of data that we are specifing to java is known as Data Type.

-> For example :-

10 - int

'a' - char

"deepak" - String

true - boolean

-> According to data type, languages are divided into 2 categories :-

1. Statically Type Langauges :- In this type of languages we have to specify the type of each data and thus compiler known which type of data we have provided. For examples C, C++, Java, FORTRAIN, Pascal etc

2. Dynamically Typed Langauges :- In this type of languages we dont need to specify the type

of data that we have provided. For examples Python, JavaScript, Objective C, Ruby etc
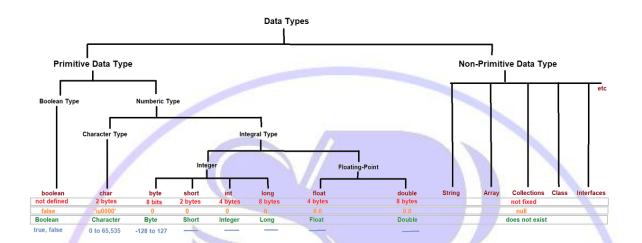
-> Types of Data Types :-

1. Primitive Data Types (Predefined Data Type) :-

- The data types which are already provided by java and whose size are fixed are know as primitive data type

- Examples :- There are 8 primitive data types :-

boolean, char, byte, short, int, long, float, double

- To find the range of Integer primitive data type we can use the formula i.e. $-2(n-1)$ to $2(n-1) - 1$ (where n is no of bits)

- To find the range (minimum and maximum value) of primitive data types (excluding boolean) we can use static int variables i.e. MIN_VALUE & MAX_VALUE

Data Types

Primitive Data Type   Non-Primitive Data Type   etc

Boolean Type   Numberic Type

Character Type   Integral Type

Integer   Floating-Point

boolean	char	byte	short	int	long	float	double	String	Array	Collections	Class	Interfaces
not defined	2 bytes	8 bits	2 bytes	4 bytes	8 bytes	4 bytes	8 bytes			not fixed		
false	'\u0000'	0	0	0	0	0.0	0.0			null		
Boolean	Character	Byte	Short	Integer	Long	Float	Double			does not exist		
true, false	0 to 65,535	-128 to 127										

Data Types with default size, default values, range & their corresponding wrapper class

Data Type	Default Size		Default Value	Range	Corresponding Wrapper Class
boolean	Preciously Not Defined		false	Only true & false	Boolean
char	2 bytes	(16 bits)	0 (represents blank space)	0 to 65535	Byte
byte	1 byte	(8 bits)	0	-2^7 to 2^7-1 (-128 to 127)	Character
short	2 bytes	(16 bits)	0	-2^{15} to $2^{15}-1$ (-32768 to 32767)	Short
int	4 bytes	(32 bits)	0	-2^{31} to $2^{31}-1$ (-2147483648 to 2147483647)	Integer
long	8 bytes	(64 bits)	0	-2^{63} to $2^{63}-1$ (-9223372036854775808 to 9223372036854775807)	Long
float	4 bytes	(32 bits)	0.0	-3.4e38 to 3.4e38	Float
double	8 bytes	(32 bits)	0.0	-1.7e308 to 1.7e308	Double

2. Non-Primitive Data Types (User Defined Data Type or Derived Data Type) :-

- Non-Primitive data types are not pre-defined data types but are created by the programmer. These are sometimes know as "reference variable" or "object reference"

- The size of non-primitive data type is not fixed

- Examples :- String, Array, Collection, Class, Abstract Class, Interface etc

Interview Questions :-

1. What are statically and dynamically typed languages ?

2. What is difference between Primitive Data Type & Non-Primitive Data Type

3. What are Wrapper Classes

-> The classes which are used to convert primitive into objects and objects into primitive

-> There are 8 wrapper classes :- Boolean, Character, Byte, Short, Integer, Long, Float & Double

-> Java introduced autoboxing and unboxing in J2SE 5.0 version which coverts primitive into object and object into primtive automatically

4. What is Autoboxing & Unboxing ?

-> Autoboxing is the automatic conversion of primitive data type into its corresponding wrapper classes by java compiler.

-> Unboxing is the automatic conversion of an object of wrapper type to its corresponding primitive value by java compiler

Company Links & Contacts

Company Name: Smart Programming (+91 62838-30308)

Address : Chandigarh & Mohali (Punjab), India

Websites: https://www.smartprogramming.in/

https://courses.smartprogramming.in

Android App:
https://play.google.com/store/apps/details?id=com.smartprogramming

YouTube Channel:
https://www.youtube.com/c/SmartProgramming