# JAVA

**What is JAVA?**

* Java is a very flexible language is it used for many things such as web development , web application and gaming.
* Java file have an extension of .java

If a code is complied on a mac it will run only on the mac and not on windows but java has a solution to this, java has a intermediate step called byte code.

**BYTE CODE**

* IT IS a cross platform, it end with a .class extension.
* This byte code can be send to different operation system and **J.V.M** can be used to translate that code.
* J.V.M translate byte code into source code

ESCAPE SEQUENCE

* It has a back slash “/” followed by a character
* Such as /n is used to move the cursor to a new line.

VARIABLES

* It is a placeholder foe a value, it behave as the value it contains.

DATA TYPES

* PREMETIVE DATA TYPE
  + There are 8 data type and one reference data type (**STRING**)
  + Float data type value end with F **eg:3.765567f**
  + **Long**  data type value end with L.
  + **Int** data type is of **4 bytes** in java and same as **float**, long is of **8 bytes** sames as **double ,** **char** is of **2 bytes.**
  + **DIFFRENCE B/W REFERENCE DATA TYPE AND PREMITIVE DATA TYPE**

|  |  |
| --- | --- |
| **REFERENCE** | **PREMITIVE** |
| * Unlimited (user define) | * 8 Bytes |
| * Stores address | * Stores data |
| * Holds more than one value | * Holds one value |
| * Takes more memory | * Takes less memory |
| * slower | * faster |

* Reference data type starts with a capital letter.

USER INPUT

* To take a user input first we have to import scanner class.
* **Scanner class** is found in java.util package.
* we will use the **nextLine**() method, which is used to read Strings:
* To read a specific data type such as int write **nextInt()**, it read/inputs a value from the user.

*If you enter wrong input (e.g. text in a numerical input), you will get an exception/error message (like "InputMismatchException").*

*While using* ***nextLine*** *method the whole string will be read with the escape sequence but when we use* ***nextInt*** *scanner it will only read the numeric value and left the escape sequence out to over come this problem just write a line (scanner.nextLine) this will clear the scanner.*

EXPRESSION

* Expression are the same as any other language like an integer can’t store a float value it will truncate the decimal value.

Java JOptionPane Class

* It is used to provide standard dialog box .
* They are used to display or get input from user.
* The JOptionPane class inherits JComponent class.
* Its library needs to be imported .

PARSE

The **showInputDialog** takes a string as an input but to input a integer type casting or parse is used .

**TYPE CASTING**

There are two type of type casting

* ****Widening Casting**** (automatically)

converting a smaller type to a larger type size  
byte -> short -> char -> int -> long -> float -> double

* ****Narrowing Casting**** (manually) -

converting a larger type to a smaller size type  
double -> float -> long -> int -> char -> short -> byte

To convert any data type into another type casting is done **e.g: dataType variable =(dataType) expression**

**WAPPER CLASS**

* It provides a way to use primitive data type as reference data type
* primitivve data type is faster to acess than reference data type .
* Every primitive data type has its counter reference type.
* Because it is a class the first letter of the word will be capital and it will be completely spelled out.
* “**autoboxing** ”is a method that automaticly convert primitive data type to its corresponding wrapper class.

**ARRAYList**

* It is a resisable array just like vectors in c++.
* Because Arraylist is a class an object has to be created just like for Scanner and the library has to be imported as well.
* To use premitive dataType wrapper class is used
* To add an element to the Array **.add** is used.
* To find the lenght of an ArrayList we use .size() and to display the element of the ArrayList