Dt : 18/7/2023

Note:

(i)"long" datatype is used to hold largest interger values like Phone No, Card No,Account No,...

(ii)While assigning long-value we must use "l" or "L" in the RHS of declaration.

Ex:

```
long d = 9898981234L;
```

(iii)"int" datatype is used in normal programming to hold integer values.

(iv)"byte" and "short" are special datatypes used for stream-data (Stream-data means Multi-Media data)

(v)"float" datatype is used in normal programming and while assigning float-value we must use "f" or "F" in the RHS of declaration.

Ex:

```
float f = 123.45F;
```

(vi)"double" datatype is used to biggest float-values like Scientific calculated values

byte - 1 byte(8 bits)

2^8 = 256

256/2 = 128

range : -128 to +127

short - 2 bytes(16 bits)

2^{16} = 65536

65536/2 = 32768

range : -32768 to +32767

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2.Non-Primitive Datatypes:

=>The "group valued data formats' are known as Non-Primitive datatypes or Referential datatypes.

=>These Non-Primitive datatypes are categorized into four types:

(a)Class

(b)Interface

(c)Array

(d)Enum

==========

faq:

define "String" datatype?

=>"String" is a class in Java and which is Non-primitive datatype.

=>String can hold sequenced collection of characters which are represented

in double-quotes.

Ex:

String nm = "nit";

==========

Ex-program:

wap to demonstrate datatypes?

program : DataTypes.java

```
class DataTypes
{
  public static void main(String args[])
  {
    byte a = 127;
    short b = 32767;
    int c = 567234;
    long d = 9898981234L;
    float e = 123.45F;
    double f = 2345.123;
    char g = 'k';
    boolean h = true;
    String nm = "nit";
    System.out.println("byte value="+a);
    System.out.println("short value="+b);
```

```
   System.out.println("int value="+c);
   System.out.println("long value="+d);
   System.out.println("float value="+e);
   System.out.println("double value="+f);
   System.out.println("char value="+g);
   System.out.println("boolean value="+h);
   System.out.println("String value="+nm);
  }
}
```

o/p:

```
byte value=127
short value=32767
int value=567234
long value=9898981234
float value=123.45
double value=2345.123
char value=k
boolean value=true
String value=nit
```

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**imp*

Object Oriented Programming:

=>The process of constructing programs using Class-Object concept is known as Object Oriented Programming.

=>In Object Oriented programming we work with NonPrimitive datatypes or Referential datatypes.

=>The following are the levels in Object Oriented Programming:

1. ***Object definition***
2. ***Object Creation***
3. ***Object Location***
4. ***Object Components***
5. ***Object Types***
   - ***(a)User defined Class Objects***
   - ***(b)String-Objects***
   - ***(c)WrapperClass Objects***
   - ***(d)Array Objects***
   - ***(e)Collection<E> Objects***
   - ***(f)Map<K,V> Objects***
   - ***(g)Enum<E> Objects***
6. ***Objects Collection(Grouping Objects)***
7. ***Objects Sorting***
8. ***Object Locking***
9. ***Object Serialization***

10.Object Cloning

==========