

Chapter 2 - Java Refresher

Java is an amazing Object oriented programming language.
We will use Java to create Android apps.

The main method

The Java program starts executing from here

```
public static void main (String[] args) {  
    // Code  
}
```

Printing to the console

The following code prints "Hello World" to the console:

```
System.out.println ("Hello World");
```

Variables in Java

Variables are buckets in memory

String actionNow; → String is used to store seq of characters

int marks; → int is used to store numbers

int value = 7;

↓
type

↓
name

↓
value

Comments

// Comments are used to write text which doesn't execute

// This is a comment

/* This is a

multiline comment */

Strings in Java

String = Sequence of characters

String name = "Harry";

↳ Strings are immutable & cannot be changed

Printing Strings

We can concatenate String like this:

```
System.out.println("Hello, " + name);
```

String methods

String name = "Harry";

name.length()

name.toLowerCase()

name.trim()

Other data types to store numbers

We can store numbers using:

byte → -128 to 127

short → $-(2^{16}/2)$ to $2^{16}/2 - 1$

int → $-(2^{32}/2)$ to $2^{32}/2 - 1$

float → used to store decimal values (4 bytes) [ex. 10.1f]

long → $-(2^{64}/2)$ to $2^{64}/2 - 1$

double → decimal values of 8 bytes [ex. 7.88d]

Booleans

true or false values

boolean isGood = true;

Operators in Java

These are the types of operators in Java:

- 1> Arithmetic operators $\rightarrow a+b, a*b, a/b, a\%b$
- 2> Assignment operators $\rightarrow a=3, a+=3$
- 3> Relational Operators $\rightarrow a < b, a \geq 3$
- 4> Logical Operators $\rightarrow (a > 3) \&\& (b < 7)$
- 5> Unary Operators $\rightarrow a++, b--$
- 6> Bitwise Operators $\rightarrow \sim, <<, \&, |$

If - else conditionals

We can use If-else to execute instructions when a condition is true

```
if (a > 3) {  
    // code
```

```
}
```

```
else if (a > 1) {  
    // code
```

```
}
```

```
else {
```

```
    // code
```

```
}
```

We can use if inside an if, if inside an else and booleans inside if (as conditions)

Loops in Java

- ① for loop: The syntax of a for loop looks like this:

```
for ( initialize; check-bool-exp; update ) {  
    // code;  
}
```

- ② while loop: The syntax looks like this:

```
while ( boolean ) {  
    // code  
}
```

→ Stops when boolean becomes false

- ③ do while loop: do-while loop is guaranteed to execute atleast once.

```
do {  
    // code  
} while ( condition );
```

→ Note the Semicolon

Functions in Java

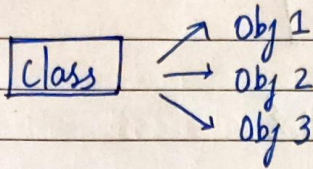
We can use functions to separate logic like this:

```
public static void harrysMethod ( int a ) {  
    // code  
}
```

This method can be called like this:
harrysMethod (7);

Object Oriented Programming

In OOPs, class is a blueprint for creating objects.



Syntax :

```
public class Harry {  
    public static void thisMethod () {  
        //code  
    }  
}
```

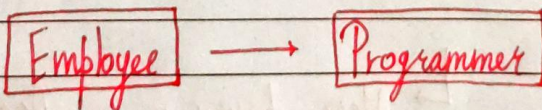
The objects can be created like this :

```
Harry h = new Harry();
```

Inheritance in Java

In Java, we can create classes from another class like this :

```
public class Programmer extends Employee {  
    private String language;  
    //code  
}
```



Arrays in Java

We can store collection of similar items in an Array

⁰ ¹ ² ³ ⁴
[7, 10, 11, 21, 88]

```
int[] harry = { 1, 5, 9, 21 };
```

```
System.out.println(harry[0]);
```

Java Collections Framework

The collections framework in Java allows us to enjoy features like resizable arrays.

ArrayList is a class inside collections framework for creating resizable arrays.

```
ArrayList harry = new ArrayList();
```

For ArrayList & other collection methods, visit the java docs.

Iterating through ArrayLists

We can iterate through ArrayLists like this:

```
for (Object o : harry) {
```

```
    System.out.println("object: " + o);
```

```
}
```

↳ Here harry is an ArrayList

How to view Java Docs

Java has a very beautiful documentation where all the details from the API are listed.

You can navigate to Google and search for the docs where you can further search for the Java API you are interested in.