ANDROID FOR DEVELOPERS WORKSHOP

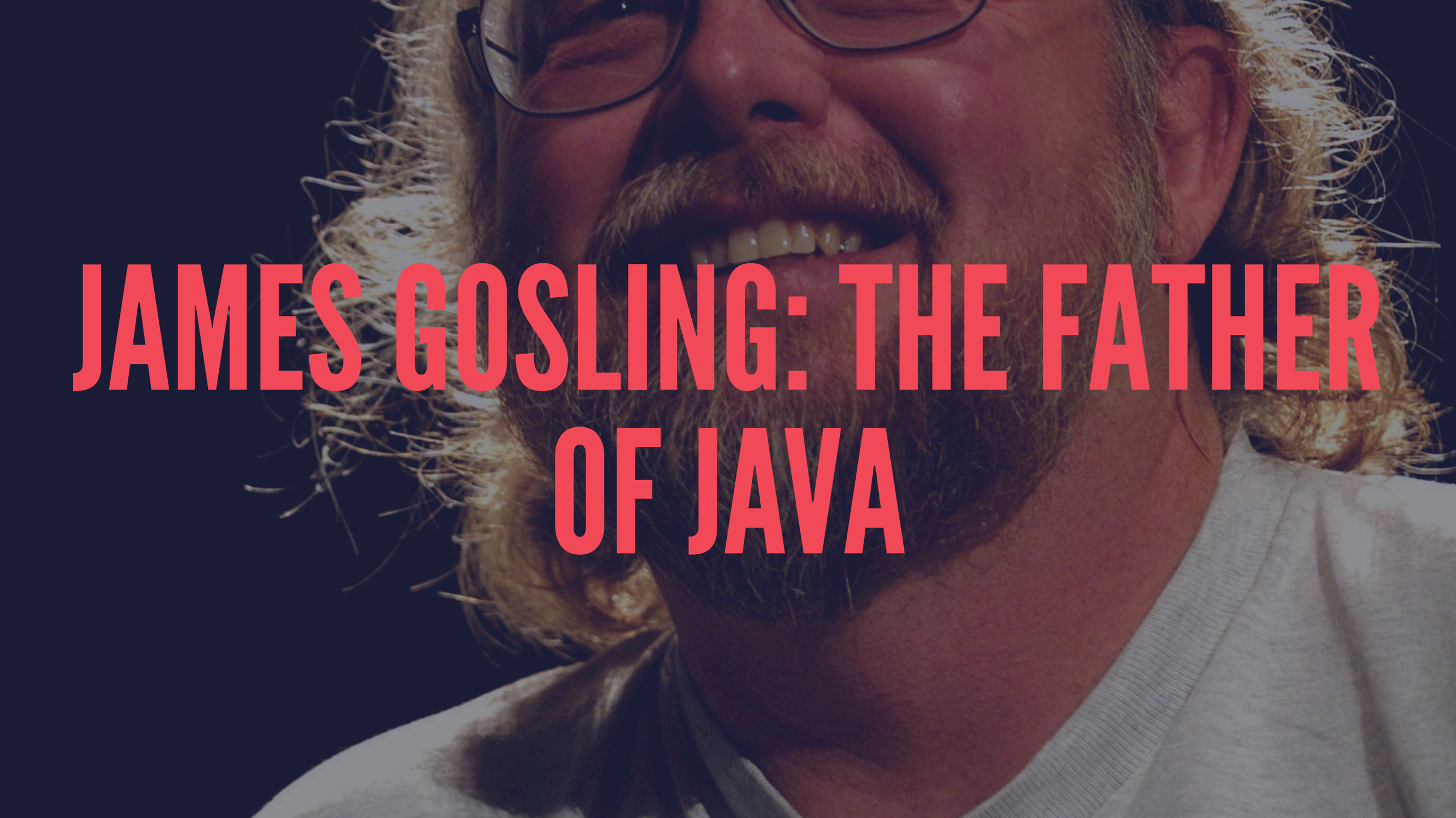
THE RUNDOWN

- Why Google Chose Java and how it fits into the Android SDK
- A quick Java crash course
- Building an Android MadLibs app

JAVA

A LITTLE HISTORY

1991



JAMES GOSLING: THE FATHER OF JAVA

SUN MICROSYSTEMS

JAVA'S BIG IDEA

VIRTUAL MACHINE WITH C STYLE NOTATION

WRITE ONCE RUN ANYWHERE

FIVE PRIMARY GOALS OF THE JAVA LANGUAGE

1. It should be "simple, object-oriented and familiar"
2. It should be "robust and secure"
3. It should be "architecture-neutral and portable"
4. It should execute with "high performance"
5. It should be "interpreted, threaded, and dynamic"

CONCURRENT AND THREADED FROM THE BEGINNING

BY THE NUMBERS

- 930 million JRE Downloads every year
- 3 billion Mobile Phones run Java
- 9 million Java Developers in the world
- #2 (behind JavaScript) Github new Repos created with 283354

CODE!!!!

```java
// Hello World

package com.flatironschool;

public class Main {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}
```

PRIMITIVE DATA TYPES

```
//All primitives have Object Wrappers

float x = 20.25; //So if I need a float 'Object' I would use Float x = 20.25;

boolean x = true; // Or Boolean x = true;

char x = ‘x’; // Or Character x = 'x';

byte x = 0x03; // Or Byte x = 0x03;

short x = 15; // Or Short x = 15;

int x = 20; // Or Integer x = 20;

long x = 9,274,387,302 // Or Long x = 9,274,387,302;
```

DATA STRUCTURES

```
List<String>myList = new ArrayList<String>(); //List<t>
Map<String, String>myMap = new HashMap<String, String>(); //HashMap<t,t>
String[] myArray = new String[10]; //String array with a capacity of 10
String[] myArray = {"string1", "string2", "string3"}; //String array with literal
```

VARIABLES

```
String name;
name = "Al Tyus";

String name = “Al Tyus”;

int num = 20;
```

OPERATORS

- Assignment: =, +=, -=, /=, %=, etc...
- Additive: +, -
- Multiplicative: *, /, %
- Relational: <, >, <=, >=
- Equality: ==, !=
- Logical AND: &&

CONTROL FLOW

IF-THEN

```
int x = 15;

if (x > 10) {
    System.out.println(x + “ is greater than 10”);
}
```

IF-THEN-ELSE

```
int x = 15;

if (x > 10) {
    System.out.println(x + “ is greater than 10”);
}
else if (x < 5) {
    System.out.println(x + “ is less than 5”);
}
else {
    System.out.println(x + “ is neither greater than 10 or less than 5”);
}
```

ITERATION

```
for (int i = 0; i < 100; i++){} // for loop

for (Integer i : myArray){} //foreach loop

while (true){} //while loop

do {}while(true) //do while loop
```

CLASS

```
public class Person {
    //class body
}
```

METHODS

INSTANCE METHOD

```
private void grow(int inches) {
    //can access both static and instance variables and methods
}
```

STATIC METHOD

```
private static Time currentTime(){
return Time.now(); //Only have access to static variables and methods
}
```

CONSTRUCTOR

```
public class Person {
    private String mName;

    public Person(String name){

    mName = name;
    }
}
```

GETTERS AND SETTERS

```
public class Person {
    private String mName;

    public Person(String name){
        mName = name;
    }

    public String getName(){
        return mName;
    }

    public void setName(String name){
        mName = name;
    }
}
```

INHERITANCE

```
public class Main {
    public static void main(String[] args) {
        MountainBike mb = new MountainBike();
        System.out.println(mb.getColor());  //prints red
    }
    public static class Bike{
        private static String mColor;
        public Bike(){
            mColor = "red";
        }
        public String getColor(){
            return mColor;
        }
    }
    public static class MountainBike extends Bike{}
}
```

INTERFACES

DECLARING INTERFACES

```
public interface Animal {
    public void eat();
    public void move();
}
```

IMPLEMENTING INTERFACES

```
public class Cat implements Animal {
    public void eat(){
    }
    public void move(){
    }
}
```

THIS IS HOW WE FIZZBUZZ

```java
//FizzBuzz.java

public static void main(String[] args) {

    for (int x = 1; x < 100; x++){
        if (x % 15 == 0){
            System.out.println("FizzBuzz"); //The Java way
            //Log.d("Tag", "FizzBuzz"); The Android way
        }
        else if (x % 5 == 0){
            System.out.println("Buzz");
        }
        else if (x % 3 == 0){
            System.out.println("Fizz");
        }
        else {
            System.out.println(Integer.toString(x));
        }
    }

}
```

ANDROID

ANDROID STUDIO

JAVA

3 KEY COMPONENTS OF THE ANDROID SDK

ANDROID LIBRARIES

Layout XML

RESOURCES

OPEN SOURCE AND GRADLE

ANDROID EMULATOR

BUT IT'S REALLY BAD

GENYMOTION

MADLIBS

STEPS

- Compose the User Interface XML Files
- Create a model for a Madlib
- Connect to web service
- Update the User Interface from the Activity