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Club

Flutter Workshop

Session 2

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Flutter

- DataTypes
- Flow statments
- Functions
- Object Orionted programming (OOP)
  - OOP Structure
  - Classes
  - Methods
  - Objects/ Constractor
  - Dart special Keywords

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DataTypes

car.dart > Car > color

Run | Debug

```dart
void main(List<String> arguments) {
  var car1 = new Car();
  car1.move();
}

class Car {
  String color = "red";
  String name = "ziztafa"; // Fields

  void move() {
    //Method
    print("the ${color} ${name} is moving");
  }
}
```

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Flow Statement

data_flow_2.dart > ...

Run | Debug

```dart
void main() {
  double avg = 15.5;
  if (avg >= 10) {
    print("You can pass");
  }
  int i = 0;
  while (i <= 10) {
    print(i);
    ++i;
  }
}
```

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Functions

functions.dart > ...

```dart
Run | Debug
void main() {
  String printing(int age) {
    print("it is the ${age}th anniversary of ISC!");
    return "DONE";
  }

  printing(16);
}
```

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Flow Statement

data_flow.dart > ...

Run | Debug

```dart
void main() {
  double avg = 15.5;
  if (avg >= 10) {
    print("You can pass");
  }
  for (int count = 0; count <= 10; count++) {
    print(count);
  }
}
```

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Dart Object Oriented Programming

Object-oriented programming (OOP) is a programming method that uses objects and their interactions to design and program applications.

Advantages:

- It is easy to understand and use.
- It increases reusability and decreases complexity.
- It makes the code easier to maintain, modify and debug.
- It promotes teamwork and collaboration.
- It reduces the repetition of code.

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Dart Object Oriented Programming

Features Of OOP :

- Class
- Object
- Encapsulation
- Inheritance
- Abstraction

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Class In Dart

- A class defines the properties and methods that an object can have.
- **Fields:** class can contain many fields. Theses fields represnt any variable declared in the class.
- **Setters and Getters:** Allows the program to initialize and retrieve the values of the fields of a class. A default getter/ setter is associated with every class.
- **Constructors:** responsible for allocating memory for the objects of the class.
- **Methods:** Functions represent the actions/ behaviours that an object can take. They are also at times referred to as methods.

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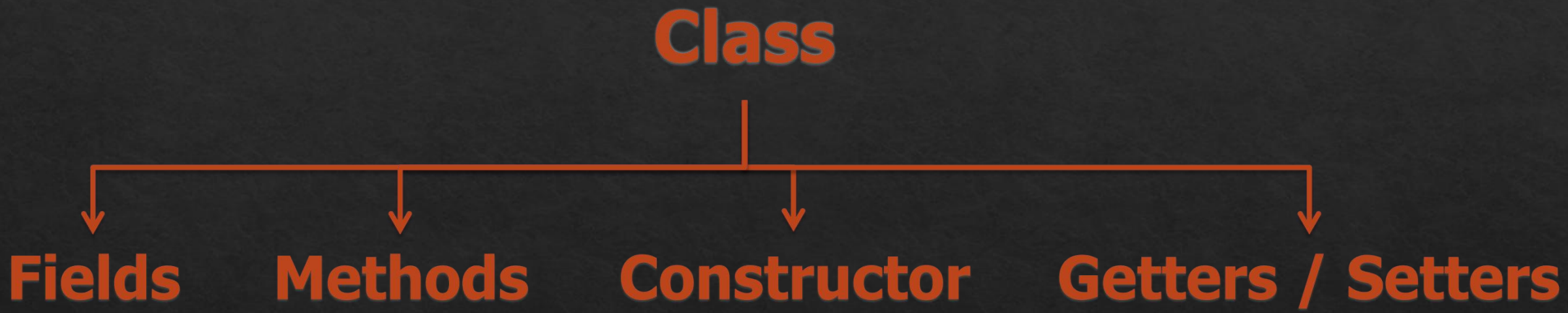

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Class / Methods in dart

car.dart > ...

Run | Debug

```dart
void main(List<String> arguments) {
  var car1 = new Car();

  car1.move();
}

class Car {
  String color = "red";
  String name = "Fabia"; // Fields

  void move() {
    //Method
    print("the ${color} ${name} is moving");
  }
}
```

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Obejct and Constructor

- **Object:** an object is an instance of the class.
  - We can create many objects from the same class.
  - Syntax: Object_name = new Constractor_name();

- **Constructor:** The constructor is responsible about allocating memory for the objects of the class.
  - The constructor should have the same name as the class.
  - There are 3 Types of constructor: **Default - Parameterized- Named.**

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Default Constructor

car_constractor.dart > main

Run | Debug

```dart
void main(List<String> arguments) {
  var car1 = new Car();

  print("This is the code of the main function");

  car1.move();
}
```

```dart
class Car {
  String color = "red";
  String name = "Fabia"; // Fields

  //Default Constractor
  Car() {
    print("This is the default constractor");
  }

  void move() {
    //Method
    print("The ${color} ${name} is moving");
  }
}
```

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Parameterized Constructor

car_constractor.dart > Car

Run | Debug

```dart
void main(List<String> arguments) {
  var car1 = new Car("Blue", "2008");

  print("This is the code of the main function");

  car1.move();
}
```

```dart
class Car {
  String color = "red";
  String name = "Fabia"; // Fields

  //Default Constractor
  // Car() {
  //   print("This is the default constractor");
  // }

  //Parametrized Constractor
  Car(this.color, this.name) {}

  void move() {
    //Method
    print("The ${color} ${name} is moving");
  }
}
```

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Named Constructor

car_constractor.dart > Car

Run | Debug

```dart
void main(List<String> arguments) {
  var car1 = new Car.color_only("Blue");

  print("This is the code of the main function");

  car1.move();
}
```

```dart
class Car {
  String color = "red";
  String name = "Fabia"; // Fields

  //Default Constractor
  // Car() {
  //   print("This is the default constractor");
  // }

  //Named Constractor
  Car.color_only(this.color) {}

  void move() {
    //Method
    print("The ${color} ${name} is moving");
  }
}
```

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Getters / Setters

getter_setters.dart > main

Run | Debug

```dart
void main(List<String> arguments) {
  var car1 = new Car("Blue", "208");
  var car2 = new Car("Black", "202");

  car1.move();
  car2.move();

  car1.color = "Black";

  car1.move();
}
```

```dart
class Car {
  String color = "red";
  String name = "Fabia"; // Fields

  //parametrized constractor
  Car(this.color, this.name) {}

  String get get_color {
    return color;
  }

  void set age(int name) {
    name = name;
  }

  void move() {
    //Method
    print("the ${color} ${name} is moving");
  }
}
```

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Dart Inheritance

car_constractor.dart > ...

```dart
Run | Debug
void main(List<String> arguments) {
  //var car1 = new Car.color_only("Blue");
  var Bwm1 = new BMW(true, "Optical type");
  print("This is the code of the main function");

  //car1.move();
}
```

Dart inheritance is defined as the process of deriving the properties and characteristics of another class.

The mother class is called the abstract class.

```dart
//Extending a class
class BMW extends Car {
  bool electrical_model = true;
  String fingure_print;

  BMW(this.electrical_model, this.fingure_print) {}

  String print_information(bool electrical_model, String fingure_print) {
    print("model information: ${electrical_model}, ${fingure_print}");
    return "Infromation";
  }
}
```

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Dart Special Keywords

- final:
  - Final Method: We can’t override on it.
  - Final variable: Constant variable the only difference between **Const** and final will be in compilation part.
- Static:
  - Static class: Can’t be instantiated.
  - Static variable: Allocated only one in the memory
  - Static Method: To access the static method, we don't need to create a class instance. Can only use static variables.

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THANK YOU