Lab Report

Course Code: CSE 335

Course Name: Pervasive Computing and Mobile App Development Lab

Lab Report No: 01

Lab Report Name : OOP concept of Dart

Date of submission: 20-05-2024

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Abstraction:-

In Dart, an abstract class is a blueprint for other classes. It can have methods without implementation (abstract methods).An instance of an abstract class can't be created. A class that extends an abstract class must implement all its abstract methods.

Code:

```
abstract class vehicle
{
  void start();
  void stop();
}

class car extends vehicle
{
  void start()
  {
    print ("car is starting");
  }
  void stop()
  {
    print ("car is stopping");
  }
}

class bus extends vehicle
{
  void start ()
  {
    print ("bus is starting ");
  }
  void stop()
  {
    print ("bus is stopping");
  }
}

void main ()
```
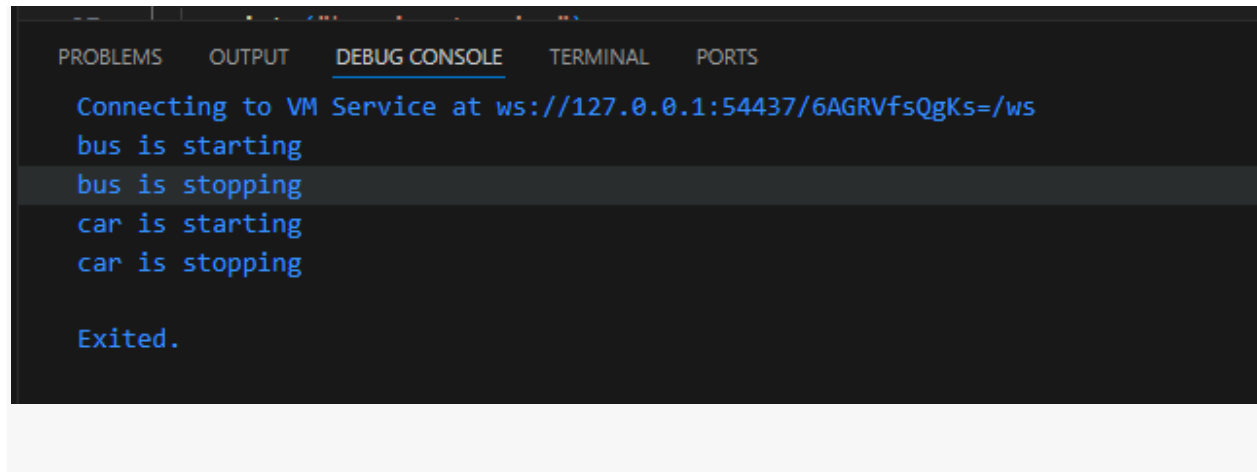
```
{
  bus b = bus();
  b.start();
  b.stop();
  car c = car();
  c.start();
  c.stop();
}
```

Output:

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS
  Connecting to VM Service at ws://127.0.0.1:54437/6AGRVfsQgKs=/ws
  bus is starting
  bus is stopping
  car is starting
  car is stopping

  Exited.

Encapsulation:-

Encapsulation in Dart is a concept of object-oriented programming that binds data and functions into a single unit, known as a class. It's also referred to as data hiding or information hiding. It is used to increase security

Code:

```
class student
{
  String? _name;
  int? _age;
  void setName(String name)
  {
    this._name = name;
  }
  void setAge(int age)
  {
    this._age = age;
  }
  String getName()
```

```
  {
    return this._name!;
  }
  int getAge()
  {
    return this._age!;
  }
}

void main ()
{
  student st = student();
  st.setName("Rayhan");
  st.setAge(23);
  print(st.getName());
  print(st.getAge());
}
```

Output:

```
Rayhan
23
```

Polymorphism:-

Polymorphism is a core concept in object-oriented programming that allows objects of different types to be accessed through the same interface. It means "many forms" and enables a single symbol or function to represent multiple different types.

Code:

```
class vehicle
{
  void run()
  {
    print("vehicle is running");
  }
}

class car extends vehicle
{
  @override
```

```dart
  void run()
  {
    print ("car is running");
  }
}

class bus extends vehicle
{
  @override
  void run ()
  {
    print ("bus is running ");
  }
}

void main ()
{
  vehicle v = vehicle();
  v.run();
  car c = car();
  c.run();
  bus b = bus();
  b.run();
}
```
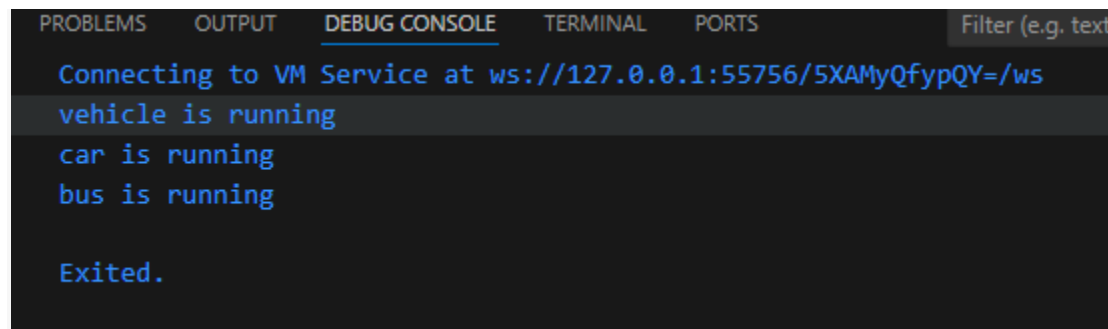
Output:


```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS                Filter (e.g. text
  Connecting to VM Service at ws://127.0.0.1:55756/5XAMyQfypQY=/ws
  vehicle is running
  car is running
  bus is running

  Exited.
```

Inheritance:-

Inheritance in Dart allows a class (subclass) to inherit properties and methods from another class (superclass). Dart supports single inheritance, meaning a class can inherit from only one class. A subclass can extend the superclass by overriding its methods or adding new methods.

Code:

```
class person
{
  String? name;
  int? age;

}

class doctor extends person
{
  List<String>? listofdegree;
  String? hospitalname;

  void display()
  {
    print("Name is : $name");
    print("Age is : $age");
    print("Degree is : $listofdegree");
    print("Hospital name : $hospitalname");
  }
}

class specialist extends doctor
{
  String? specialization;
  void display()
  {
    super.display();
    print("Specialization: $specialization");
  }
}

void main ()
{
  specialist sp = specialist();
  sp.name = "Rayhan";
  sp.age = 23;
  sp.listofdegree = ["MBBS","BDDS"];
  sp.hospitalname = "Delta";
  sp.specialization = "Eye";
  sp.display();
}
```

Output:

```
Connecting to VM Service at ws://127.0.0.1:55991/xdY6axed8yE=/ws
Name is : Rayhan
Age is : 23
Degree is : [MBBS, BDDS]
Hospital name : Delta
Specialization: Eye


Exited.
```