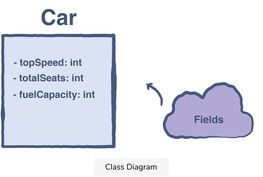
Java Fields

Java fields are actually the *data members* inside a class. For instance, in a class representing Car, the Car class might contain the following fields:

- *topSpeed*
- *totalSeats*
- *fuelCapacity*



Class Diagram

The Java class could be defined like this:

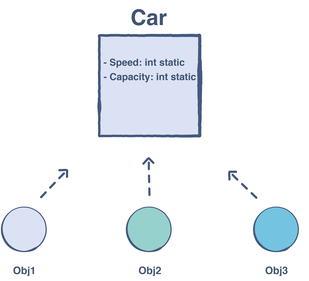
```
public class Car {

  int  topSpeed;
  int  totalSeats;
  int  fuelCapacity;

}
```

Static and Non-static Fields

Java supports static and non-static fields.

Static Field

A static field resides in a class. All the objects we create will share this field and its value.



You can define a static field by using the `static` keyword in Java:

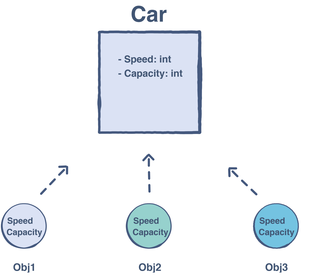
```
class Car {

  // static fields
  static int speed;
  static int capacity;

}
```

Static fields reside in the class. We don't need an instance of the class to access static fields. We can access the static fields of a class by just writing the class name before the field:

```
// Static fields are accessible in the main
System.out.println(Car.speed);
System.out.println(Car.capacity);
```

Non-Static Field

Non-static fields are located in the instances of the class. Each instance of the class can have its own values for these fields.



You can define a non-static field like this in Java:

```
class Car {

  // Non-Static Fields
  int speed;
  int capacity;

}
```

As non-static fields doesn't reside in the class, So we need an instance of the class to access non-static fields.

```
Car obj1 = new Car();

System.out.println(obj1.speed);
System.out.println(obj1.capacity);
```

Final Fields

A final field cannot have its value changed once it is assigned. We can make a field final by using the keyword `final.`

Here is an example in Java:

```
class Car {
  // Final field of capacity = 4
  // Now Capacity can nerver be changed from 4
  // to some other value throught the program
  final int capacity = 4;

}
```

`Car` class has the capacity equals to 4 which can't be changed. If you try to do so, you will get a compilation error:

`can't assign a value to final variable capacity.`

You can check it on your own in the following code widget:

```
class Car {

  // Final variable capacity
  final int capacity = 4;

}

class Demo {

  public static void main() {

    Car car = new Car();
    car.capacity = 5; // Trying to change the capacity value
  }
}
```

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