Test Car

```
/**
 *
 *
 * @author Conor McGovern
 * @version 24.09.19
 */
public class TestCar
{
	public static void main(String []args) {
	// Setting information to then add to car and engine.
	Car car = new Car("Masey Furguson 200");
	Engine engine = new Engine("2 Lither Wan", 43);
	car.add(engine);
	Wheel wheel = new Wheel ("Good Oul Wheel", 15);
	engine.add(wheel);

	// Doing first test on fuel 100
	car.setFuel(100);
	System.out.printf("Current fuel: %.2f\n", car.getFuel());

	// Calculating distance driven
	car.drive();
	car.printState();

	// Doing second test on fuel 50
	car.setFuel(50);
	System.out.printf("Current fuel: %.2f\n", car.getFuel());

	// Calculating distance driven
	car.drive();
	car.printState();
	}
}
```

Car

```
/**
 *
 *
 * @author Conor McGovern
 * @version 24.09.19
 */
public class Car
{
	// Initialising variables for Car
	private String name = "";
	private Engine engine;
	private double distance;
	private double totalKm;

	// The car is the root node of the whole process, so I want the car to have direct access
and control of the fuel.
	private float fuelLevel;

	// Constructor for Car
	public Car(String name) { this.name = name; }

	public void add(Engine engine) { this.engine = engine; }
	public void setFuel(int fuelLevel) { this.fuelLevel = fuelLevel; }
	public float getFuel() { return this.fuelLevel; }

	// Calculating distance driven
	public void drive() {
	double circumference = engine.getCircumference();
	distance = circumference * engine.tpl() * fuelLevel;
	totalKm += distance;
	float temp = engine.tpl() * fuelLevel;
	engine.setTotalNumTurns(temp);
	fuelLevel = 0;
	}

	// Output to display (stats)
	public void printState() {
	System.out.printf("Configuration: Car Body %s \n", name);
	System.out.printf("Engine name: %s\n", engine.name());
	System.out.printf("Engine turns per litre: %.2f\n", engine.tpl());
```

```
        System.out.printf("Engine's total turns count: %s\n", engine.getTotalNumTurns());
        System.out.printf("Wheel name: %s\n", engine.getWheelName());
        System.out.printf("Wheel Radius: %d\n", engine.getWheelRadius());
        System.out.printf("Wheel circumference: %.2f\n", engine.getCircumference());
        System.out.printf("Distance this trip: %.2f\n", distance);
        System.out.printf("Total distance travelled: %.2f\n", totalKm);
        System.out.printf("Current fuel status: %.2f\n\n", fuelLevel);
        }
}
```

Engine

```
/**
 *
 *
 * @author Conor McGovern
 * @version 24.09.19
 */
public class Engine
{
	// Initialising variables for Engine
	private String name = "";
	private float tpl;
	private Wheel wheel;

	// Constructor for Engine
	public Engine(String name, float tpl) {
	this.name = name;
	this.tpl = tpl;
	}

	public void add(Wheel wheel) { this.wheel = wheel; }
	public String name() { return this.name; }
	public float tpl() { return this.tpl; }

	// Getting information from wheel to pass through to car print output
	public double getCircumference() { return wheel.getCircumference(); }
	public void setTotalNumTurns(float totalNumTurns) {
wheel.setTotalNumTurns(totalNumTurns); }
	public float getTotalNumTurns() { return wheel.getTotalNumTurns(); }
	public String getWheelName() { return wheel.getWheelName(); }
	public int getWheelRadius() { return wheel.getWheelRadius(); }
}
```

Wheel

```
/**
 *
 *
 * @author Conor McGovern
 * @version 24.09.19
 */
public class Wheel
{
	// Initialising variables for Wheel
	private int radius;
	private String name = "";
	private double circumference;
	private float totalNumTurns;

	// Constructor for Wheel
	public Wheel(String name, int radius)
	{
	this.name = name;
	this.radius = radius;
	circumference = radius * Math.PI * 2;
	}

	// Returning information on wheel to engine
	public double getCircumference() { return circumference; }
	public void setTotalNumTurns(float totalNumTurns) { this.totalNumTurns +=
totalNumTurns; }
	public float getTotalNumTurns() { return totalNumTurns; }
	public String getWheelName() { return name; }
	public int getWheelRadius() { return radius; }
}
```

```
Current fuel: 100.00
Configuration: Car Body Masey Furguson 200
Engine name: 2 Lither Wan
Engine turns per litre: 43.00
Engine's total turns count: 4300.0
Wheel name: Good Oul Wheel
Wheel Radius: 15
Wheel circumference: 94.25
Distance this trip: 405265.45
Total distance travelled: 405265.45
Current fuel status: 0.00

Current fuel: 50.00
Configuration: Car Body Masey Furguson 200
Engine name: 2 Lither Wan
Engine turns per litre: 43.00
Engine's total turns count: 6450.0
Wheel name: Good Oul Wheel
Wheel Radius: 15
Wheel circumference: 94.25
Distance this trip: 202632.73
Total distance travelled: 607898.18
Current fuel status: 0.00


Process finished with exit code 0
```