# COMP258 Object Oriented Programming Assignment

## Value Due Date

10% 9am, Monday 9 June 2014

This is an individual assignment.

## Aim

The purpose of this assignment is to create a Processing application for a Road Code Quiz.

The Road Code Quiz should have 10 multiple choice questions. The user is prompted firstly to start the quiz, and then to answer each question one at a time. After a response is given to each question, the user is told that they either (i) answered the question correctly or (ii) answered incorrectly, in which case they are shown the correct answer.

At the end of the quiz the user is shown a summary of how well they did in a graphical way using a gauge.

For an example of a quiz with the same specifications, take a look at this link:

<http://www.aa.co.nz/drivers/driving-school/road-code-quiz/>

## Steps

The following steps are a likely good order in which to do things. Note that these steps are not set in stone but are simply guidelines that you can use/change as you need, as long as you fulfill the aim above.

**1. Make up your questions**  
You should make up your own questions based on reading the the NZ road code, which can be found online here: <http://www.nzta.govt.nz/resources/roadcode/>

**2. Obtain some images**   
You are permitted to use images from the road code link above (use of these images will *not* be considered plagiarism and they don’t need to be referenced).

You are also permitted to use any images (e.g. ticks and crosses) obtained via Google image search with usage rights set to “Labeled for reuse”.

**3. Read steps 4-7 below and design a rough UML class diagram**.

This depicts your take on how the classes are designed and related and can be used to guide your programming.

**4. Design a Button class**  
Do not use the example Button class I gave you. Instead, design your own. Note that in the example quiz I gave you above, the buttons are very sophisticated.

The “Start quiz” button’s appearance changes not only when the mouse is clicked on the button, but also when the mouse rolls over the button. Furthermore, the button’s background is an image and not a solid fill.

**5. Design a Gauge class**

A Guage object is used to display the user’s final score out of ten at the end of the quiz.

**6. Design a Question class**

A question consists of (i) text, (ii) an image, (iii) four possible answers, (iv) a specification of which answer is correct, and (v) a state (either answer shown or answer hidden).

**7. Design a Quiz class**

A Quiz is a collection of Questions. It should have properties for both the user’s current score (number of correct responses) as well as the current question or page (e.g. introduction page) being shown.

**8. Put it all together**

Create the quiz object in the main setup() method and draw it inside the draw() method. Pass user mouse interactions to/from the Quiz object, which in turn may pass them on to Question and Button objects.

## Use of Inheritance/Polymorphism

As it stands, the above program can be constructed without inheritance and polymorphism. However, you might find inheritance/polymorphism useful for some parts of the program (e.g. a choice for a multiple choice question could be considered a subclass of a button).

## Marking Schedule

Marks for this assignment will be assigned in the following way:

* Program meets requirements – 70%
* Good design of classes, properties and methods; and quality of code (naming, comments etc) – 20%
* Design and appearance of the UI – 10%

## Submission

Submit a zipped version of your Processing project to the moodle handin box by the due date.