**Report**

**Extensions**

I have added another menu item for my demo of a fully actuated intersection and renamed the “my demo…” menu item to be for just my demo of a pre-timed intersection. I also added some error messages for the users in the form of show message dialogs if something went wrong. I also deleted setting the background to the diy colour as I went along the assignment to have a reminder of what I have done and still needed to do.

**Using the system**

By clicking Open in the menu under the File tab it opens a file that describes an intersection and builds the intersection, showing the described intersection in the monitor. When the start menu item is clicked on the monitor should go through the phases with each traffic stream described in the file and change the colour of the signal face accordingly.

By clicking Save intersection, the program saves the current intersection in the monitor to a new file with the name written by the user in serialised form. The load intersection will load up the serialised intersection chosen by the user, if the file is not valid, it will show an error message to the user.

My Demo pre-timed loads up a phase plan in the intersection of Maidstone rd. Ilam rd. and Creyke rd. in the monitor. It shows a phase plan I observed during off-peak hours. The My Demo fully-actuated shows the same intersection, but the minimum time for each phase is set to the state constant time instead of the times that I observed. The code for these are found in the class ModelIntersection.

I chose to use ArrayList for my collection in building the intersection of Phase Plans, Signal Faces and Phases as they can add however many phase plans, signal faces and phases there are in the file, while also keeping them in order of the way the file described. I also added private methods to build parts of the intersection (buildSignalFace, buildTrafficStream, buildPhase and buildBasicIntersection) for readability. I also added the private method skipLines for readability as my method for buildIntersection uses it a lot in case there are comments or empty lines inside of the tags in the file.

I designed my intersection description files based on the sample provided in the pdf, so that

Each property of the current tag is separated by using a tab and comments must be the first characters in a line and is indicated by “//”. The tags can go in any order, but <Phases> must be inside of <PhasePlans>. It is assumed that the intersection in the file is a pre-timed intersection. The format of the intersection description files are as follows.

**Intersection:**  
name of intersection, followed by description of the intersection

**TrafficStreams:**

name of traffic stream, followed by description of the traffic stream

**PhasePlans:**

Has at least one Phase tag

**Phases (must be inside the PhasePlan tag):**  
phase label, followed by phase description, followed by the state (X, R, Y, G) of each traffic stream in the phase (states must be in order of traffic streams described in file), duration of the phase (in seconds)

**Signal faces:**

Location of signal face, followed by the orientation of the signal face, followed by the type of signal face it is (STANDARD, LEFT\_ARROW, RIGHT\_ARROW) and the name of the traffic stream associated with the signal face

