**Team Number: 11**

This program is designed to teach the user about the charging and discharging of a capacitor, while also calculating different aspects of the capacitor as well as its transients. The program had four main sections, two theory sections explaining the concepts of charging and discharging a capacitor respectively, a calculator and graphing section where voltage, current and charge at any given time can be calculated and a test section where the user can test their new gained knowledge.

The application was fairly easy to understand. The home window was easiest to follow with clear and precise labels to the buttons. This made it obvious where the button would take you with each button opening a new window for the specific function requested. The theory pages were clear and concise with the explanation of the theory as the main feature of the window in one block of text in the centre of the window. The theory window also featured buttons that would take you elsewhere such as the calculator and home windows which was extremely useful as it made the program much easier to use. The calculator section was the least easy to use. It featured multiple sliders for the components of the calculations with buttons below for the different calculations and graphs. The buttons however, were not easy to use and understand as there was no labelling as to what the calculation was doing. The button opened another window which displayed the calculated answer as well as the inputted variables to calculate said answer, however this is not explained and the variables are simply displayed as numbers without much indication as to why they are there. Finally, the test section was easier to use, as it gave a standard list of buttons, each opening a question for the user to solve. The program also featured a help section which offered a basic description of the program.

On the whole, the program ran as expected with few bugs or unexplained/unwanted functions or processes. The issues that were found were all in the calculation/ graphing section. Firstly, the calculation for the charging and discharging voltage had an issue with the time variable, displaying it as a set of numbers not even close to the slider input and thus causing a false voltage value calculated. The other main faults came with the graphs, due to the same issue with the time input for the voltage calculation. Another issue with the program was that the graphs were not displaying correctly in some of the sections, with some graphs showing a filled area, others showing just the data points as single pixels and others showing simply a rough line.

The program generally was very good though, with a large majority of the functions working and explaining the concepts with ease. The use of colour in the program was a nice addition as it made the program more aesthetically pleasing. Possible improvements would be fixing the bugs in the program, adding labels to the graphs so the user knows exactly what they are looking at, and providing more explanation on how to use the calculator section.