Kenneth Chuen and Anthony Krivonos March 7th, 2021

Prof. Gail Kaiser COMSE6156

Final Project Proposal

Team Name: Gren Maju

Team Members: Kenneth Chuen (kc3334) and Anthony Krivonos (ak4483)

After discovering that autonomous exploratory testing is a relatively nascent topic (with only a handful of papers published on this in the past year), we decided to move forward with **expanding on Anthony's Qubot paper into an open source website testing framework**. Our goal is to publish a Python package on PyPi for Qubot, which is able to scrape websites for interactive elements and to perform basic functions such as crash testing and simulating page flows via navigation. These tests will be portable in the sense that all the user will need to do is to create a `.qu` JSON file containing the website address they would like to test and the acceptance criteria for this test. Then, the user will simply run the Qubot command-line utility, which will do the rest of the work.

Our final project will include two forms of evaluation. Firstly, we will evaluate Qubot's performance across 10 distinct websites and measure the time it takes to navigate each page flow, on average, as well as the mean time it takes the Q-learning agent to learn each navigation flow consisting of at least two pages. Secondly, we will ask three volunteer developers to attempt to write tests for a given page flow on the same website and record both the time it takes each person to do so and each person's feedback.

We would like to study the topic of autonomous exploratory testing primarily because we are interested in optimizing developers' schedules so that simple tasks can be outsourced to a bot.

Additionally, we are eager to put out a non-niche open source utility that can be of great benefit to just about any web development team.