**Maintenance Plan:**

The Software Development Life Cycle (SDLC) refers to a methodology with clearly defined processes for creating high-quality software. SDLC consists of five focused phases of any software development: Requirement analysis, Planning, Software design such as architectural design, Software development, Testing, and Deployment. However, the pro-posed plan for the software products doesn’t always turn out to be perfect when it meets reality and that’s when the Software Maintenance plan emerges. The real time factors change rapidly and so the maintenance plan accommodates the fluctuation in the world by updating and advancing the software to match the fluctuations. The project that Team 14 is working on has different functionalities that requires maintenance over the years. The main functionalities that Team 14 has implemented in project four ranges from searching the database to find classes to utilizing Google Map Application programming interface (API) to calculate the shortest distance between buildings and provide the user with directions to their dissentions. Team 14 progressed with the project as team14 created a friendly user interface to help users maneuver over the University of Kansas(KU) campus with no problems. Fortunately, Team 14 doesn’t have to maintain any changes to the routes, new KU building, or new path as google maps API will take care of any of those changes for the team. The main concern that Team 14 is dealing with is the functionality of finding the building name from the class number provided by the user. This functionality was implemented by first creating a web crawler (selenium) to obtain the information from the official KU classes (classes.ku.edu) to be exported to an excel sheet. This information included course, number, course title, course topic, course number, section number, min credit hours, max credit hours, seats available, total enrolled, etc. The next step for team 14 was to store all the information obtained from the excel sheet to a database. The final step was fulfilling the promise every time a user enters a class number and from the object obtained being able to get through and add the building to the route list. The maintenance plan for this specific functionality will require team 14 to go through the web crawler every semester to obtain the new courses and the different locations and so on. This is required because data on the database is not automated, in other words, the database is not linked to the KU website but rather connected to the excel sheet. The excel sheet needs to be updated every semester to be able to have the new information transferred over to the database. The maintenance plan plays a major rule in our project and requires at least one developer to access the project every semester to update/run the web crawler to obtain the new information foreach class. The maintenance plan doesn’t only stop here as the project will be viewed very differently when published and stress tested. The foreseen updates that Team 14 is expecting would be the abilities that users would always be able to see their location, adding class schedule sets, adding more methods of transportation, and traffic congestion control.

Team 14 expects more maintenance and more updates as users will have different perspectives and will be able to determine what is necessary. The cost to hire a web developer for maintaining a website $68,524/yr. The database is another cost to be considered, Firebase was used to store the information of class in this project. The storage cost is split into two main parts: Realtime Database and Cloud Firestore. Realtime Database has a subclass called Document reads which costs about $0.06/100K. There are 28,447 in KU and the average number of classes that students is enrolled in every semester is 4;assuming that each student will search for the 4 classes every day. This is estimated to be have 28,447\*4 = 1,153,788 reads from the database, and so this would cost a total ofabout$0.80. For the Realtime Database, the cost for a GB/yr is $5, which is sufficient to store all classes. Finally, it costs about $731.94 per year to run an average serv