

## SUMMARY

**MCIT 591 TEAM 6 Project Name:** Tesla: Saving Hard-earned Cash or Not?  
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**GitHub Repository Link:** <https://github.com/UPenn-CIT599/final-project-team-6>

**Purpose:** Many people do not know that charging an electric vehicle (EV) uses about the same amount of energy as a water heater, and that driving an EV can serve as a considerable energy and cost savings for consumers over a 6 – 12 month period. Furthermore, an EV can travel about 40 miles for \$1.00 while the average gas vehicle can only travel around 10 miles for the same price. Using internal combustion engine (ICE) vehicle information on the Mercedes GLC and Lexus LX vehicles, as well as the current national average gas price per gallon, the average gas-powered car cost per mile to run, gasoline grade cost, and stated mpg, this JAVA program reads and stores data from three csv files, obtains input from a user in an interactive fashion, and calculates whether driving a Tesla is a cost-savings strategy when compared to driving select ICE vehicles in Miami FL, New York NY and Charlotte NC. This project was built using Java, Excel, electricity bills from a Tesla owner, available data for one Mercedes and Lexus owner, external libraries, and mpg and gasoline cost data from the US Department of Energy. There are four main elements comprising this project: (1) the interactive user interface (UI), (2) a Java project built to read and store data from comma delimited files, (3) current data from vehicle owners, and (4) output files that display results in a chart and text file. The user interface employs search fields for input in response to four prompts.

**Team Member Contributions:** Each member of Team 6 was dutiful to participate in the development of the project design through the creation of CRCs and shared team objectives, the writing of program code using Java, the development of data files, contributions to report writing, participation in virtual meetings and overall project management. David Zhou was the thought-leader behind this Tesla project, while at times, each member served as a manager over certain elements of this course requirement. Furthermore, each member was assigned specific responsibilities to manage within a specified timeframe. These responsibilities included, but were not limited to,

1. **David** (1: gathered source files related to electricity costs, 2: developed project idea at onset, 3: wrote code to read and store all electricity-related data, 4: combined classes and methods, 5: project management, 6: participated in all virtual meetings, 7: refactored and optimized code, 8: scheduled meetings with TA, 9: initiated team calls, 10: initiated GITHUB workspace, 11: reported regularly on progress, 12: assigned tasks to project team members, 13: communicated clearly, 14: produced high quality deliverables within the specified timeframe, 15: facilitated JUnit tests).
2. **Kelly** (1: gathered source files related to ICE vehicle costs, 2: assisted in refining the project objectives, 3: wrote code to read and store ICE vehicle data, 4: participated in all virtual meetings, 5: reported on progress regularly, 6: document preparation for project proposal, summary, and final report, 7: finalized README file, 8: tested code, 9: documented the project process, 10: updated and organized GITHUB workspace, 11: reviewed and shared project requirements regularly, 12: communicated clearly and produced high quality deliverables within the specified timeframe, 13: tested solutions to validate objectives, 14: gathered research related to gasoline costs in east coast cities, and 15: managed self-documenting for all classes).
3. **Bingqian** (1: contributed to overall project objectives, 2: gathered research related to library files, 3: provided expertise, 4: wrote code to output data to graph, 5: data analysis, 6: participated in virtual all meetings, 7: tested and edited code, 8: reported on progress, 9: verified success of project run in team meetings, 10: created illustration video for extra credit, 11: tested solutions to validate objectives, 12: communicated clearly and produced high quality deliverables within the specified timeframe, 13: plotted results in line chart, 14: managed standard Java syntax and DRY principles in code, and 15: produced design documents in shared Google Drive).