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### MIS 2502: Data Visualization Assignment

Because of the sheer amount of data that Merck has at its disposal about employees' travel expenses, it can be difficult for decision makers within the company to find valuable ways of converting the data into information. After reviewing all of the data, our group decided that it would be most useful to track the amount of Net Lost Savings per trip, and try to find ways to minimize the lost savings. The data showed that the highest average net lost savings per domestic trip occurred in the fourth quarter of 2012, at \$37.24 per trip. For international trips, the highest average net lost savings per trip was \$69.07 during the first quarter of 2013.

For our analysis, we decided to focus primarily on domestic travel. The majority of net lost savings occurs when tickets are purchased more than 20 days prior to the trip date. This is true for all 3 of the most frequently used airlines- US Airways, United Airlines, and Delta Airlines. However, the difference is most drastic for flights on United Airlines. Almost 40% of total net lost savings occurs when tickets are purchased more than 20 days in advance. Additionally, net lost savings are minimized when tickets are purchased less than 3 days before departure.

We recommend that booking trips more than 14 days in advance be avoided. If booking a trip between 7 and 14 days in advance, US Airways should be used. This will allow net lost savings to be minimized. Additionally, United Airways should be the preferred carrier for trips booked 4 to 6 days in advance, and trips booked less than 3 days in advance should be booked through Delta Airlines. However, when booking trips during the fourth quarter of the year, United Airways should be avoided altogether as the airline seems to have the highest price markups during this time period. We believe that if these recommendations are to be followed, Merck will be able to minimize its net lost savings for domestic travel.