

1. Write a function that calculates the dot product manually. It should accept two vectors and perform that calculation. Be sure to use try except and error handling for basic issues that might occur.
2. In a markdown section in your notebook, explain what one hot encoding is and why we use it. Then, manually calculate a one-hot encoding for the Belize\_Airbnb\_listings.csv neighborhood\_group column and merge it back into the dataframe. Note: manually means don't use scikit learn or keras or get\_dummies
3. (Extra Credit) Write a function that calculates the cross product manually. It should accept two vectors and perform that calculation. Be sure to use try except and error handling for basic issues that might occur.