Integer Features

Learn about the integer features used in the dataset.

Chapter Goals:

- Add the integer features of a DataFrame's row to a feature dictionary

A. Using Example objects

Each row of the final pandas DataFrame from the Data Analysis Lab contains the feature data for one data observation, i.e. the feature data for one store's sales in a particular week. To optimize the input pipeline, we want to convert each DataFrame row into a TensorFlow Example object. By using Example objects in the input pipeline, we're able to efficiently feed the data into a machine learning model.

After converting a DataFrame row to a TensorFlow Example, the row's integer valued features will be represented by `Int64List` TensorFlow Feature objects. From the analysis of our dataset, we know that the features with integer values are `'Store'`, `'Dept'`, `'IsHoliday'`, and `'Size'`.

```
print(feature_dict['Size'])
print(feature_dict['Store'])
print(feature_dict['Dept'])
print(feature_dict['IsHoliday'])
```

For a single row in the pandas DataFrame (i.e. a single observation in the dataset), this code prints out the TensorFlow Feature objects for each of the integer features in that row. The feature_dict dictionary maps string names to Feature objects.

Time to Code!

In this chapter you'll be completing the `add_int_features` function, which adds all the integer features in a dataset row to the feature dictionary.

The features that contain integer values are: `'Store'`, `'Dept'`, `'IsHoliday'`, and `'Size'`.

Set `int_vals` equal to a list containing the feature names with integer values.

For each integer valued feature, we'll create an `Int64List` containing the feature's value from `dataset_row`.

Create a `for` loop that iterates through `int_vals` using a variable named `feature_name`.
Inside the `for` loop, set `list_val` equal to `tf.train.Int64List` initialized with the `value` keyword argument set to a singleton list containing `dataset_row[feature_name]`.

We can now map the feature's name to a TensorFlow Feature object representing its integer value.

Inside the `for` loop, set `feature_name` as a key in `feature_dict`. The value it maps to will be `tf.train.Feature` initialized with the `int64_list` keyword argument set to `list_val`.

```
import tensorflow as tf

# Add the integer Feature objects to the feature dictionary
def add_int_features(dataset_row, feature_dict):
    # CODE HERE
    pass
```