# Assignment 7-1d

## DSC 650

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## 04/29/2023

Create a Python function that takes as input a list of keys and the number of partitions and returns a list of keys sorted into the specified number of partitions. The partitions should be roughly equal in size. Furthermore, the partitions should have the property that each partition contains all the keys between the least key in the partition and the greatest key in the partition. In other words, the partitions should be ordered. def balance_partitions(keys, num_partitions): partitions = [] return partitions

## Create Function

In [5]:
```
'''
As specified in the assignment create a function that takes inputs of list of keys
and returns a list of keys sorted in specified partitions.
'''
def get_partitions(keys, number_partitions):
    sorted_values = sorted(set(keys))
    number_values = len(sorted_values)
    partition_count = (number_values / number_partitions) + 1
    partitions = []
    current_row = 1
    partition_number = 1
    for i in range(number_values):
        current_key_value = {}
        if current_row <= partition_count:
            current_key_value[sorted_values[i]] = partition_number
            current_row = current_row + 1
        else:
            current_row = 1
            partition_number = partition_number + 1
            current_key_value[sorted_values[i]] = partition_number
            current_row = current_row + 1
        partitions.append(current_key_value)
    return partitions
```

## Test Function

In [10]:
```
## Try a scenario for the get_partitions function with example keys and number of p
keys = ['Example1', 'Example2', 'Example3', 'Example4', 'Example5', 'Example6', 'Ex
       'Example11', 'Example12', 'Example13', 'Example14', 'Example15', 'Example 16
       'Example20']
number_partitions = 5
partitions = get_partitions(keys, number_partitions)
print(type(partitions))
print(partitions)
```

```
<class 'list'>
[{'Example 16': 1}, {'Example1': 1}, {'Example10': 1}, {'Example11': 1}, {'Example
12': 1}, {'Example13': 2}, {'Example14': 2}, {'Example15': 2}, {'Example17': 2},
{'Example18': 2}, {'Example19': 3}, {'Example2': 3}, {'Example20': 3}, {'Example
3': 3}, {'Example4': 3}, {'Example5': 4}, {'Example6': 4}, {'Example7': 4}, {'Exam
ple8': 4}, {'Example9': 4}]
```