

```
1 function HashTable(size) {
2   this.values = {};
3   this.numberOfValues = 0;
4   this.size = size;
5 }
6
7 HashTable.prototype.add = function(key, value) {
8   var hash = this.calculateHash(key);
9   if(!this.values.hasOwnProperty(hash)) {
10    this.values[hash] = {};
11  }
12  if(!this.values[hash].hasOwnProperty(key)) {
13    this.numberOfValues++;
14  }
15  this.values[hash][key] = value;
16 };
17 HashTable.prototype.remove = function(key) {
18   var hash = this.calculateHash(key);
19   if(this.values.hasOwnProperty(hash) && this.values[hash].hasOwnProperty(key)) {
20     delete this.values[hash][key];
21     this.numberOfValues--;
22   }
23 };
24 HashTable.prototype.calculateHash = function(key) {
25   return key.toString().length % this.size;
26 };
27 HashTable.prototype.search = function(key) {
28   var hash = this.calculateHash(key);
29   if(this.values.hasOwnProperty(hash) && this.values[hash].hasOwnProperty(key)) {
30     return this.values[hash][key];
31   } else {
32     return null;
33   }
34 };
35 HashTable.prototype.length = function() {
36   return this.numberOfValues;
37 };
38 HashTable.prototype.print = function() {
39   var string = '';
40   for(var value in this.values) {
41     for(var key in this.values[value]) {
42       string += this.values[value][key] + ' ';
43     }
44   }
45   console.log(string.trim());
46 };
47
48 var hashTable = new HashTable(3);
49 hashTable.add('first', 1);
50 hashTable.add('second', 2);
51 hashTable.add('third', 3);
52 hashTable.add('fourth', 4);
53 hashTable.add('fifth', 5);
54 hashTable.print(); // => 2 4 1 3 5
55 console.log('length gives 5:', hashTable.length()); // => 5
56 console.log('search second gives 2:', hashTable.search('second')); // => 2
57 hashTable.remove('fourth');
58 hashTable.remove('first');
59 hashTable.print(); // => 2 3 5
60 console.log('length gives 3:', hashTable.length()); // => 3
```

