

Q1 Instructions

0 Points

To receive full credit on this quiz, you must score at least 50%.

The Github repo for Lecture 16 is at:

<https://github.com/ucsd-cse12-w21/ucsd-cse12-w21.github.io/tree/master/lectures/lecture-16>

Q2 Hash Table

1 Point

Refer to the hash table implementation from lecture 16 and the following hash function:

```
int hash(char key) {  
    return (int) key;  
}
```

Which of the following sequences of insertions would cause the most collisions for a hash table with four buckets and assuming `expandCapacity` is not called during the adds?

- ☐ `add('A', 56); add('B', 5); add('C', 65); add('D', 2);`
- ☐ `add('E', 43); add('F', 7); add('K', 6); add('L', 160);`
- ☐ `add('M', 58); add('Q', 14); add('U', 20); add('W', 37);`
- ☒ `add('N', 7); add('R', 24); add('V', 92); add('Z', 100);`
- ☐ `add('Z', 91); add('R', 604); add('P', 9); add('L', 5);`

Q3 Hash Table

1 Point

Refer to the set function from lecture 16 and the depiction of the hash table just before `expandCapacity` is called:

```
int hash(String key) {  
    return key.length;  
}
```

```
-----  
|   |  
|   -  
|   |  
-----  
|   |  
|   - {"greetings" : 6}  
|   |  
-----  
|   |  
|   - {"hi" : 5}  
|   |  
-----  
|   |  
|   - {"bye" : 9}  
|   |  
-----  
|   |  
|   - {"happy week 7" : 3}  
|   |  
-----  
|   |  
|   - {"hello" : 2}  
|   |  
-----  
|   |  
|   -  
|   |  
-----  
|   |
```

```
| -  
| |  
-----
```

After `expandCapacity` is called, which of the following elements will have a different index in the new array after rehashing?

☒ {"greetings" : 6}

☐ {"hi" : 5}

☐ {"bye" : 9}

☒ {"happy week 7" : 3}

☐ {"hello" : 2}