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// Yannique Hecht
// HARVARD CS50 Week 5 - Speller - Implement a program that fastly
// spell-checks files with a hash table
```

```
// Include libraries to ensure dictionary functions properly
#include <stdbool.h>
#include <stdlib.h>
#include <ctype.h>
#include <string.h>
#include <strings.h>
#include <stdio.h>
#include "dictionary.h"
```

```
// Represent a node in a hash table
```

```
typedef struct node {
    char *word;
    struct node *next;
}
```

```
// Number of buckets in hash table (originally = 1)
```

```
int buckets;
```

```
// Hash table
```

```
struct node *hash_table;
```

```
// return true if word is in dictionary, else false
```

```
bool check(const char *word) {
    struct node *current;
```

```
    // compare words case insensitive
```

```
    struct node *current_node;
    current_node = hash_table;
```

```
    // keep traversing linked list until it finds the word or it
    // finishes
```

```
    while (current_node != NULL) {
        if (strcmp(current_node->word, word) == 0) {
            return true;
        }
        current_node = current_node->next;
    }
```

```

// Hashes word to a number
// Used one bucket for every letter, a = 0, b = 1 ... z = 25
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

// Loads dictionary into memory, returning true if successful else
false
[REDACTED]
[REDACTED]
[REDACTED]
// open dictionary and initializes temporary space to hold the
words
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

// read file until the end
[REDACTED]
[REDACTED]

// allocate memory for a node in which the word will be
inserted
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

// copies the word in the chunk of memory allocated and then
updates the words count
[REDACTED]
[REDACTED]

// set next to point at beginning of list
[REDACTED]

```

```

        // point array at n which becomes new beginning of the list
        [REDACTED]
    }

    [REDACTED]
    [REDACTED]
    [REDACTED]
}

// Return number of words in dictionary if loaded, else 0 if not yet
loaded
[REDACTED]
{
    [REDACTED]
}

// Unload dictionary from memory, return true if successful, else
[REDACTED]
[REDACTED]
{
    // create two pointers to traverse the linked list and cancel its
    element without losing its address
    [REDACTED]
    [REDACTED]

    // repeat for every index in the table
    [REDACTED]
    {
        [REDACTED]
        {
            [REDACTED]
        }
        [REDACTED]

        [REDACTED]
        [REDACTED]

        // free allocated memory in load until the end of list
        [REDACTED]
        {
            [REDACTED]
            [REDACTED]
            [REDACTED]
        }
        [REDACTED]
        [REDACTED]
    }
}

```

1. [REDACTED]