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Q1.

**#include** <Foundation/Foundation.h>

**#define** d 10

**void** search(**char** pattern[], **char** text[], **int** q) {

**int** m **=** strlen(pattern);

**int** n **=** strlen(text);

**int** i, j;

**int** p **=** 0;

**int** t **=** 0;

**int** h **=** 1;

**for** (i **=** 0; i **<** m **-** 1; i**++**)

h **=** (h **\*** d) **%** q;

**for** (i **=** 0; i **<** m; i**++**) {

p **=** (d **\*** p **+** pattern[i]) **%** q;

t **=** (d **\*** t **+** text[i]) **%** q;

}

**for** (i **=** 0; i **<=** n **-** m; i**++**) {

**if** (p **==** t) {

**for** (j **=** 0; j **<** m; j**++**) {

**if** (text[i **+** j] **!=** pattern[j])

**break**;

}

**if** (j **==** m)

printf("Pattern is found at position: %d \n", i **+** 1);

}

**if** (i **<** n **-** m) {

t **=** (d **\*** (t **-** text[i] **\*** h) **+** text[i **+** m]) **%** q;

**if** (t **<** 0)

t **=** (t **+** q);

}

}

}

**int** main() {

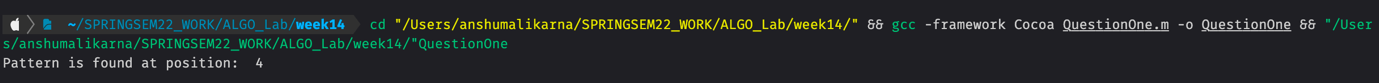
**char** text[] **=** "ABCCDDAEFG";

**char** pattern[] **=** "CDD";

**int** q **=** 13;

rabinKarp(pattern, text, q);

}



Q2.

**#include** <Foundation/Foundation.h>

**@interface** QuestionTwo : NSObject

- (**BOOL**)isSegmentable:(NSString **\***)input withDictionary:(NSArray **\***)dictionary;

**@end**

**@implementation** QuestionTwo

- (**BOOL**)isSegmentable:(NSString **\***)input withDictionary:(NSArray **\***)dictionary {

NSMutableArray **\***words **=** [NSMutableArray arrayWithArray:dictionary];

NSMutableArray **\***segments **=** [NSMutableArray array];

NSMutableString **\***segment **=** [NSMutableString string];

**for** (**int** i **=** 0; i **<** input.length; i**++**) {

NSString **\***letter **=** [input substringWithRange:NSMakeRange(i, 1)];

**if** ([words containsObject:letter]) {

[segment appendString:letter];

} **else** {

**if** (segment.length **>** 0) {

[segments addObject:segment];

segment **=** [NSMutableString string];

}

}

}

**if** (segment.length **>** 0) {

[segments addObject:segment];

}

**for** (NSString **\***segment **in** segments) {

**if** (**!**[words containsObject:segment]) {

**return** **NO**;

}

}

**return** **YES**;

}

**@end**

**int** main() {

QuestionTwo **\***questionTwo **=** [QuestionTwo new];

NSString **\***input **=** @"ilikesamsung";

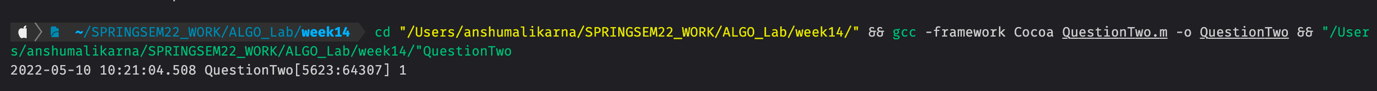
NSArray **\***dictionary **=** @[@"i", @"like", @"sam", @"sung", @"samsung", @"mobile", @"ice", @"cream", @"1cecream", @"man", @"go", @"mango"];

**BOOL** result **=** [questionTwo isSegmentable:input withDictionary:dictionary];

NSLog(@"%d", result);

**return** 0;

}



Q3.

**import** **java.util.\***;

**public** **class** QuestionThree {

**public** **static** **void** printAllOccurrences(**int**[][] matrix, **int** row, **int** col) {

**Set**<**String**> set **=** **new** **HashSet**<**String**>();

**for** (**int** i **=** 0; i **<** row; i**++**) {

**StringBuilder** sb **=** **new** StringBuilder();

**for** (**int** j **=** 0; j **<** col; j**++**) {

sb.append(matrix[i][j]);

}

set.add(sb.toString());

}

**for** (**String** s **:** set) {

System.out.println(s);

}

}

**public** **static** **void** main(**String**[] args) {

**int** row **=** 3;

**int** col **=** 4;

**int**[][] matrix **=** **new** **int**[row][col];

matrix[0][0] **=** 1;

matrix[0][1] **=** 1;

matrix[0][2] **=** 0;

matrix[0][3] **=** 1;

matrix[1][0] **=** 1;

matrix[1][1] **=** 1;

matrix[1][2] **=** 0;

matrix[1][3] **=** 1;

matrix[2][0] **=** 1;

matrix[2][1] **=** 1;

matrix[2][2] **=** 0;

matrix[2][3] **=** 1;

printAllOccurrences(matrix, row, col);

}

}

