

DSA- ASSIGNMENT-02

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CODE:

```
#include <stdio.h>

#include <string.h>

#define MAX 50

void searchWord(char grid[MAX][MAX], int m, int n, char word[]) {
    int len = strlen(word);
    int found = 0;

    // Horizontal search (left to right)
    for (int i = 0; i < m; i++) {
        for (int j = 0; j <= n - len; j++) {
            int k;
            for (k = 0; k < len; k++) {
                if (grid[i][j + k] != word[k])
                    break;
            }
            if (k == len) {
                printf("Start: (%d, %d) End: (%d, %d)\n", i, j, i, j + len - 1);
                found = 1;
            }
        }
    }

    // Vertical search (top to bottom)
    for (int i = 0; i <= m - len; i++) {
```

```

        for (int j = 0; j < n; j++) {
            int k;
            for (k = 0; k < len; k++) {
                if (grid[i + k][j] != word[k])
                    break;
            }
            if (k == len) {
                printf("Start: (%d, %d) End: (%d, %d)\n", i, j, i + len - 1, j);
                found = 1;
            }
        }
    }

    if (!found)
        printf("Word not found\n");
}

int main() {
    int m, n;
    char grid[MAX][MAX];
    char word[MAX];

    printf("Enter number of rows: ");
    scanf("%d", &m);
    printf("Enter number of columns: ");
    scanf("%d", &n);

    printf("Enter the grid (each row of uppercase letters):\n");
    for (int i = 0; i < m; i++)
        scanf("%s", grid[i]);

```

```
printf("Enter the target word: ");  
scanf("%s", word);  
printf("\nSearching for word '%s'...\n", word);  
searchWord(grid, m, n, word);  
  
return 0;  
}
```

OUTPUT-

1) HORIZONTAL SEARCH

```
Enter number of rows: 4  
Enter number of columns: 4  
Enter the grid (each row of uppercase letters):  
MAHI  
ABHI  
HIMA  
HIBA  
Enter the target word: MAHI  
  
Searching for word 'MAHI'...  
Start: (0, 0) End: (0, 3)
```

2) VERTICAL SEARCH

```
Enter number of rows: 4  
Enter number of columns: 4  
Enter the grid (each row of uppercase letters):  
MIHA  
ABTE  
HDEU  
IERU  
Enter the target word: MAHI  
  
Searching for word 'MAHI'...  
Start: (0, 0) End: (3, 0)
```