Bangladesh Army International University of Science and Technology

Department of Computer Science and Engineering

Lab Report

Lab Report No	:	4						
Lab Report Name	:	Write a Program to Check Whether a Given String is a Keyword or Not. Using file I/O						
Course Title	:	Compiler Design and Construction Sessional						
Course Code	:	CSE-414						
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Level	:	4	**Term**	: 1	**Section**	: B	**Group**	:
Date of Submission	:	08/01/26	**Semester**	: FALL 25	**Year**	: 2026		

Key Learnings:

- **Understanding File I/O in C:** Learned how to read strings from a file and process them programmatically using file handling functions (fopen, fscanf, fgets, fclose).
- **Keyword Identification Logic:** Gained clarity on how compilers distinguish **keywords from identifiers** by comparing input strings against a predefined keyword list.
- **Practical Insight into Lexical Analysis:** Understood how keyword checking is a fundamental part of the **lexical analysis phase** in compiler design.

Code Implementation:

Lab Works > lab4.c > readKeywords(char [][MAX_KEYWORD_LENGTH], const char *)

```c
#include<stdio.h>
#include<string.h>
#include<stdlib.h>

#define MAX_KEYWORDS 50
#define MAX_KEYWORD_LENGTH 20

int readKeywords(char keywords[][MAX_KEYWORD_LENGTH], const char* filename){
    FILE* file = fopen(filename, "r");
    if (file == NULL) {
        printf("Error opening keywords file.\n");
        return 0;
    }

    int count = 0;
    while (fscanf(file, "%s", keywords[count]) == 1 && count < MAX_KEYWORDS)
        count++;
    }
    printf("%d", count);
    fclose(file);
    return count;
}

int isKeyword(char str[], char keywords[][MAX_KEYWORD_LENGTH], int keywordCou
    for(int i=0; i<keywordCount; i++){
        if(strcmp(str, keywords[i]) == 0){
            return 1;
        }
    }
    return 0;
}

```

```c
int main(){
    char str[MAX_KEYWORD_LENGTH];
    char keywords[MAX_KEYWORDS][MAX_KEYWORD_LENGTH];
    char keywordFilename[40];
    int keywordCount;

    scanf("%s", keywordFilename);

    keywordCount = readKeywords(keywords, keywordFilename);
    if(keywordCount == 0){
        printf("No keywords loaded. Exiting.\n");
        return 1;
    }

    while(getchar() != '\n');

    scanf("%s", str);

    if(isKeyword(str, keywords, keywordCount)){
        printf("\"%s\" is a keyword.\n", str);
    }
    else{
        printf("\"%s\" is not a keyword.\n", str);
    }
    return 0;
}
```

Input Sample:
textfile.txt
32
auto
Another:
textfile.txt
32
notAKeyword

Output Sample:

```
joha546@joha546:~/Projects/Compiler-Design-and-Construction/Lab Works$ ./lab4
textfile.txt
32
auto
"auto" is a keyword.
joha546@joha546:~/Projects/Compiler-Design-and-Construction/Lab Works$ ./lab4
textfile.txt
32
notAKeyword
"notAKeyword" is not a keyword.
```