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1RV17CS125
Batch - C2

Program- Word Search

```
#include<stdio.h>

#include<omp.h>

#include<ctype.h>

#include<string.h>

#define COUNT 10

char search_words[20][COUNT] =
{"The","around","graphics","from","by","be","a","which","various","mount"};

long counts[COUNT];

int line_c = 0;


int is_equal(char* a,const char* key, int ignore_case){
//    char b[20];
//    strcpy(b,key);

    int len_a = strlen(a),len_b = strlen(key);

    if(len_a != len_b)

        return 0;

    if(ignore_case)

        return strcasecmp(a,key)==0;

    return strcmp(a,key)==0;
}


void read_word(char *temp, FILE *fp){

    int i=0;

    char ch;

    while((ch = fgetc(fp)) != EOF && isalpha(ch) == 0){
```

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    }

    while(ch != EOF      &&isalpha(ch) != 0){

        temp[i++] = ch;

        ch = fgetc(fp);

    }

    temp[i] = '\0';

    //printf("%s\n",temp);

}

```

```

long determine_count(const char *file_name, const char *key, int ignore_case)
{

    int key_index=0,key_len = strlen(key);

    long word_count=0;

    char ch;

    FILE *fp = fopen(file_name,"r");

    char temp[40];

    int i=0;

    while(feof(fp) == 0){

        read_word(temp,fp);

        if(is_equal(temp,key,ignore_case) != 0)

            word_count++;

        //printf("%s ",temp);

    }

    //printf("\nWord %s: %ld",key,word_count);

    return word_count;

}

```

```

int main(){
    int i;

    for(i=0;i<COUNT;i++)
        counts[i] = 0;

    char* my_files[4]={"file1.txt","file2.txt","file3.txt","file4.txt"};

    for(int iter=0; iter<4; iter++){
        FILE *fp = fopen(my_files[iter],"r");

        fseek(fp, 0L, SEEK_END);

        printf("File size: %ldKB\n",ftell(fp)/1024);

        fclose(fp);

        for(int t=1; t<=8; t*=2){
            omp_set_num_threads(t);

            double start = omp_get_wtime();

            #pragma omp parallel for
            for(i=0;i<COUNT;i++)
                counts[i] = determine_count(my_files[iter],search_words[i],1);

            double time = omp_get_wtime() - start;

            for(i=0;i<COUNT;i++)
                printf("%s: %ld ",search_words[i],counts[i]);

            printf("\nTime Taken for %d threads: %lf\n",t,time);

        }
    }

    return 0;
}

```

Output-

```

$ cd /home/rohit/works/rohit/Dev/threads
$ gcc -fopenmp Program_8.c
$ ./a.out
File size: 848
Thr: 13 around: 1 graphics: 0 from: 0 by: 3 be: 2 a: 0 which: 2 various: 1 mount: 2
Time Taken for 1 threads: 0.001874
Thr: 13 around: 1 graphics: 0 from: 0 by: 3 be: 2 a: 0 which: 2 various: 1 mount: 2
Time Taken for 2 threads: 0.001483
Thr: 13 around: 1 graphics: 0 from: 0 by: 3 be: 2 a: 0 which: 2 various: 1 mount: 2
Time Taken for 4 threads: 0.001592
Thr: 13 around: 1 graphics: 0 from: 0 by: 3 be: 2 a: 0 which: 2 various: 1 mount: 2
Time Taken for 8 threads: 0.002378
File size: 480
Thr: 22 around: 0 graphics: 0 from: 1 by: 3 be: 2 a: 2 which: 0 various: 0 mount: 0
Time Taken for 1 threads: 0.003038
Thr: 22 around: 0 graphics: 0 from: 1 by: 3 be: 2 a: 2 which: 0 various: 0 mount: 0
Time Taken for 2 threads: 0.003024
Thr: 22 around: 0 graphics: 0 from: 1 by: 3 be: 2 a: 2 which: 0 various: 0 mount: 0
Time Taken for 4 threads: 0.004080
Thr: 22 around: 0 graphics: 0 from: 1 by: 3 be: 2 a: 2 which: 0 various: 0 mount: 0
Time Taken for 8 threads: 0.002032
File size: 1368
Thr: 83 around: 1 graphics: 0 from: 2 by: 15 be: 10 a: 11 which: 0 various: 3 mount: 0
Time Taken for 1 threads: 0.008038
Thr: 83 around: 1 graphics: 0 from: 2 by: 15 be: 10 a: 11 which: 0 various: 3 mount: 0
Time Taken for 2 threads: 0.004036
Thr: 83 around: 1 graphics: 0 from: 2 by: 15 be: 10 a: 11 which: 0 various: 3 mount: 0
Time Taken for 4 threads: 0.004523
Thr: 83 around: 1 graphics: 0 from: 2 by: 15 be: 10 a: 11 which: 0 various: 3 mount: 0
Time Taken for 8 threads: 0.004440
File size: 13908
Thr: 15129 around: 14 graphics: 4 from: 683 by: 1883 be: 1482 a: 6589 which: 515 various: 138 mount: 0
Time Taken for 1 threads: 0.598915
Thr: 15129 around: 14 graphics: 4 from: 683 by: 1883 be: 1482 a: 6589 which: 515 various: 138 mount: 0
Time Taken for 2 threads: 0.336235
Thr: 15129 around: 14 graphics: 4 from: 683 by: 1883 be: 1482 a: 6589 which: 515 various: 138 mount: 0
Time Taken for 4 threads: 0.251013
Thr: 15129 around: 14 graphics: 4 from: 683 by: 1883 be: 1482 a: 6589 which: 515 various: 138 mount: 0
Time Taken for 8 threads: 0.250958
$

```

Word Search Graph:



