PROGRAMMING ASSIGNMENT 1

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SUBJECT: MALLOC, CALLOC, REALLOC, FREE, FILE IO, STRING

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REPORT

1.Problem Definition

The file and word processing program that we will implement consist of specific commands. With this program, we can create and delete files in the virtual environment, append text to the data, remove the desired parts from the text, replace a word with another word, and print the data and files on the screen in various formats.

2.Solution Approach

Firstly I read the file and started the solution. I gathered the data in the file I read in an array and I wrote various functions according to the commands in the first element of each line.

3.Dynamic Memory Allocation

The system is implemented with the linked list consisting of struct structures named File with dynamicaly. The structure named File contains char pointer named "content" and "name". During the implementation, the name and content char pointer is expanded with the malloc and realloc functions so that dynamic allocation is used.

```
//Fonksiyon prototipleri
void readingFile(char *textName);
void create(char **text, File **head,int column);
void append(char **text, File **head,int column);
void replace(char **text, File **head,int column);
void Remove(char **text, File **head,int column);
void Delete(char **text, File **head,int column);
void print(char **text, File **head,int column);
void replaceHelpFunction(File *p , char *newWord, char *oldWord );
int** findNumberAndIndexOfKey(char *text, char *key, int *textCounter,int *keyCounter,int *numberOfWords,int **array);
```

1.readingFile

The double char pointer called text containing a split state of the lines obtained with fgets was extended to malloc and realloc with a dynamic allocation.

2.create

Malloc and realloc were used to assign the content in the line that we read to the char pointer array named file named data.

3.append

If the char pointer inside the structure named file does not contain any words, the append operation is performed using realloc if it contains the append operation is performed using malloc.

4.remove

Remove is done by playing with indexes on the pre-allocated char pointer array.

5.delete

In the Linkedlist structure, the pointer that matches the file in that name is freed.

6.replace

The pointer that matches the file name is sent as a parameter to replaceHelpFunction.

7.findNumberAndIndexOfKey

Recursion function named findNumberAndIndexOfKey gives number of words call by reference and if word contains returns int **array which include indexs.

8.replaceHelpFunction

Changes are made by the indexes obtained from the findNumberAndIndexOfKey recursive function until the word count is 0, and realloc is used at the same time.

9.print

In order to obtain the number of sentences, an array named temp is allocated to split.