Programming Assignment (PA) -5
(File Systems)
Report

CS307 – Operating Systems

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In my program I used file system commands to solve the problem. Firstly, I created a function to create a database. This function created an array of pointers to user structs. User struct has this schema.

```
typedef struct user{
    char* name;
    char* surname;
    char* gender;
} user;
```

For every line of the database.txt I created a struct and stored a pointer to it in an array called db. Then I created a function which is called correction(filename) to correct wrong files. This function loops the file char by char. It uses the `fseek` command to change current offset by one during the loop. The pseudo code for this loop is like this:

```
for (int i= 0; i < length of the file; i++):
        for every user in database array:
                buffer = read file from the i until len of user's name.
                if buffer == user's name:
                        go one char forwads by fseek
                        change the surname with user's surname
                        go 4 chars + length of the name back from the current pos. by fseek
                        change the pronoun
```

Then to traverse the root recursively I created a function visit_dirs(path). This function takes a directory as the argument. It opens the directory by `opendir` command. Then, for every item in the directory if it is a .txt file, corrects it by correction function. Else if the filename is not "." Or ".." and if it is a directory, it calls the visit_dirs function on this path recursively.

In the main function I opened the current directory and called the correction function on the .txt files except the database.txt file. I called the visit_dirs function on the directories. Then at the end I freed the memory of the db array.