

## Exercise 8 - Implementation of code optimization techniques

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Program Code:

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

int main(int argc, char *argv[]){
    stdin = fopen(argv[1], "r");
    char line[100];

    printf("\n---Optimized Code---\n\n");
    scanf(" %s^\n", line);

    while (strcmp(line, "END") != 0){
        //FOR: x=y+0; x=y*1;
        if ((line[3] == '+' && line[4] == '0') || (line[3] == '*' && line[4] == '1')){
            if (line[0] == line[2]){
                scanf(" %s^\n", line);
                continue;
            }

            printf("%c=%c\n", line[0], line[2]);
        }

        //FOR: x=y-0; x=y/1;
        else if ((line[3] == '-' && line[4] == '0') || (line[3] == '/' &&
line[4] == '1')){
            if (line[0] == line[2]){
                scanf(" %s^\n", line);
                continue;
            }
            printf("%c=%c\n", line[0], line[2]);
        }

        //FOR: x=0+x; x=1*y
        else if ((line[3] == '+' && line[2] == '0') || (line[3] == '*' && line[2] == '1')){
            if (line[0] == line[4]){
                scanf(" %s^\n", line);
                continue;
            }
            printf("%c=%c\n", line[0], line[4]);
        }

        //FOR: x=y*2
```

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else if (line[3] == '*' && line[4] == '2'){
    printf("%c=%c+%c\n", line[0], line[2], line[2]);
}

//FOR: x=2*y
else if (line[3] == '*' && line[2] == '2'){
    printf("%c=%c+%c\n", line[0], line[4], line[4]);
}

//FOR: x=pow(y,2);
else if (line[2] == 'p' && line[3] == 'o' && line[4] == 'w' && line[5] == '(' &&
line[8] == '2'){
    printf("%c=%c*%c\n", line[0], line[6], line[6]);
}

else{
    printf("%s\n", line);
}

scanf(" %s[^\n]", line); //next line
}

return 0;
}

```