

Assignment 1 Solution

The assignment was split into 2 problems, but below we've included only the final versions of all the files.

The header files remained unchanged.

Solution

FIBONACCI.C

```
#include <stdio.h>
#include "fibonacci.h"

void print_fib(int n) {
    printf("%d\n", fib(n));
}

int fib(int n) {
    if (n <= 0) {
        return 0;
    } else if (n == 1) {
        return 1;
    } else {
        return fib(n-1) + fib(n-2);
    }
}
```

REVERSE.C

```
#include <stdio.h>

void reverse(char *str, int len) {
    char reversed[len+1];
    int pos = 0;
    int caret = len;
    reversed[len] = '\0';
    for (int i = len - 1; i >= -1; --i){
```

```

        if (i == -1 || str[i] == ' '){
            for (int j = i + 1; j < caret; ++j){
                reversed[pos++] = str[j];
            }
            if (i != -1) {
                reversed[pos++] = ' ';
            }
            caret = i;
        }
    }
    printf("%s\n", reversed);
}

```

FIBEVERSE.C

```

#include <stdlib.h>
#include <string.h>
#include "fibonacci.h"
#include "reverse.h"

int main(int argc, char *argv[]) {
    int i = 1;

    #ifdef FIBONACCI
        if (i < argc) {
            print_fib(atoi(argv[i]));
            i++;
        }
    #endif

    #ifdef REVERSE
        if (i < argc) {
            reverse(argv[i], strlen(argv[i]));
            i++;
        }
    #endif

    return 0;
}

```

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