1. Write a C program to simulate a Deterministic Finite Automata (DFA) for the given language representing strings that start with 0 and end with 1

Program:

#include <stdio.h>

int dfa\_transition(int current\_state, char input) {

switch (current\_state) {

case 0:

if (input == '0') return 1;

break;

case 1:

if (input == '1') return 2;

if (input == '0') return 1;

break;

case 2:

if (input == '1') return 2;

if (input == '0') return 1;

break;

}

return -1;

}

int simulate\_dfa(const char \*input\_string) {

int current\_state = 0;

for (int i = 0; input\_string[i] != '\0'; ++i) {

current\_state = dfa\_transition(current\_state, input\_string[i]);

if (current\_state == -1) {

return 0;

}

}

return (current\_state == 2);

}

int main() {

char input[100];

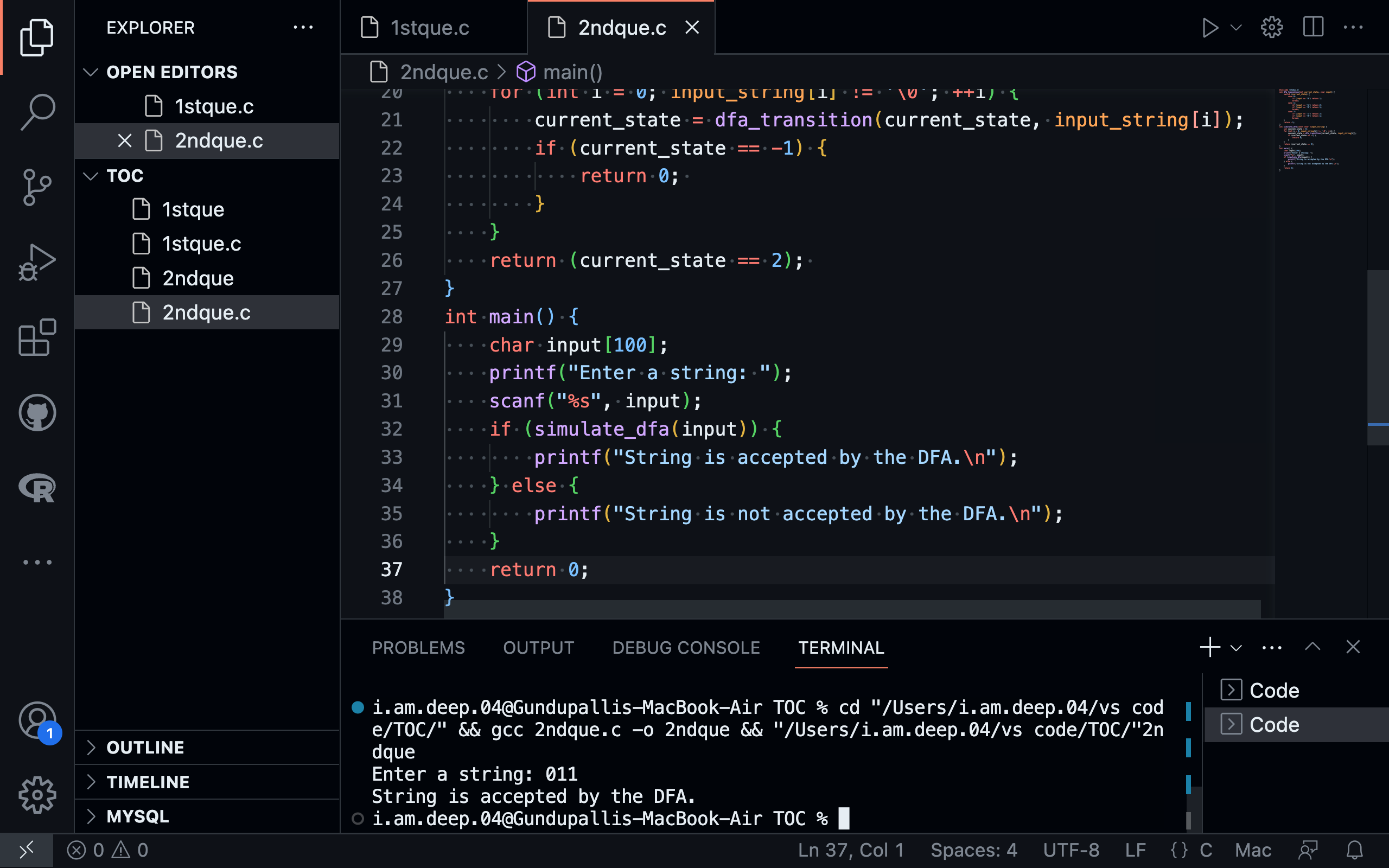
printf("Enter a string: ");

scanf("%s", input);

if (simulate\_dfa(input)) {

printf("String is accepted by the DFA.\n");

} else {

printf("String is not accepted by the DFA.\n");

}

return 0;

}