4.Write a C program to check whether a given string belongs to the language defined by a Context Free Grammar (CFG)

S → 0S0 | 1S1 | 0 | 1 | ε

PROGRAM:

#include <stdio.h>

#include <string.h>

int S(char \*input);

int S(char \*input) {

if (\*input == '0') {

input++;

if (S(input)) {

if (\*input == '0') {

return 1;

}

}

} else if (\*input == '1') {

input++;

if (S(input)) {

if (\*input == '1') {

return 1;

}

}

} else if (\*input == '\0') {

return 1;

}

return 0;

}

int main() {

char input[100];

printf("Enter the input string (0s and 1s only): ");

scanf("%s", input);

if (S(input) && \*input == '\0') {

printf("Accepted\n");

} else {

printf("Not Accepted\n");

}

return 0;

OUTPUT:

