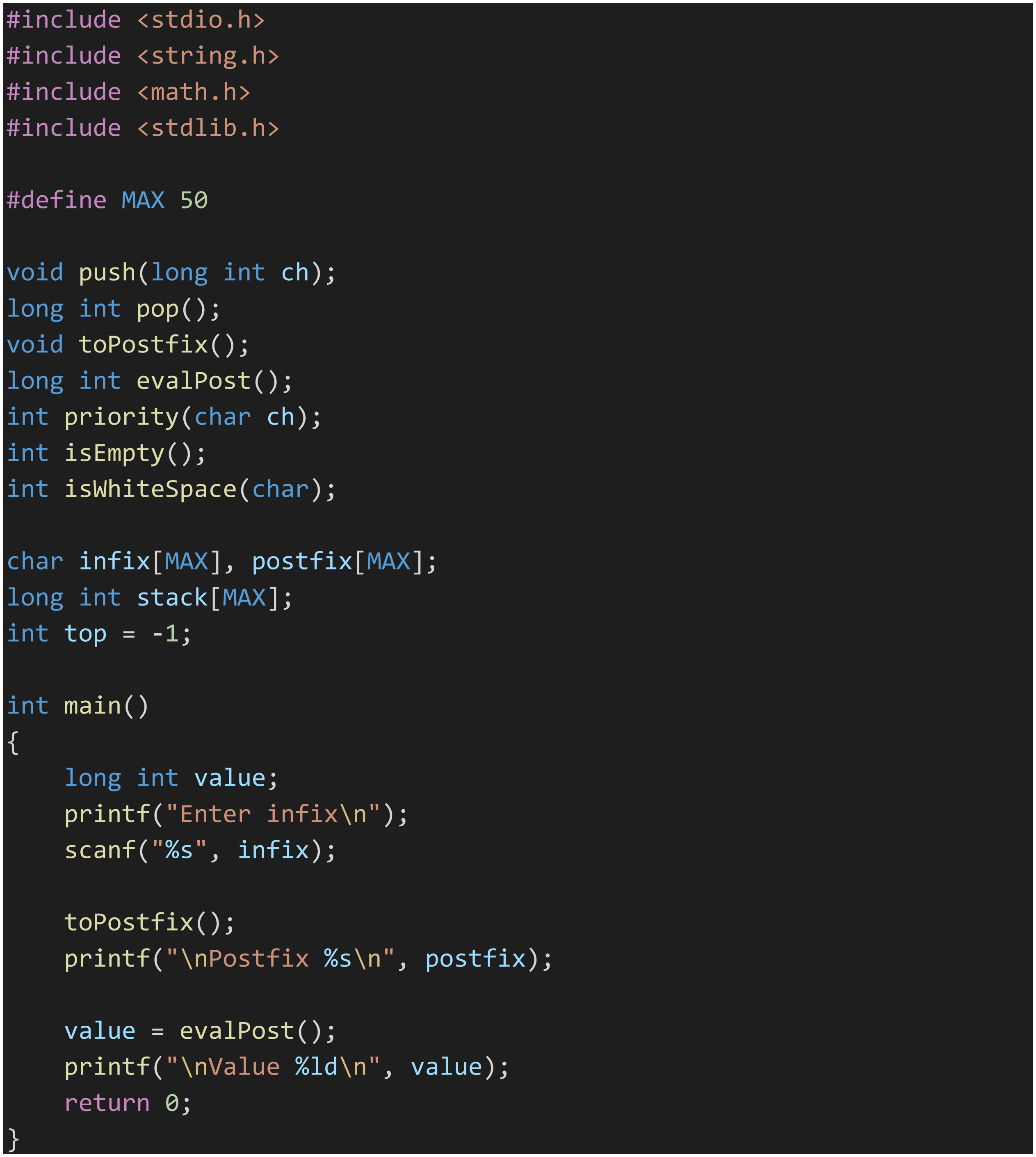
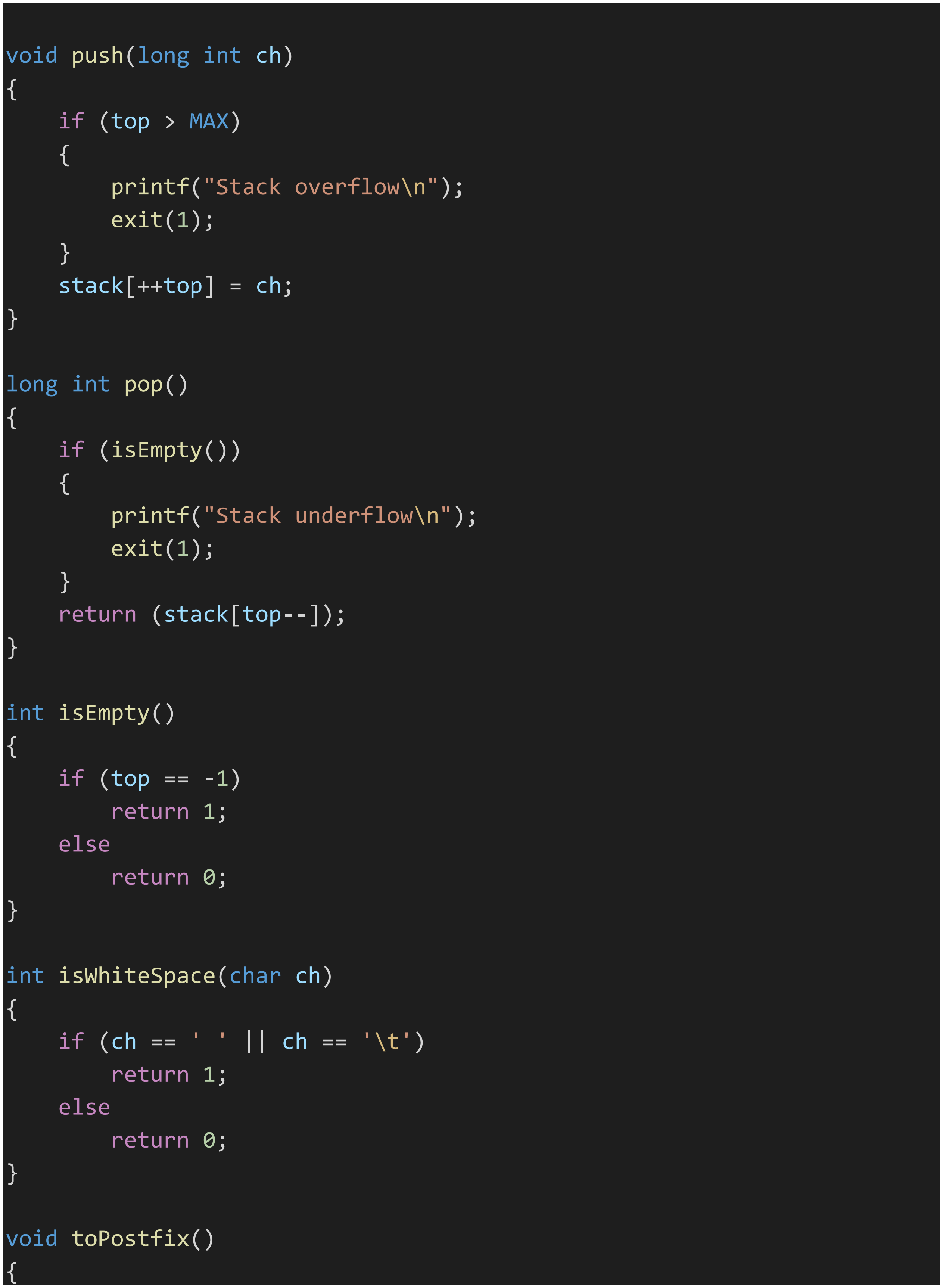
Name: Adithya M SRN: PES1UG20CS621 Sec: K

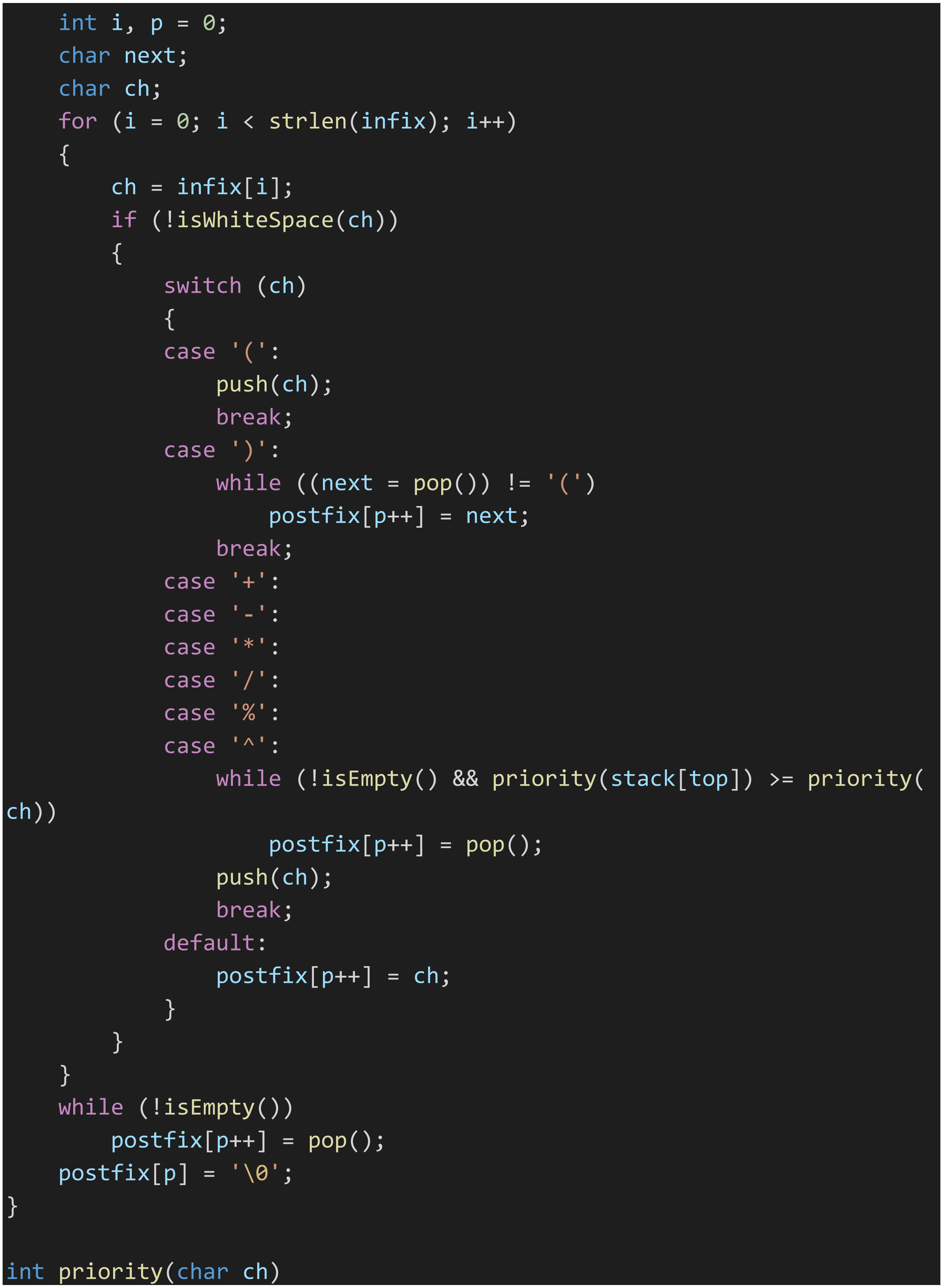
Program 1:



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

#define MAX 50

void push(long int ch);
long int pop();
void toPostfix();
long int evalPost();
int priority(char ch);
int isEmpty();
int isWhiteSpace(char);

char infix[MAX], postfix[MAX];
long int stack[MAX];
int top = -1;

int main()
{
    long int value;
    printf("Enter infix\n");
    scanf("%s", infix);

    toPostfix();
    printf("\nPostfix %s\n", postfix);

    value = evalPost();
    printf("\nValue %ld\n", value);
    return 0;
}
```

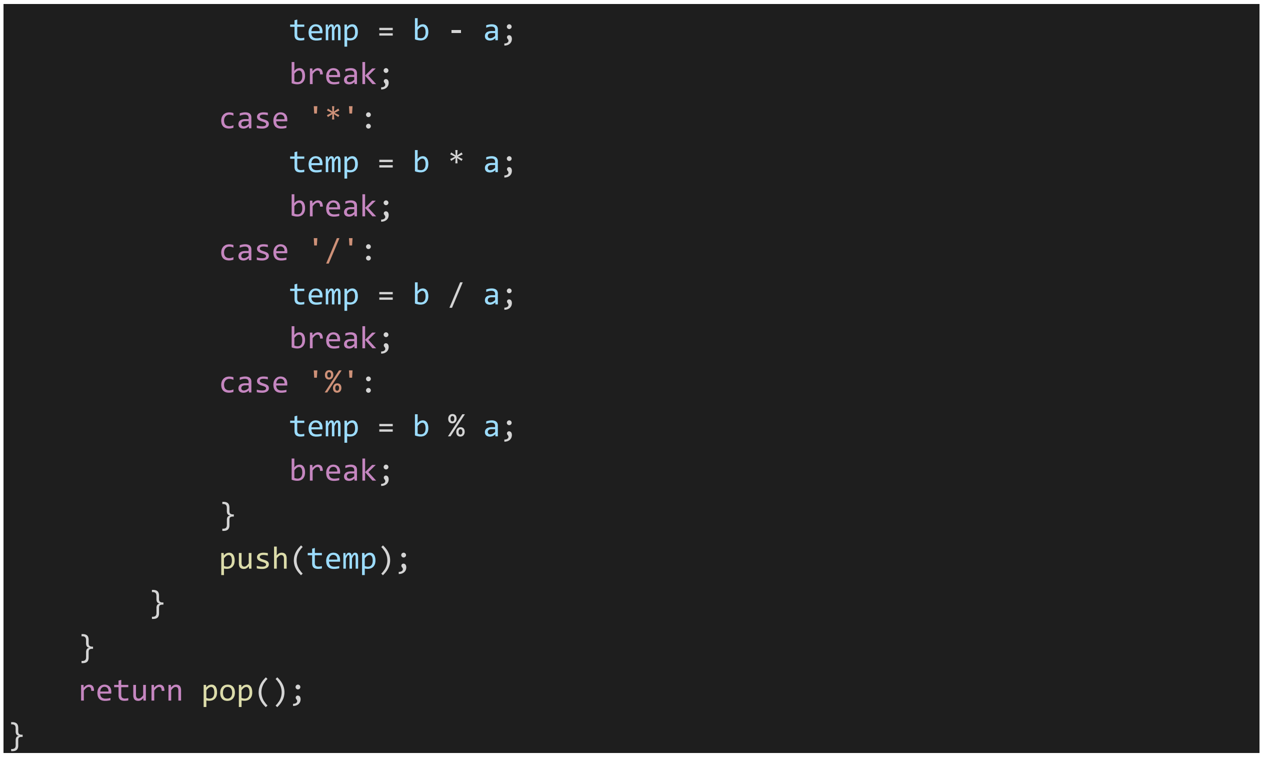


```
void push(long int ch)
{
    if (top > MAX)
    {
        printf("Stack overflow\n");
        exit(1);
    }
    stack[++top] = ch;
}

long int pop()
{
    if (isEmpty())
    {
        printf("Stack underflow\n");
        exit(1);
    }
    return (stack[top--]);
}

int isEmpty()
{
    if (top == -1)
        return 1;
    else
        return 0;
}

int isWhiteSpace(char ch)
{
    if (ch == ' ' || ch == '\t')
        return 1;
    else
        return 0;
}

void toPostfix()
{
```



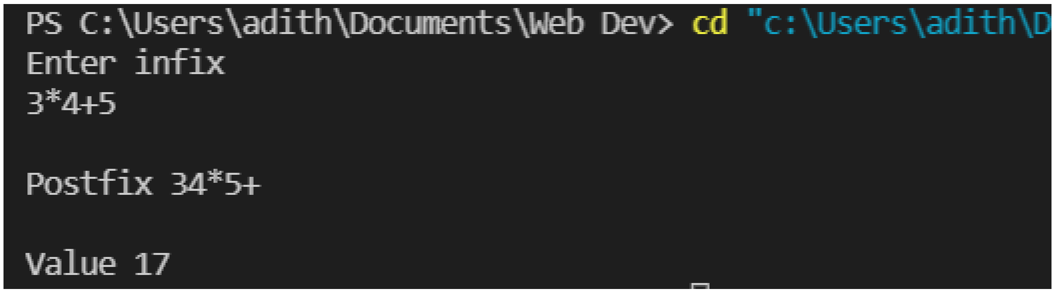
```
    int i, p = 0;
    char next;
    char ch;
    for (i = 0; i < strlen(infix); i++)
    {
        ch = infix[i];
        if (!isWhiteSpace(ch))
        {
            switch (ch)
            {
            case '(':
                push(ch);
                break;
            case ')':
                while ((next = pop()) != '(')
                    postfix[p++] = next;
                break;
            case '+':
            case '-':
            case '*':
            case '/':
            case '%':
            case '^':
                while (!isEmpty() && priority(stack[top]) >= priority(
ch))
                    postfix[p++] = pop();
                push(ch);
                break;
            default:
                postfix[p++] = ch;
            }
        }
    }
    while (!isEmpty())
        postfix[p++] = pop();
    postfix[p] = '\0';
}

int priority(char ch)
```

```
{
    switch (ch)
    {
    case '(':
        return 0;
    case '+':
        return 2;
    case '-':
        return 1;
    case '*':
        return 2;
    case '/':
        return 2;
    case '%':
        return 2;
    default:
        return 0;
    }
}

long int evalPost()
{
    long int a, b, temp;
    int i;

    for (i = 0; i < strlen(postfix); i++)
    {
        if (postfix[i] <= '9' && postfix[i] >= '0')
            push(postfix[i] - '0');
        else
        {
            a = pop();
            b = pop();
            switch (postfix[i])
            {
            case '+':
                temp = b + a;
                break;
            case '-':
```



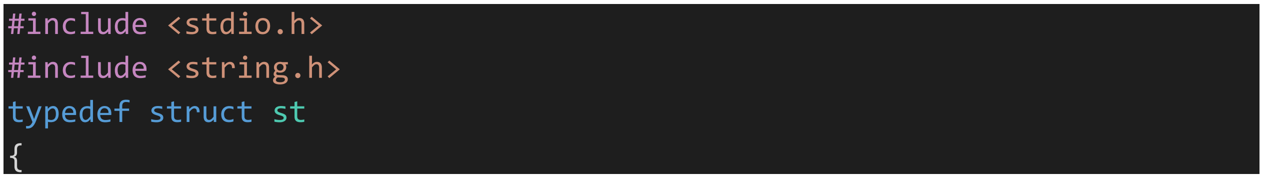
```
                temp = b - a;
                break;
            case '*':
                temp = b * a;
                break;
            case '/':
                temp = b / a;
                break;
            case '%':
                temp = b % a;
                break;
            }
            push(temp);
        }
    }
    return pop();
}
```

Output:

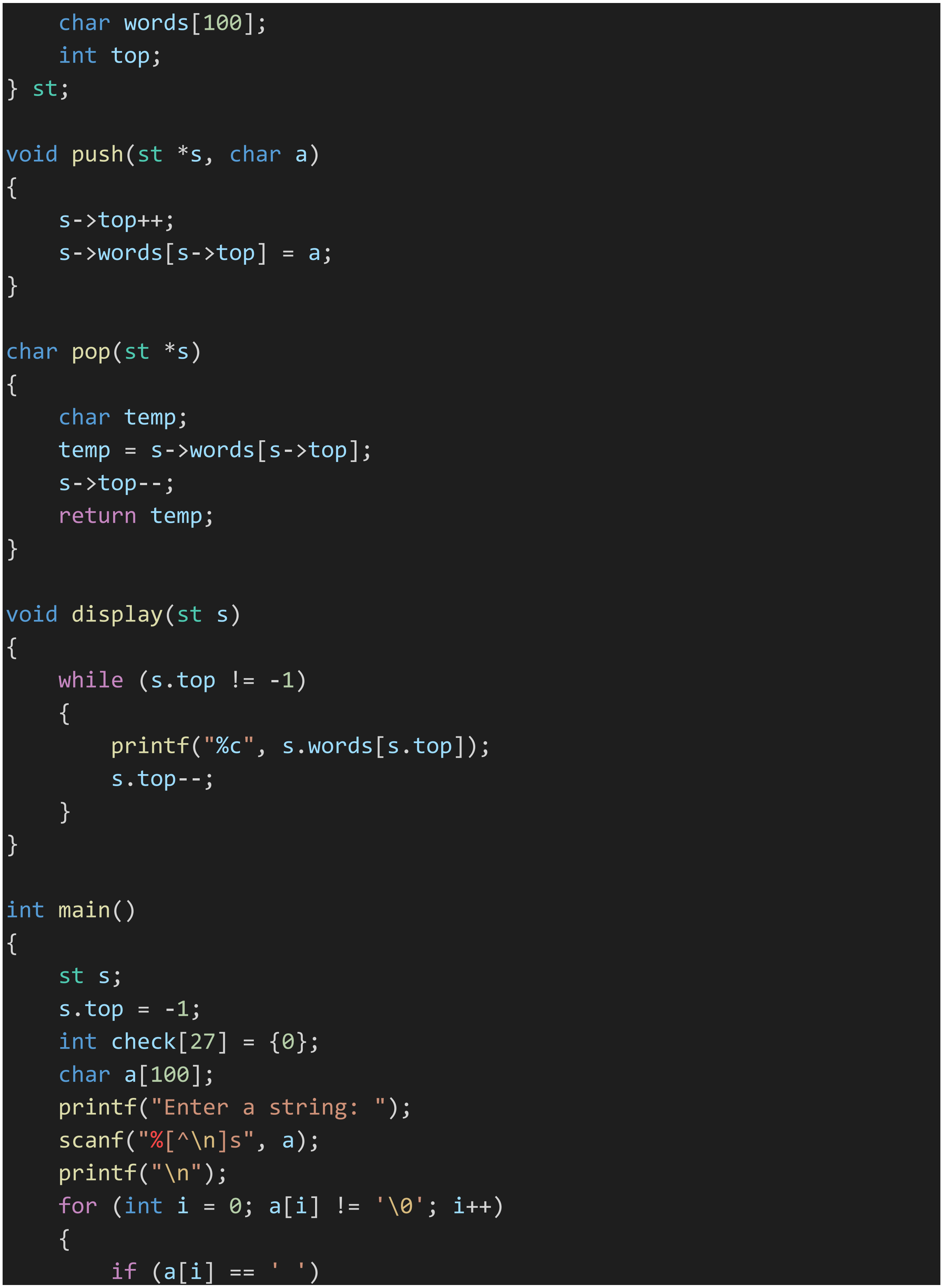


```
PS C:\Users\adith\Documents\Web Dev> cd "c:\Users\adith\D
Enter infix
3*4+5

Postfix 34*5+

Value 17
```

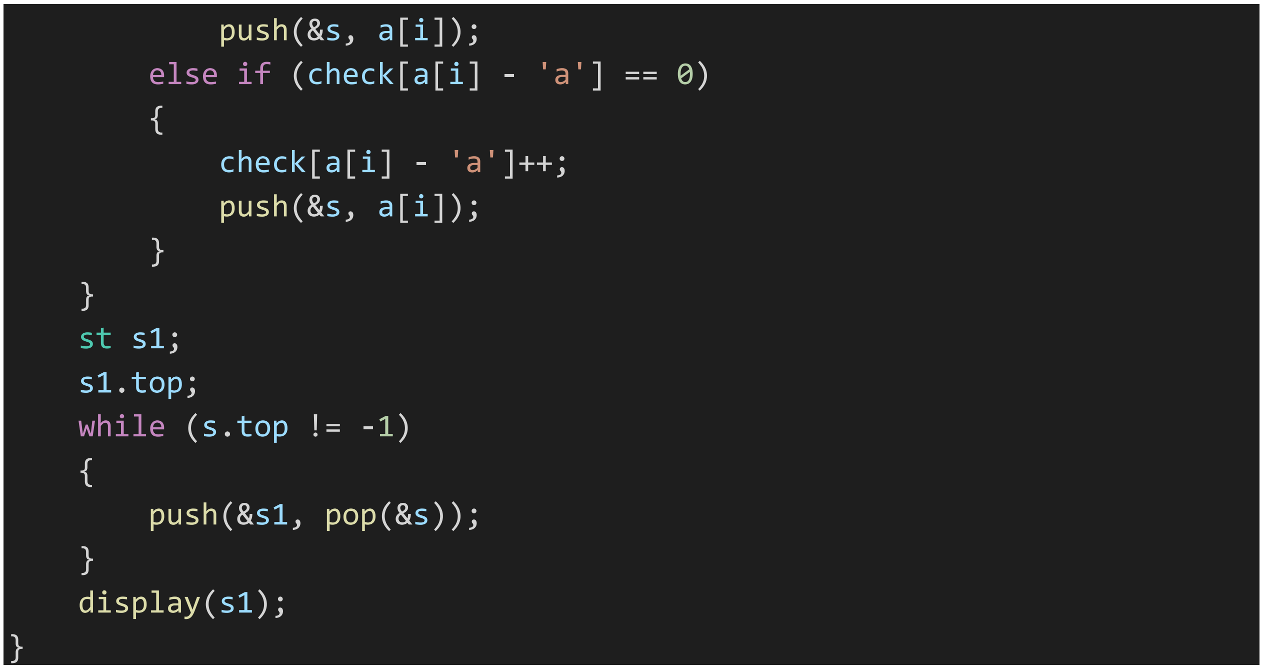
Program 2:



```
#include <stdio.h>
#include <string.h>
typedef struct st
{
```

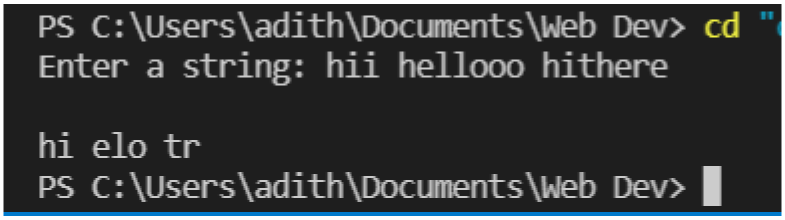


```c
    char words[100];
    int top;
} st;

void push(st *s, char a)
{
    s->top++;
    s->words[s->top] = a;
}

char pop(st *s)
{
    char temp;
    temp = s->words[s->top];
    s->top--;
    return temp;
}

void display(st s)
{
    while (s.top != -1)
    {
        printf("%c", s.words[s.top]);
        s.top--;
    }
}

int main()
{
    st s;
    s.top = -1;
    int check[27] = {0};
    char a[100];
    printf("Enter a string: ");
    scanf("%[^\n]s", a);
    printf("\n");
    for (int i = 0; a[i] != '\0'; i++)
    {
        if (a[i] == ' ')
```



```
            push(&s, a[i]);
        else if (check[a[i] - 'a'] == 0)
        {
            check[a[i] - 'a']++;
            push(&s, a[i]);
        }
    }
    st s1;
    s1.top;
    while (s.top != -1)
    {
        push(&s1, pop(&s));
    }
    display(s1);
}
```

Output:



```
PS C:\Users\adith\Documents\Web Dev> cd "
Enter a string: hii hellooo hithere

hi elo tr
PS C:\Users\adith\Documents\Web Dev>
```