

Exp 2: Conversion of Infix Expression to Postfix Expression using Stack

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D10A Roll No: 60

AIM: In this experiment, we will learn about how to convert a given infix expression into postfix expression using push and pop operations of Stack.

CODE:

```
#include <stdio.h>
#include <ctype.h>
#include <conio.h>
typedef struct
{
    char a[100];
    int top;
} stack;

void push(stack *s, char x);
int pop(stack *s);
int precede(char c1, char c2);
void conversion(char in[], char post[]);

void main()
{
    printf("Shashwat Tripathi_D10A_60\n");
    char infix[100], postfix[100];
    printf("Enter an Infix Expression:\n");
    gets(infix);
    (conversion(infix, postfix));
    printf("Corresponding Postfix Expression is:\n");
    puts(postfix);
}

void push(stack *s, char x)
{
    if (s->top == 99)
        printf("Stack is full.");
    else
        s->a[++s->top] = x;
}

int pop(stack *s)
{
    char x;
    if (s->top < 0)
        printf("Stack is empty");
    else
    {
        x = s->a[s->top--];
        return x;
    }
}

int precede(char c1, char c2)
{

```

```

switch (c1)
{
case '-':
case '+':
    if (c2 == '-' || c2 == '+' || c2 == ')')
        return 1;
    else
        return 0;
case '/':
case '*':
    if (c2 == '(')
        return 0;
    else
        return 1;
case '(':
    return 0;
}
}
void conversion(char in[], char post[])
{
    stack s;
    int i, j = 0;
    char top;
    s.top = -1;
    for (i = 0; in[i] != '\0'; ++i)
    {
        if (isalpha(in[i]))
            post[j++] = in[i];
        else
        {
            while (s.top >= 0 && precede(s.a[top], in[i]))
            {
                post[j++] = pop(&s);
            }
            if (in[i] == ')')
                s.top--;
            else
                push(&s, in[i]);
        }
    }
    while (s.top >= 0)
    {
        post[j++] = pop(&s);
        post[j] = '\0';
    }
}

```

OUPUT:

```
C:\Users\shweta\Documents\Shashwat\Notepad++\DSA>DSAexp2
Shashwat Tripathi_D10A_60
Enter an Infix Expression:
b*c/d+e
Corresponding Postfix Expression is:
bc*d/e+

C:\Users\shweta\Documents\Shashwat\Notepad++\DSA>_
```