

## Lab Program - 2

5 / Oct / 2020

- WAP to convert a given valid infix arithmetic expression, to a postfix expression. The expression consists of single character operands and binary operators

#include &lt;stdio.h&gt;

#include &lt;string.h&gt;

int a(char n) {

switch (n)

{

case '+':

case '-': return 2;

case '\*':

case '/': return 4;

case '^':

case '\$': return 5;

case '(': return 0;

case '#': return -1;

default: return 8;

}

}

int b(char n) {

switch (n)

{

case '+':

case '-': return 1;

case '\*':

case '/': return 3;

case '^':

case '\$': return 6;

case '(': return 9;



```

        case 'x': return 0;
        default : return 7;
    }
}

```

```

void infix - postfix (char in[], char post[])
{

```

```

    int top, i, j;
    char s[50], n;
    top = -1;
    s[++top] = '#';
    j = 0;
    for (i = 0; i < strlen(in); i++)
    {

```

```

        n = in[i];
        while (a / s[top] > b(n))
        {

```

```

            post[j] = s[top--];

```

```

        }
        if (a / s[top] != b(n))
            s[++top] = n;

```

```

        else
            top--;
    }

```

```

}
while (s[top] != '#');

```

```

while {
    post[j++] = s[top--];
}

```

```

post[j] = '\0';
}

```

```

int main ()
{

```



```
char in[20];  
char post[20];  
printf("Enter the infix expression\n");  
scanf("%s", in);  
infix_to_postfix(in, post);  
printf("The Expression is\n");  
printf("%s", post);  
return 0;
```

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Output :

Enter the infix Expression  
 $((A + (B - C) * D) \wedge E + F)$

The postfix Expression is  
 $ABC - D * + E \wedge F +$

Enter the infix expression

$X \wedge Y \wedge Z - M + N + P / Q$

~~$X \wedge Y \wedge Z \wedge M - N + P / Q +$~~

The postfix expression is

$XYZ \wedge \wedge M - N + PQ / +$

Enter the infix expression

$((a + b) * c - (d - e)) \wedge (f + g)$

The postfix expression is

$ab + c * de - f g + \wedge$

Enter the infix expression

$(A + (B - C) * D)$

The postfix expression is

$ABC - D * +$

Enter infix Expression

$a \wedge b * c - d + e / f / (g + h)$

The postfix Expression is

$ab \wedge c * d - e f / g h + / +$