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SY-IT

Code:

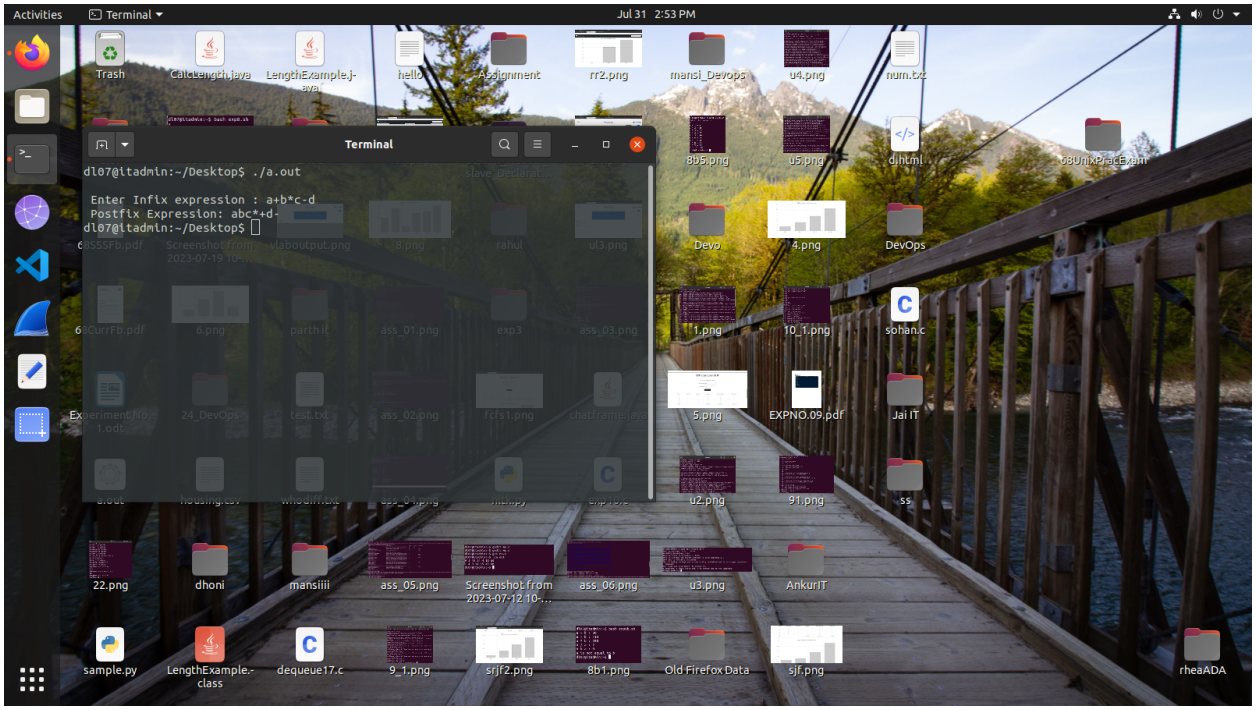
```
#include<stdio.h>
#include<stdlib.h>
#include<ctype.h>
#include<string.h>

#define SIZE 100
char stack[SIZE];
int top=-1;

void push(char item){
   if(top>=SIZE-1){
   printf("\n stack overflow");
   }
   else {
   top=top+1;
   stack[top]= item;
   }
}


char pop(){
   char item;

   if(top<0){
   printf("stack underflow: invalid infix expression");
   getchar();
   exit(1);
   }

   else{
   item= stack[top];
   top=top-1;
   return(item);
   }
}
```

```
int is_operator(char symbol)
{
   if(symbol == '^' || symbol == '*' || symbol == '/' || symbol == '+' || symbol =='-')
   {
         return 1;
   }
   else
   {
   return 0;
   }
}


/* to define the precedence of the opertors */
int precedence(char symbol)
{
   if(symbol == '^')
   {
         return(3);
   }
   else if(symbol == '*' || symbol == '/')
   {
         return(2);
   }
   else if(symbol == '+' || symbol == '-')
   {
         return(1);
   }
   else
   {
         return(0);
   }
}


void InfixToPostfix(char infix_exp[], char postfix_exp[])

{
   int i, j;
   char item;
   char x;

   push('(');                 /* push '(' onto stack */
```

```
    strcat(infix_exp,")");          /* add ')' to infix expression */

    i=0;
    j=0;
    item=infix_exp[i];

    while(item != '\0')
    {
        if(item == '(')
        {
            push(item);
        }
        else if( isdigit(item) || isalpha(item))
        {
            postfix_exp[j] = item;          /* add operand symbol to postfix expr */
            j++;
        }
        else if(is_operator(item) == 1)         /* means symbol is operator */
        {
            x=pop();
            while(is_operator(x) == 1 && precedence(x)>= precedence(item))
            {
                postfix_exp[j] = x;     /* so pop all higher precendence operator and */
                j++;
                x = pop();              /* add them to postfix expresion */
            }
            push(x);

            push(item);                     /* push current oprerator symbol onto stack */
        }
        else if(item == ')')                /* if current symbol is ')' then */
        {
            x = pop();                  /* pop and keep popping until */
            while(x != '(')             /* '(' encounterd */
            {
                postfix_exp[j] = x;
                j++;
                x = pop();


    }
}
```

```
else
        {   /* if current symbol is neither operand not '(' nor ')' and nor operator */
                printf("\nInvalid infix Expression.\n");
                getchar();
                exit(1);
        }
        i++;


        item = infix_exp[i];
   }
   if(top>0)
   {
        printf("\nInvalid infix Expression.\n");
        getchar();
        exit(1);
   }


   postfix_exp[j] = '\0'; /* add sentinel else puts() fucntion */
   /* will print entire postfix[] array upto SIZE */

}

/* === main function begins === */
int main()
{
   char infix[SIZE], postfix[SIZE];

   printf("\n Enter Infix expression : ");
   scanf("%s", &infix);

   InfixToPostfix(infix,postfix);
   printf(" Postfix Expression: ");
   puts(postfix);

   return 0;
}
```

Output:


Activities
Terminal
Jul 31 2:53 PM
Terminal
dl07@itadmin:~/Desktop$ ./a.out
Enter Infix expression : a+b*c-d
Postfix Expression: abc*+d-
dl07@itadmin:~/Desktop$
Trash
CalcLength.java
LengthExample.j-ava
hello
Assignment
rr2.png
mansi_Devops
u4.png
num.txt
8b5.png
u5.png
d.html
Devo
4.png
DevOps
1.png
10_1.png
sohan.c
5.png
EXPNO.09.pdf
Jai IT
u2.png
91.png
ss
22.png
dhoni
mansiiii
ass_05.png
Screenshot from 2023-07-12 10-...
ass_06.png
u3.png
AnkurIT
sample.py
LengthExample.-class
dequeue17.c
9_1.png
srjf2.png
8b1.png
Old Firefox Data
sjf.png
rheaADA