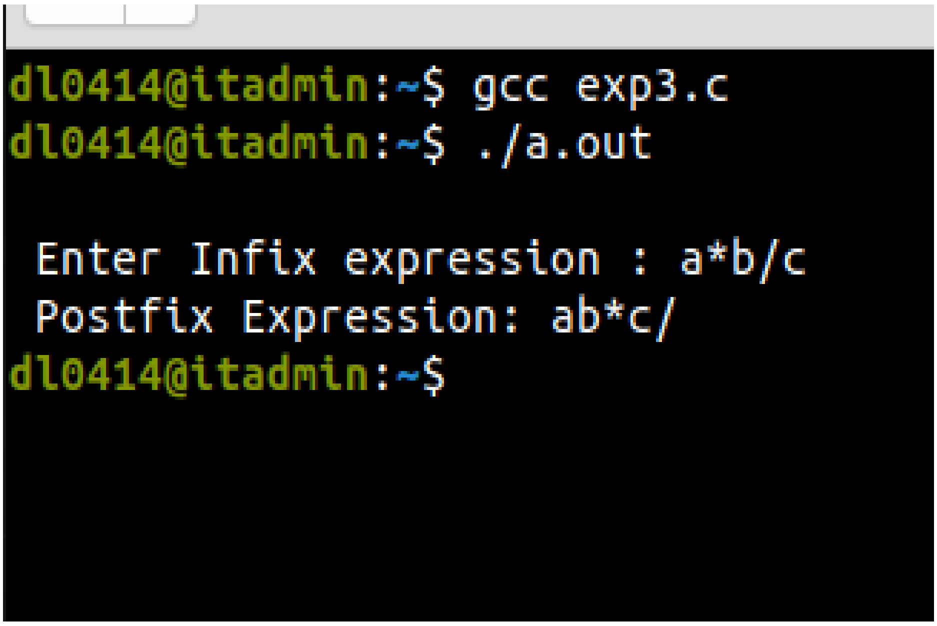
Bhavesh Bonde
06   SYIT
Experiment 3 DSA

```
#include<stdio.h>
//#include<conio.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("STACK IS FULL!!!\n");
   }
  else
   {
     top++;
     stack[top]=item;
   }
 }
 char pop()
 {
     char item;
    if(top==-1)
      {
        printf("STACK IS EMPTY!!\n");
      }
    else
    {
       item=stack[top];
       top--;
       return(item);
    }
 }
 int operator(char symbol)
 {
   if(symbol == '^' || symbol == '*' || symbol == '/' || symbol == '+' || symbol =='-')
     {
        return 1;
     }
   else
     {
       return 0;
     }
}
int precedence(char symbol)
{
  if(symbol == '^')
{
return(3);
}
else if(symbol == '*' || symbol == '/')
{
return(2);
}
else if(symbol == '+' || symbol == '-')
{
return(1);
}
else
if(top>0)
{
printf("\nInvalid infix Expression.\n");
getchar();
exit(1);
}

        {
return(0);
}
}
void InfixToPostfix(char infix[],char postfix[])
{
  char item;
  int i,j;
  char x;

  push('(');
  strcat(infix,")");

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

  while(item!='\0')
   {
      if(item=='(')
       {
         push(item);
       }
     else if( isdigit(item) || isalpha(item))
       {
                postfix[j]=item;
                j++;
       }
     else if (operator(item)==1)
      {
        x=pop();
        while(operator(x)==1 && precedence(x)>= precedence(item))
         {
          postfix[j]=x;
          j++;
          x=pop();
          }
   push(x);

   push(item);
   }
      else if(item == ')')
      {
        x=pop();
        while(x!='(')
        {
         postfix[j]=x;
         j++;
         x=pop();
         }
        }
       else
       {
       printf("INVALID INFIX EXPRESSION!!!");
       exit(1);
       }
       i++;


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




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;
}
```



```
dl0414@itadmin:~$ gcc exp3.c
dl0414@itadmin:~$ ./a.out

 Enter Infix expression : a*b/c
 Postfix Expression: ab*c/
dl0414@itadmin:~$
```