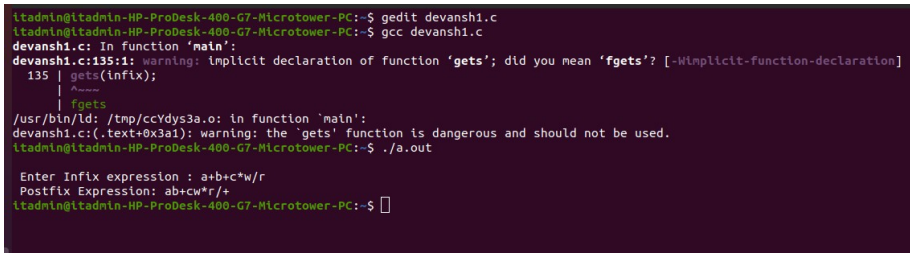
Experiment 3




```
#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 under flow.");
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;
}
}
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('(');
strcat(infix_exp,")");
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;
j++;
}
else if(is_operator(item) == 1)
{
x=pop();
```

```
while(is_operator(x) == 1 && precedence(x)>= precedence(item))
{
postfix_exp[j] = x;
j++;
x = pop();
}
push(x);
push(item);
}
else if(item == ')')
{
x = pop();
while(x != '(')
{
postfix_exp[j] = x;
j++;
x = pop();
}
}
else
{
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';

}
int main()
{
char infix[SIZE], postfix[SIZE];
printf("\n Enter Infix expression : ");
gets(infix);
InfixToPostfix(infix,postfix);
printf(" Postfix Expression: ");
puts(postfix);
return 0;
}
```