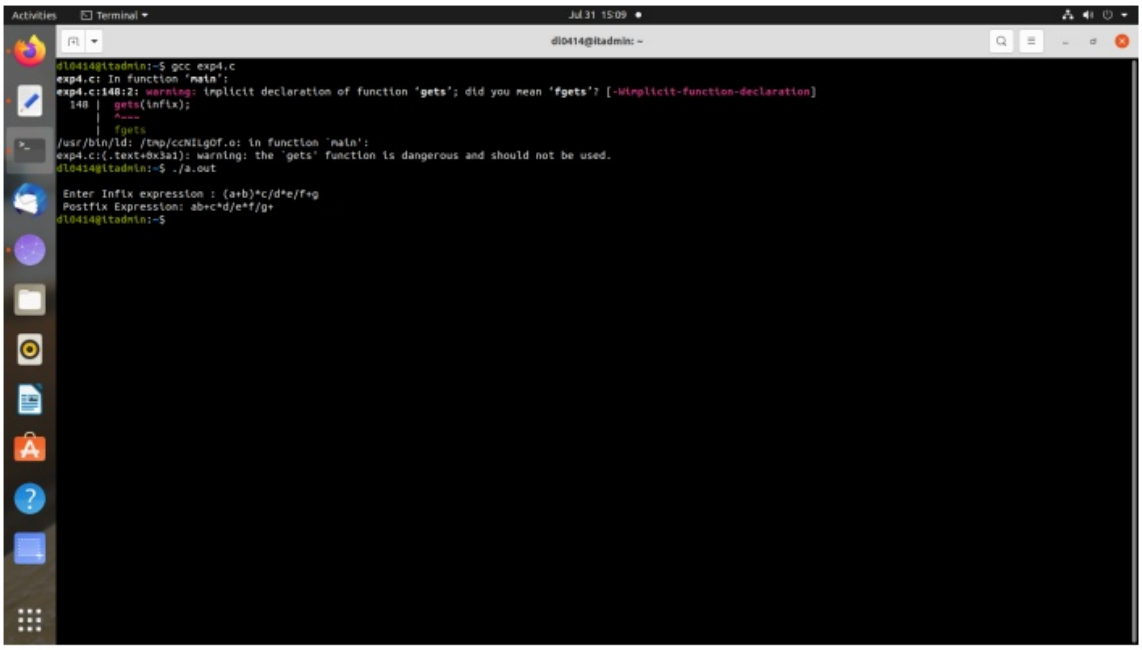
EXPERIMENT 4

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

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

/*Push operation*/
void push(char item)
{
   if(top >= SIZE-1)
   {
         printf("\n Stack Overflow.");
   }
   else
   {
         top = top+1;
         stack[top] = item;
   }
}

/*Pop operation*/
char pop()
{
   char item ;

   if(top <0)
   {
         printf("stack under flow: 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;
   }
}

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;
}
```


Activities
Terminal
Jul 31 15:09
dl0414@itadmin: ~
dl0414@itadmin:~$ gcc exp4.c
exp4.c: In function 'main':
exp4.c:140:2: warning: implicit declaration of function 'gets'; did you mean 'fgets'? [-Wimplicit-function-declaration]
140 | gets(infix);
| ^~~~
| fgets
/usr/bin/ld: /tmp/ccNILgOf.o: in function `main':
exp4.c:(.text+0x3a1): warning: the `gets' function is dangerous and should not be used.
dl0414@itadmin:~$ ./a.out
Enter Infix expression : (a+b)*c/d*e/f+g
Postfix Expression: ab+c*d/e*f/g+
dl0414@itadmin:~$