

Practical 10

Aim: Write program to implement Recursive Descent Parser for the given grammar.

$E \rightarrow T + E \mid T$

$T \rightarrow F * T \mid F$

$F \rightarrow \text{id}$

Code:

```
#include<stdio.h>
#include<string.h>
#include<ctype.h>
char input[10];
int i,error;
void E();
void T();
void Eprime();
void Tprime();
void F();
int main(){
    i=0;
    error=0;
    printf("Enter an arithmetic expression : ");
    gets(input);
    E();
    if(strlen(input)==i&&error==0)
        printf("\nAccepted...\n");
    else printf("\nRejected...\n");
    return 0;
}

void E()
{
    T();
    Eprime();
}
void Eprime()
{
    if(input[i]=='+')
    {
        i++;
        T();
        Eprime();
    }
}
void T()
{
    F();
    Tprime();
}
void Tprime()
{
    if(input[i]=='*')
```

```

    {
        i++;
        F();
        Tprime();
    }
}
void F()
{
    if(isalnum(input[i]))i++;
    else if(input[i]=='(')
    {
        i++;
        E();
        if(input[i]==')')
        i++;
        else error=1;
    }
    else error=1;
}
}

```

Output:

```

kali@kali: ~/Desktop/LP/Practical - 10
File Actions Edit View Help
kali@kali:~/Desktop/LP/Practical - 10$ gcc pract-10.c
pract-10.c: In function 'main':
pract-10.c:15:17: warning: implicit declaration of function 'gets'; did you
mean 'fgets'? [-Wimplicit-function-declaration]
15 |             gets(input);
   |             ^~~~~
   |             fgets
/usr/bin/ld: /tmp/ccVe75ac.o: in function `main':
pract-10.c:(.text+0x36): warning: the `gets' function is dangerous and shou
ld not be used.
kali@kali:~/Desktop/LP/Practical - 10$ ./a.out
Enter an arithmetic expression  : a+(a*a)

Accepted ...
kali@kali:~/Desktop/LP/Practical - 10$ 

```

Conclusion:

We learned to implement and validate the RDP for the given grammar in this practical.