Implement C program to demonstrate shift reduce parsing technique the grammar:

E → E + E/E\*E/ E/E /a/b

PROGRAM :

#include<stdio.h>

#include<conio.h>

#include<string.h>

char ip\_sym[15],stack[15];

int ip\_ptr=0,st\_ptr=0,len,i;

char temp[2],temp2[2];

char act[15];

void check();

int main()

{

printf("\n\t\t SHIFT REDUCE PARSER\n");

printf("\n GRAMMER\n");

printf("\n E->E+E\n E->E/E");

printf("\n E->E\*E\n E->a/b");

printf("\n enter the input symbol:\t");

gets(ip\_sym);

printf("\n\t stack implementation table");

printf("\n stack \t\t input symbol\t\t action");

printf("\n\_\_\_\_\_\_\_\_\t\t\_\_\_\_\_\_\_\_\_\_\_\_\t\t\_\_\_\_\_\_\_\_\_\_\_\_\n");

printf("\n $\t\t%s$\t\t\t--",ip\_sym);

strcpy(act,"shift");

temp[0]=ip\_sym[ip\_ptr];

temp[1]='\0';

strcat(act,temp);

len=strlen(ip\_sym);

for(i=0;i<=len-1;i++)

{

stack[st\_ptr]=ip\_sym[ip\_ptr];

stack[st\_ptr+1]='\0';

ip\_sym[ip\_ptr]=' ';

ip\_ptr++;

printf("\n $%s\t\t%s$\t\t\t%s",stack,ip\_sym,act);

strcpy(act,"shift");

temp[0]=ip\_sym[ip\_ptr];

temp[1]='\0';

strcat(act,temp);

check();

st\_ptr++;

}

st\_ptr++;

check();

}

void check()

{

int flag=0;

temp2[0]=stack[st\_ptr];

temp2[1]='\0';

if((!strcmpi(temp2,"a"))||(!strcmpi(temp2,"b")))

{

stack[st\_ptr]='E';

if(!strcmpi(temp2,"a"))

printf("\n $%s\t\t%s$\t\t\tE->a",stack,ip\_sym);

else

printf("\n $%s\t\t%s$\t\t\tE->b",stack,ip\_sym);

flag=1;

}

if((!strcmpi(temp2,"+"))||(strcmpi(temp2,"\*"))||(!strcmpi(temp2,"/")))

{

flag=1;

}

if((!strcmpi(stack,"E+E"))||(!strcmpi(stack,"E\E"))||(!strcmpi(stack,"E\*E")))

{

strcpy(stack,"E");

st\_ptr=0;

if(!strcmpi(stack,"E+E"))

printf("\n $%s\t\t%s$\t\t\tE->E+E",stack,ip\_sym);

else

if(!strcmpi(stack,"E\E"))

printf("\n $%s\t\t%s$\t\t\tE->E\E",stack,ip\_sym);

else

if(!strcmpi(stack,"E\*E"))

printf("\n $%s\t\t%s$\t\t\tE->E\*E",stack,ip\_sym);

else

printf("\n $%s\t\t%s$\t\t\tE->E+E",stack,ip\_sym);

flag=1;

}

if(!strcmpi(stack,"E")&&ip\_ptr==len)

{

printf("\n $%s\t\t%s$\t\t\tACCEPT",stack,ip\_sym);

getch();

}

if(flag==0)

{

printf("\n%s\t\t\t%s\t\t reject",stack,ip\_sym);

}

return;

}

OUTPUT :

