

2CS701 Compiler Construction

Practical 4	
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Aim:

To implement the Left most derivation removal algorithm.

Program:

```

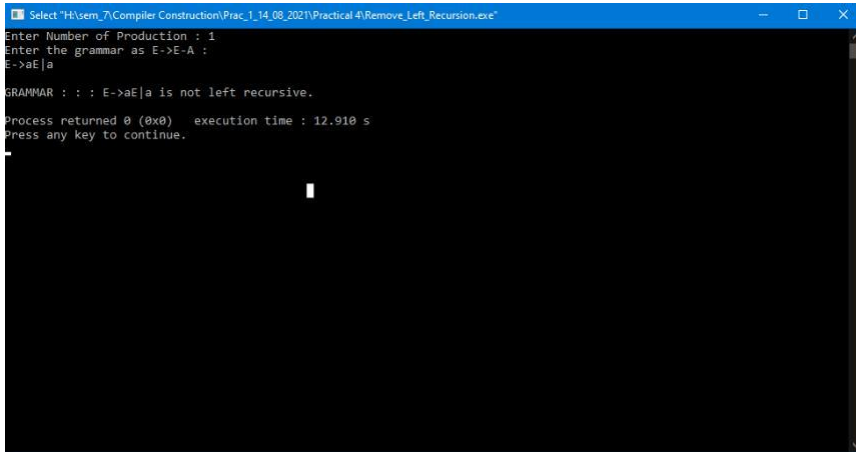
#include<stdio.h>
#include<string.h>
#define SIZE 10
int
main ()
{
    char non_terminal; char
    beta,alpha; int num;
    char production[10][SIZE]; int
    index=3;
    printf("Enter Number of Production : ");
    scanf("%d",&num);
    printf("Enter the grammar as E->E-A :\n"); for(int
    i=0;i<num;i++)
    {
        scanf("%s",production[i]);
    }
    for(int i=0;i<num;i++)
    {
        printf("\nGRAMMAR : : : %s",production[i]); non_terminal=production[i][0];
        if(non_terminal==production[i][index]) {

            alpha=production[i][index+1]; printf(" is
            left recursive.\n");
            while(production[i][index]!=0 && production[i][index]!='|')
            {
                index++;
            }
            if(production[i][index]!=0)
            {
                beta=production[i][index+1];
                printf("Grammar without left recursion:\n");
                printf("%c->%c%c\n",non_terminal,beta,non_terminal);
                printf("\n%c\|->%c%c\|E\n",non_terminal,alpha,non_terminal);
            }
            else
            {
                printf(" can't be reduced\n");
            }
        }
        else

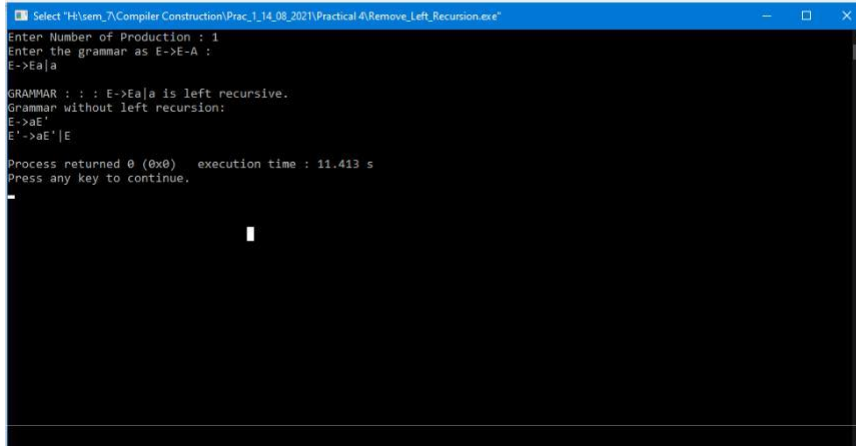
```

```
{  
printf(" is not left recursive.\n");  
}  
index=3;  
}  
}
```

Output:



```
Select "H:\sem_7\Compiler Construction\Prac_1_14_08_2021\Practical 4\Remove_Left_Recursion.exe"  
Enter Number of Production : 1  
Enter the grammar as E->E-A :  
E->aE|a  
  
GRAMMAR : : : E->aE|a is not left recursive.  
Process returned 0 (0x0)   execution time : 12.910 s  
Press any key to continue.
```



```
Select "H:\sem_7\Compiler Construction\Prac_1_14_08_2021\Practical 4\Remove_Left_Recursion.exe"  
Enter Number of Production : 1  
Enter the grammar as E->E-A :  
E->Ea|a  
  
GRAMMAR : : : E->Ea|a is left recursive.  
Grammar without left recursion:  
E->aE'  
E'->aE'|E  
Process returned 0 (0x0)   execution time : 11.413 s  
Press any key to continue.
```

Conclusion:

From this practical we learnt how to remove left most derivation from a grammar.