Practical - 7

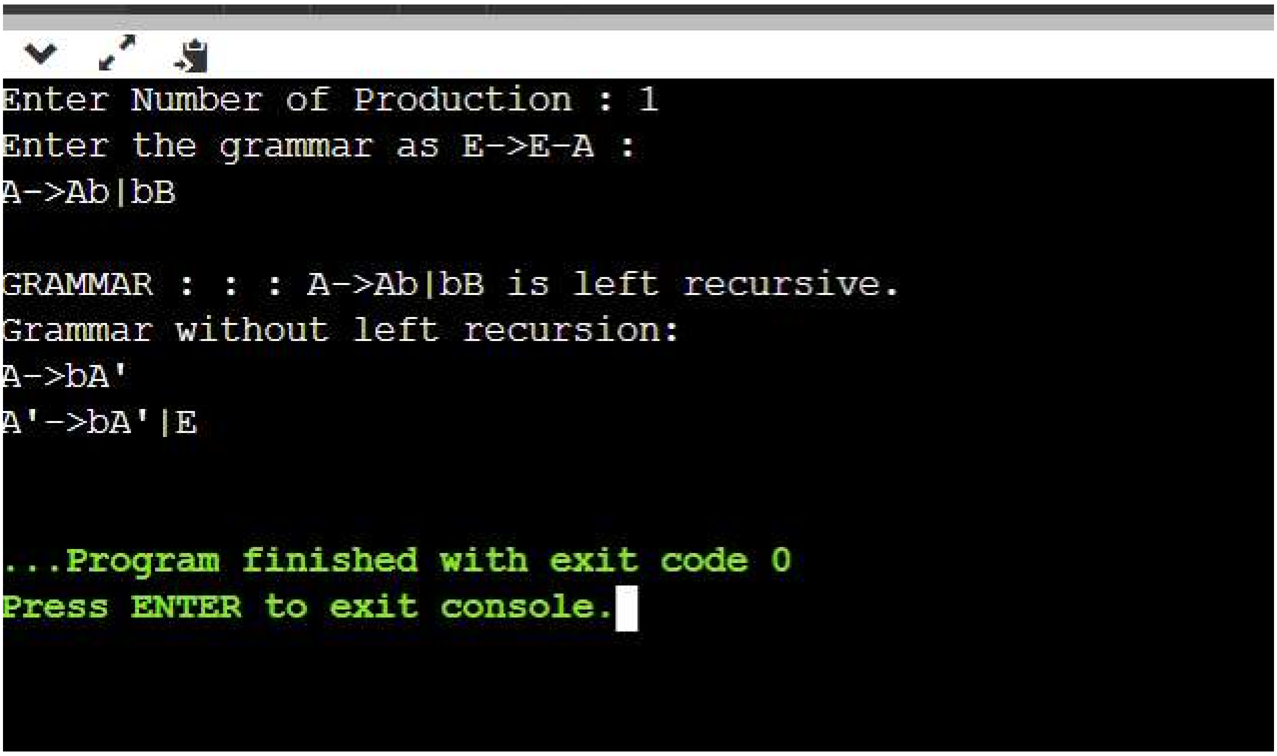
AIM: Write a program to remove left recursion from the given CFG:
A -> Ab | bB
B -> Bc | c

Example 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; /* starting of the string following "->" */
     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\'",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:



```
Enter Number of Production : 1
Enter the grammar as E->E-A :
A->Ab|bB

GRAMMAR : : : A->Ab|bB is left recursive.
Grammar without left recursion:
A->bA'
A'->bA'|E


...Program finished with exit code 0
Press ENTER to exit console.
```