Compiler Design Lab

Paper Code: PCCCS691

Work Book

Department of Computer Science & Engineering

B. Tech

3rd year 6th Semester

Assignment No. 10
Program Name:
Write a program to find the first and follow of the following Grammar.
Objective:
We shall check the validity of the given grammar and try to find the first of the grammar. There may be multiple productions, in that case we shall take all the productions and find the first of which we want.
Resource: Programiz C Online Compiler
Program Code:

```c
#include<stdio.h>
#include<math.h>
#include<string.h>
#include<ctype.h>
#include<stdlib.h>
int n,m=0,p,i=0,j=0;
char a[10][10],f[10];
void follow(char c);
void first(char c);
int main(){
int i,z;
char c,ch;
//clrscr();
printf("Enter the no of prooductions:\n");
scanf("%d",&n);
printf("Enter the productions:\n");
for(i=0;i<n;i++)
scanf("%s%c",a[i],&ch);
do{
m=0;
printf("Enter the elemets whose fisrt & follow is to be found:");
scanf("%c",&c);
first(c);
printf("First(%c)={",c);
for(i=0;i<m;i++)
printf("%c",f[i]);
printf("}\n");
strcpy(f," ");
//flushall();
m=0;
follow(c);
printf("Follow(%c)={",c);
```

```c
for(i=0;i<m;i++)
printf("%c",f[i]);
printf("}\n");
printf("Continue(0/1)?");
scanf("%d%c",&z,&ch);
}while(z==1);
return(0);
}
void first(char c)
{
int k;
if(!isupper(c))
f[m++]=c;
for(k=0;k<n;k++)
{
if(a[k][0]==c)
{
if(a[k][2]=='$')
follow(a[k][0]);
else if(islower(a[k][2]))
f[m++]=a[k][2];
else first(a[k][2]);
}
}
}
void follow(char c)
{
if(a[0][0]==c)
f[m++]='$';
for(i=0;i<n;i++)
{
for(j=2;j<strlen(a[i]);j++)
{
if(a[i][j]==c)
{
if(a[i][j+1]!='\0')
first(a[i][j+1]);
if(a[i][j+1]=='\0' && c!=a[i][0])
follow(a[i][0]);
}
}
}
```

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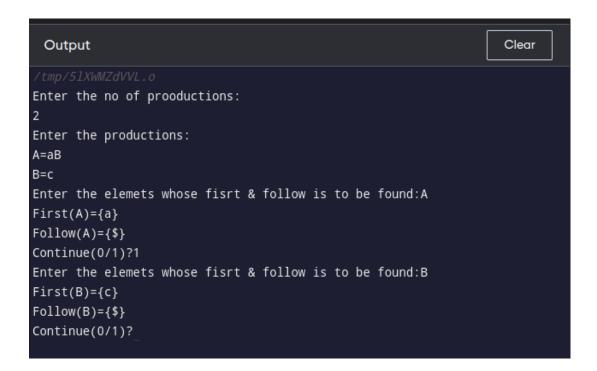Section : **B(C4)**

Roll No. : **136**

Year : **3rd**(2022-23)

Input & Output:

```
Output                                              Clear

/tmp/5lXWMZdVVL.o
Enter the no of prooductions:
2
Enter the productions:
A=aB
B=c
Enter the elemets whose fisrt & follow is to be found:A
First(A)={a}
Follow(A)={$}
Continue(0/1)?1
Enter the elemets whose fisrt & follow is to be found:B
First(B)={c}
Follow(B)={$}
Continue(0/1)?
```