CD LAB assignment week-6

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cse-E

write a C program for the computation of FIRST and FOLLOW for given CFG

code

```
#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);
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]);
}
}
}
}
```

output:

```
Enter the no of prooductions:
4
Enter the productions:
s=aAB
s=bA
A=aAb
B=bB
Enter the elemets whose fisrt & follow is to be found:s
First(s)={sab}
```

```
Follow(s)={$}
Continue(0/1)?1
Enter the elemets whose fisrt & follow is to be found:A
First(A)={a}
Follow(A)={b$}
Continue(0/1)?1
Enter the elemets whose fisrt & follow is to be found:B
First(B)={b}
Follow(B)={$}
Continue(0/1)?1
Enter the elemets whose fisrt & follow is to be found:s
First(s)={sab}
Follow(s)={$}
Continue(0/1)?0
```