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G1

Que: WAP to calculate FIRST and FOLLOW

Ans:
```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;
    printf("Enter the no. of productions : \n");
    scanf("%d", &n);
    printf("Enter the production: \n");
    for(i=0; i<n; i++)
        scanf("%s%c", a[i], &ch);
    do
    {
        m=0;
        printf("Enter the element whose first and
                follow is to be found:");

        scanf("%c", &c);
```

```c
    first(c);
    printf("first(%c) = {",c);
    for(i=0;i<m;i++)
    printf("%c",f[i]);
    printf("} \n");
    strcpy(f," ");
    m=0;
    follow(c);
    printf("%c",f[i]);
    printf("} \n");
    printf("continue (0/1)?");
    scanf("%d%c",&z,&ch);
    } while(x==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[n++] = '$';
    for (i=0; i<n; i++)
    {
        for (j=1; 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' && e!=a[i][0])
                follow(a[i][0]);
            }
        }
    }
}
```

OUTPUT

Enter the no. of productions : 5
Enter the productions:

    S = Abcd
    A = Cf
    C = gE
    E = h

Enter the elements whose first & follow is to be found : A

first(A) = {ga}
follow(A) = {b}
Continue(0/1)? 1

Enter the elements whose first & follow is to be found : C

first(C) = {g}
follow(C) = {d f}
Continue(0/1)? 0