

### Exp. No. 8

Write a C program to find FOLLOW() - predictive parser for the given grammar

$S \rightarrow AaAb / BbBa$

$A \rightarrow \epsilon$

$B \rightarrow \epsilon$

#### Program:

```
#include<stdio.h>
```

```
#include<ctype.h>
```

```
#include<string.h>
```

```
int limit, x = 0;
```

```
char production[10][10], array[10];
```

```
void find_first(char ch);
```

```
void find_follow(char ch);
```

```
void Array_Manipulation(char ch);
```

```
int main()
```

```
{
```

```
    int count;
```

```
    char option, ch;
```

```
    printf("\nEnter Total Number of Productions:\t");
```

```
    scanf("%d", &limit);
```

```
    for(count = 0; count < limit; count++)
```

```
    {
```

```
        printf("\nValue of Production Number [%d]:\t", count + 1);
```

```
        scanf("%s", production[count]);
```

```
    }
```

```
    do
```

```
    {
```

```
        x = 0;
```

```
        printf("\nEnter production Value to Find Follow:\t");
```

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

```
        find_follow(ch);
```

```
        printf("\nFollow Value of %c:\t{ ", ch);
```

```
        for(count = 0; count < x; count++)
```

```

    {
        printf("%c ", array[count]);
    }
    printf("}\n");
    printf("To Continue, Press Y:\t");
    scanf(" %c", &option);
}while(option == 'y' || option == 'Y');
return 0;
}

```

```

void find_follow(char ch)

```

```

{
    int i, j;
    int length = strlen(production[i]);
    if(production[0][0] == ch)
    {
        Array_Manipulation('$');
    }
    for(i = 0; i < limit; i++)
    {
        for(j = 2; j < length; j++)
        {
            if(production[i][j] == ch)
            {
                if(production[i][j + 1] != '\0')
                {
                    find_first(production[i][j + 1]);
                }
                if(production[i][j + 1] == '\0' && ch != production[i][0])
                {
                    find_follow(production[i][0]);
                }
            }
        }
    }
}
}

```

```
}
```

```
void find_first(char ch)
```

```
{
```

```
    int i, k;
```

```
    if(!(isupper(ch)))
```

```
    {
```

```
        Array_Manipulation(ch);
```

```
    }
```

```
    for(k = 0; k < limit; k++)
```

```
    {
```

```
        if(production[k][0] == ch)
```

```
        {
```

```
            if(production[k][2] == '$')
```

```
            {
```

```
                find_follow(production[i][0]);
```

```
            }
```

```
            else if(islower(production[k][2]))
```

```
            {
```

```
                Array_Manipulation(production[k][2]);
```

```
            }
```

```
            else
```

```
            {
```

```
                find_first(production[k][2]);
```

```
            }
```

```
        }
```

```
    }
```

```
}
```

```
void Array_Manipulation(char ch)
```

```
{
```

```
    int count;
```

```
    for(count = 0; count <= x; count++)
```

```
    {
```

```
        if(array[count] == ch)
```

```

        {
            return;
        }
    }
    array[x++] = ch;
}

```

## OUTPUT:

```

C:\Users\hp\Documents\Com  x  +  v
Enter Total Number of Productions: 4
Value of Production Number [1]: S=AaAb
Value of Production Number [2]: S=BbBa
Value of Production Number [3]: A=$
Value of Production Number [4]: B=$
Enter production Value to Find Follow: S
Follow Value of S: { $ }
To Continue, Press Y: y
Enter production Value to Find Follow: A
Follow Value of A: { a b }
To Continue, Press Y: y
Enter production Value to Find Follow: B
Follow Value of B: { b a }
To Continue, Press Y: n

-----
Process exited after 128.3 seconds with return value 0
Press any key to continue . . .

```