Exp. No. 8

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

S → AaAb / BbBa
A → ∈
B → ∈

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: