Course Code: CSL602	Course Name: SPCC LAB
Class : TE-CO B-3	Date: 22/04/2021
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Experiment :08

Aim: To implement a Program to Find follow( ) of a Grammar.

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=0, 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=0, 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;
}
```

Input:

E = TD
D = +TD
D = $
T = FS
S = *FS
S = $
F = (E)
F = a

Output:

```
Enter Total Number of Productions:      8
Value of Production Number [1]: E=TD
Value of Production Number [2]: D=+TD
Value of Production Number [3]: D=$
Value of Production Number [4]: T=FS
Value of Production Number [5]: S=*FS
Value of Production Number [6]: S=$
Value of Production Number [7]: F=(E)
Value of Production Number [8]: F=a
Enter production Value to Find Follow:  E
Follow Value of E:      ( $ ) )
To Continue, Press Y:   Y
Enter production Value to Find Follow:  T
Follow Value of T:      ( + $ ) )
To Continue, Press Y:   Y
Enter production Value to Find Follow:  D
Follow Value of D:      ( $ ) )
To Continue, Press Y:   Y
Enter production Value to Find Follow:  F
Follow Value of F:      ( * $ )
To Continue, Press Y:   Y
Enter production Value to Find Follow:  S
Follow Value of S:      ( + ) $ )
To Continue, Press Y:
```

Conclusion:

With the help of this assignment we get the information about follow() of a Grammer.