



ANJUMAN-I-ISLAM'S KALSEKAR TECHNICAL CAMPUS

School of Engineering & Technology

Affiliated to : University of Mumbai, Recognised by : DTE (Maharashtra) & Approved by : AICTE (New Delhi)

Course Code: CSL602	Course Name: SPCC LAB
Class : TE-CO B-3	Date: 15/04/2021
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Experiment :07

Aim: To find first () of a Grammer.

Program:

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

void Find_First(char[], char);
void Array_Manipulation(char[], char);

int limit;
char production[25][25];

int main()
{
    char option;
    char ch;
    char array[25];
    int count;
    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
    {
        printf("\nEnter a Value to Find First:\t");
        scanf(" %c", &ch);
        Find_First(array, ch);
        printf("\nFirst Value of %c:\t{ ", ch);
        for(count = 0; array[count] != '\0'; 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_First(char* array, char ch)
{

```



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```
int count, j, k;
char temporary_result[20];
int x;
temporary_result[0] = '\0';
array[0] = '\0';
if(!isupper(ch))
{
    Array_Manipulation(array, ch);
    return ;
}
for(count = 0; count < limit; count++)
{
    if(production[count][0] == ch)
    {
        if(production[count][2] == '$')
        {
            Array_Manipulation(array, '$');
        }
        else
        {
            j = 2;
            while(production[count][j] != '\0')
            {
                x = 0;

                Find_First(temporary_result, production[count]
[j]);

                for(k = 0; temporary_result[k] != '\0'; k++)
                {
                    Array_Manipulation(array, temporary_result[
k]);
                }
                for(k = 0; temporary_result[k] != '\0'; k++)
                {
                    if(temporary_result[k] == '$')
                    {
                        x = 1;
                        break;
                    }
                }
                if(!x)
                {
                    break;
                }
                j++;
            }
        }
    }
}
return;
}

void Array_Manipulation(char array[], char value)
{
```



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```
int temp;  
for(temp = 0; array[temp] != '\0'; temp++)  
{  
    if(array[temp] == value)  
    {  
        return;  
    }  
}  
array[temp] = value;  
array[temp + 1] = '\0';  
}
```

Input:

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

Output:

```
Terminal  
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 a Value to Find First: a  
First Value of a: { a }  
To Continue, Press Y: y  
Enter a Value to Find First: E  
First Value of E: { ( a }  
To Continue, Press Y: Y  
Enter a Value to Find First: D  
First Value of D: { + $ }  
To Continue, Press Y: Y  
Enter a Value to Find First: T  
First Value of T: { ( a }  
To Continue, Press Y: 
```

Conclusion:

With the help of this Experiment we get information of the first() of a grammar.