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)
{
```

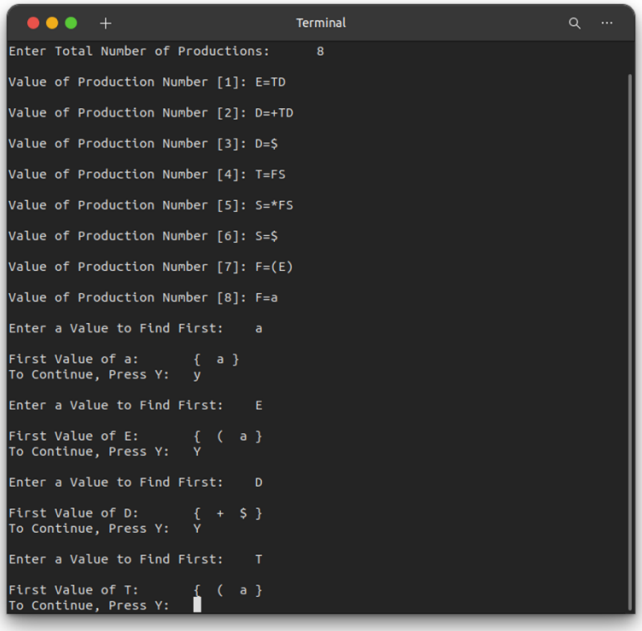
```
	int count, j, k;
	char temporary_result[20];
	int x;
	temporary_result[0] = '\0';
	array[0] = '\0';
	if(!(isupper(ch)))
	{
		Array_Manipulation(array, ch);
		return ;
	}
	for(count = 0; count < limit; count++)
	{
		if(production[count][0] == ch)
		{
			if(production[count][2] == '$')
			{
				Array_Manipulation(array,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

```
        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:



Conclusion:

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