WEEK-2 LAB REPORT:

1.TITLE: SYMBOL TABLE IMPLEMENTATION

2.PROCEDURE: Symbol table is an important data structure created and maintained by the compiler in order to keep track of semantics of variable i.e.it stores information. It is used by the compiler to achieve compile time efficiency. First, we take a line of code or expression as an input and we creating two arrays to store the values and address of the values in the pointer array.

We created isalpha() function to check the value is an identifier or operator. In the isalpha() function, if the value is alphabet or number it prints identifier and if its not number or alphabet then it will check with the block of special character listed in the else block and it prints operator.

3.CODE:

```
//SYMBOL TABLE IMPLEMENTATION

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#include<stdio.h>

#include<ctype.h>

#include<stdlib.h>

int main()

{

 int x=0, n, i=0,j=0;

 void *ptr,*id_address[5];

 char ch,id_Array2[15],id_Array3[15],c;
```

```c
printf("Input the expression ending with ; sign:");
char s[20];
scanf("%s",s);
while(s[i]!=';')
{
 id_Array2[i]=s[i];
 i++;
}
n=i-1;

printf("\n     Symbol Table display\n");
printf("Symbol \t addr \t\t\t type");
while(j<=n)
{
 c=id_Array2[j];
 if(isalpha(c))
 {
  ptr=malloc(c);
  id_address[x]=ptr;
  id_Array3[x]=c;
  printf("\n%c \t %p \t identifier\n",c,ptr);
  x++;
  j++;
 }
```

```c
  else
  {
   ch=c;
   if(ch=='+'||ch=='-'||ch=='*'||ch=='/' || ch=='%' || ch=='^'||
ch=='='|| ch=='<' || ch=='>' || ch=='.' || ch=='&')
   {
    ptr=malloc(ch);
    id_address[x]=ptr;
    printf("\n %c \t %p \t operator\n",ch,ptr);
    x++;
    j++;
   }
      }
}
      return 0;
}
```

OUTPUT:

input

Input the expression ending with ; sign:s=a*b+c;

        Symbol Table display
Symbol   addr   type
s   0x558266bf6ac0   identifier

=   0x558266bf6b40   operator

a   0x558266bf6b90   identifier

*   0x558266bf6c00   operator

b   0x558266bf6c40   identifier

+   0x558266bf6cb0   operator

c   0x558266bf6cf0   identifier

...Program finished with exit code 0
Press ENTER to exit console.