PROGRAM NUMBER :9

AIM:
Implement the symbol table functions: create, insert, modify, search, and display.

PROGRAM

```
ng@ng-TravelMate-5742:~/system$ cat symbol.c
#include<stdio.h>
#include<string.h>
#include<stdlib.h>
int size=0;
void Insert();
void Display();
int Search(char lab[]);
void Modify();
struct SymbTab
{
char label[10],symbol[10];
int addr;
struct SymbTab *next;};
struct SymbTab *first,*last;
void main()
{
int op,y;
char la[10];
do
{
printf("\n\tSYMBOL TABLE IMPLEMENTATION\n");
printf("\n\t1.INSERT\n\t2.DISPLAY\n\t3.SEARCH\n\t4.MODIFY\n\t5.END\n");
printf("\n\tEnter your option : ");
scanf("%d",&op);
switch(op)
{
case 1:
Insert();
break;
case 2:
Display();
break;
case 3:
printf("\n\tEnter the label to be searched : ");
scanf("%s",la);
y=Search(la);
printf("\n\tSearch Result:");
```

```c
if(y==1)
printf("\n\tThe label is present in the symbol table\n");
else
printf("\n\tThe label is not present in the symbol table\n");
break;
case 4:
Modify();
break;
case 5:
exit(0);
}
} while(op<5);
}
void Insert()
{
int n;
char l[10];
printf("\n\tEnter the label : ");
scanf("%s",l);
n=Search(l);
if(n==1)
printf("\n\tThe label exists already in the symbol table\n\tDuplicate can't
else
{
struct SymbTab *p;
p=malloc(sizeof(struct SymbTab));
strcpy(p->label,l);
printf("\n\tEnter the symbol : ");
scanf("%s",p->symbol);
printf("\n\tEnter the address : ");
scanf("%d",&p->addr);
p->next=NULL;
if(size==0)
{
first=p;
last=p;
}
else
{
last->next=p;
last=p;
}
size++;
}
printf("\n\tLabel inserted\n");
}
void Display()
{
int i;
struct SymbTab *p;
p=first;
printf("\n\tLABEL\t\tSYMBOL\t\tADDRESS\n");
for(i=0;i<size;i++)
{
printf("\t%s\t\t%s\t\t%d\n",p->label,p->symbol,p->addr);
```

```c
p=p->next;
}
}
int Search(char lab[])
{
int i,flag=0;
struct SymbTab *p;
p=first;
for(i=0;i<size;i++)
{
if(strcmp(p->label,lab)==0)
flag=1;
p=p->next;
}
return flag;
}
void Modify()
{
char l[10],nl[10];
int add,choice,i,s;
struct SymbTab *p;
p=first;
printf("\n\tWhat do you want to modify?\n");
printf("\n\t1.Only the label\n\t2.Only the address\n\t3.Both the label and a
printf("\tEnter your choice : ");
scanf("%d",&choice);
switch(choice)
{
case 1:
printf("\n\tEnter the old label : ");
scanf("%s",l);
s=Search(l);
if(s==0)
printf("\n\tLabel not found\n");
else
{
printf("\n\tEnter the new label : ");
scanf("%s",nl);

for(i=0;i<size;i++)
{
if(strcmp(p->label,l)==0)
strcpy(p->label,nl);
p=p->next;
}
printf("\n\tAfter Modification:\n");
Display();
}
break;
case 2:
printf("\n\tEnter the label where the address is to be modified : ");
scanf("%s",l);
s=Search(l);
```

```c
if(s==0)
printf("\n\tLabel not found\n");
else
{
printf("\n\tEnter the new address : ");
scanf("%d",&add);
for(i=0;i<size;i++)
{
if(strcmp(p->label,l)==0)
p->addr=add;
p=p->next;
}
printf("\n\tAfter Modification:\n");

Display();
}
break;
case 3:
printf("\n\tEnter the old label : ");
scanf("%s",l);
s=Search(l);
if(s==0)
printf("\n\tLabel not found\n");
else
{
printf("\n\tEnter the new label : ");
scanf("%s",nl);
printf("\n\tEnter the new address : ");
scanf("%d",&add);
for(i=0;i<size;i++)
{
if(strcmp(p->label,l)==0)
{
strcpy(p->label,nl);
p->addr=add;
}
p=p->next;
}
printf("\n\tAfter Modification:\n");
Display();
}

break;
}
}
```

OUTPUT

```
ng@ng-TravelMate-5742:~/system$ gcc symbol.c
ng@ng-TravelMate-5742:~/system$ ./a.out

        SYMBOL TABLE IMPLEMENTATION

        1.INSERT
        2.DISPLAY
        3.SEARCH
        4.MODIFY
        5.END

        Enter your option : 1

        Enter the label : minus

        Enter the symbol : -

        Enter the address : 200

        Label inserted

        SYMBOL TABLE IMPLEMENTATION

        1.INSERT
        2.DISPLAY
        3.SEARCH
        4.MODIFY
        5.END

        Enter your option : 2

        LABEL              SYMBOL              ADDRESS
        minus              -                   200

        SYMBOL TABLE IMPLEMENTATION

        1.INSERT
        2.DISPLAY
        3.SEARCH
        4.MODIFY
        5.END

        Enter your option : 3

        Enter the label to be searched : minus

        Search Result:
        The label is present in the symbol table
```

```
SYMBOL TABLE IMPLEMENTATION                 BY  NIVEA GIGEN

1.INSERT
2.DISPLAY
3.SEARCH
4.MODIFY
5.END

Enter your option : 4

What do you want to modify?

1.Only the label
2.Only the address
3.Both the label and address
Enter your choice : 1

Enter the old label : minus

Enter the new label : sub

After Modification:

LABEL              SYMBOL              ADDRESS
sub                  -                 200

SYMBOL TABLE IMPLEMENTATION

1.INSERT
2.DISPLAY
3.SEARCH
4.MODIFY
5.END

Enter your option : 5
```

RESULT

Program is executed successfully and output is obtained.

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