IMPLEMENT A SYMBOL TABLE WITH SUITABLE HASHING

Source Code

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
#include<process.h>
#include<stdlib.h>
#define SIZE 100
 struct symtab{
char label[10];
int addr;
}sym[SIZE];
 unsigned hash(char *s){
unsigned hashval;
for(hashval=0;*s!='\0';s++)
hashval+=*s;      return
hashval%SIZE;
} void initialize(){
for(int i=0;i<SIZE;i++)
sym[i].addr=-1;
} void create(){      char
s[10];      unsigned
hashval;      printf("Enter
Label: ");
scanf("%s",s);
if(search(s)){
      printf("\nLabel exists");
exit(0);
    }
else{
      hashval=hash(s);
strcpy(sym[hashval].label,s);          printf("Enter
address: ");
scanf("%d",&sym[hashval].addr);
printf("\nLabel created");
    } } void display(){
printf("\nINDEX\tLABEL\t\tADDRESS\n\n");
```

```c
    for(int i=0;i<SIZE;i++)
    {          if(sym[i].addr!=-1)
printf("%d\t%s\t\t%d\n",i,sym[i].label,sym[i].addr);
    } } int search(char
label[]){
if(sym[hash(label)].addr!=-1)
return 1;     return 0;
}  void main(){     int op;     char s[10];     initialize();     printf("\nSYMBOL
TABLE IMPLEMENTATION\n");     do{
printf("\n\n1.CREATE\n2.DISPLAY\n3.SEARCH\n4.END\n");          printf("\nEnter your
option : ");          scanf("%d",&op);          switch(op){          case 1:
create();                    break;          case 2: display();
break;          case 3: printf("\nEnter Label to be searched for: ");
scanf("%s",s);                    if(search(s))
printf("\nLabel is found with address: %d", sym[hash(s)].addr);
else                    printf("\nLabel not Found");                    break;
case 4: exit(0);
       }
    }while(1);
}
```

OUTPUT

```
SYMBOL TABLE IMPLEMENTATION


1.CREATE
2.DISPLAY
3.SEARCH
4.END

Enter your option : 1
Enter Label: START
Enter address: 1000

Label created

1.CREATE
2.DISPLAY
3.SEARCH
4.END

Enter your option : 1
Enter Label: FIRST
Enter address: 1009

Label created

1.CREATE
2.DISPLAY
3.SEARCH
4.END

Enter your option : 2

INDEX    LABEL           ADDRESS

92       FIRST           1009
98       START           1000


1.CREATE
2.DISPLAY
3.SEARCH
4.END

Enter your option : 3

Enter Label to be searched for: SECOND

Label not Found

1.CREATE
2.DISPLAY
3.SEARCH
4.END

Enter your option : 3

Enter Label to be searched for: START

Label is found with address: 1000

1.CREATE
2.DISPLAY
3.SEARCH
4.END

Enter your option : 4

Process returned 0 (0x0)   execution time : 38.704 s
Press any key to continue.
```

SUBMITTED BY;

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