

ANVITA KUMAR

C-22

Roll No.: 2104097

//WAP to implement Hash Table

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

```
#include <stdlib.h>
```

```
int ht[10], i, found = 0, key;
```

```
void insert();
```

```
void search();
```

```
void delete();
```

```
void display();
```

```
int main()
```

```
{
```

```
    int option;
```

```
    for (i = 0; i < 10; i++) // to initialize every element as '-1'
```

```
        ht[i] = -1;
```

```
    do {
```

```
        printf("\n***List Of Operations***\n1. Insert \n2. Search \n3. Delete \n4. Display \n5. Exit");
```

```
        printf("\nEnter your option: ");
```

```
        scanf("%d", &option);
```

```
        switch (option) {
```

```
        case 1:
```

```
            insert();
```

```
            break;
```

```
        case 2:
```

```
            search();
```

```
            break;
```

```
        case 3:
```

```
            delete();
```

```
            break;
```

```
        case 4:
```

```
            display();
```

```
            break;
```

```
        case 5:
```

ANVITA KUMAR

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Roll No.: 2104097

```
        printf("\n\tEXIT POINT!");

    }

} while (option != 5);

return 0;

}

void insert()

{

    int val, f = 0;

    printf("Enter the element to be inserted: ");

    scanf("%d", &val);

    key = (val % 10) - 1;

    if (ht[key] == -1)

    {

        ht[key] = val;

    }

    else

    {

        if (key < 9) {

            for (i = key + 1; i < 10; i++) {

                if (ht[i] == -1) {

                    ht[i] = val;

                    break;

                }

            }

        }

        for (i = 0; i < key; i++)

        {

            if (ht[i] == -1) {

                ht[i] = val;

                break;

            }

        }

    }

}
```

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C-22
Roll No.: 2104097
}

}

}

void search()

{

int val, flag = 0;

printf("Enter the element to be searched: ");

scanf("%d", &val);

key = (val % 10) - 1;

if (ht[key] == val)

flag = 1;

else

{

for (i = key + 1; i < 10; i++) {

if (ht[i] == val) {

flag = 1;

key = i;

break;

}

}

}

if (flag == 0)

{

for (i = 0; i < key; i++)

{

if (ht[i] == val)

{

flag = 1;

key = i;

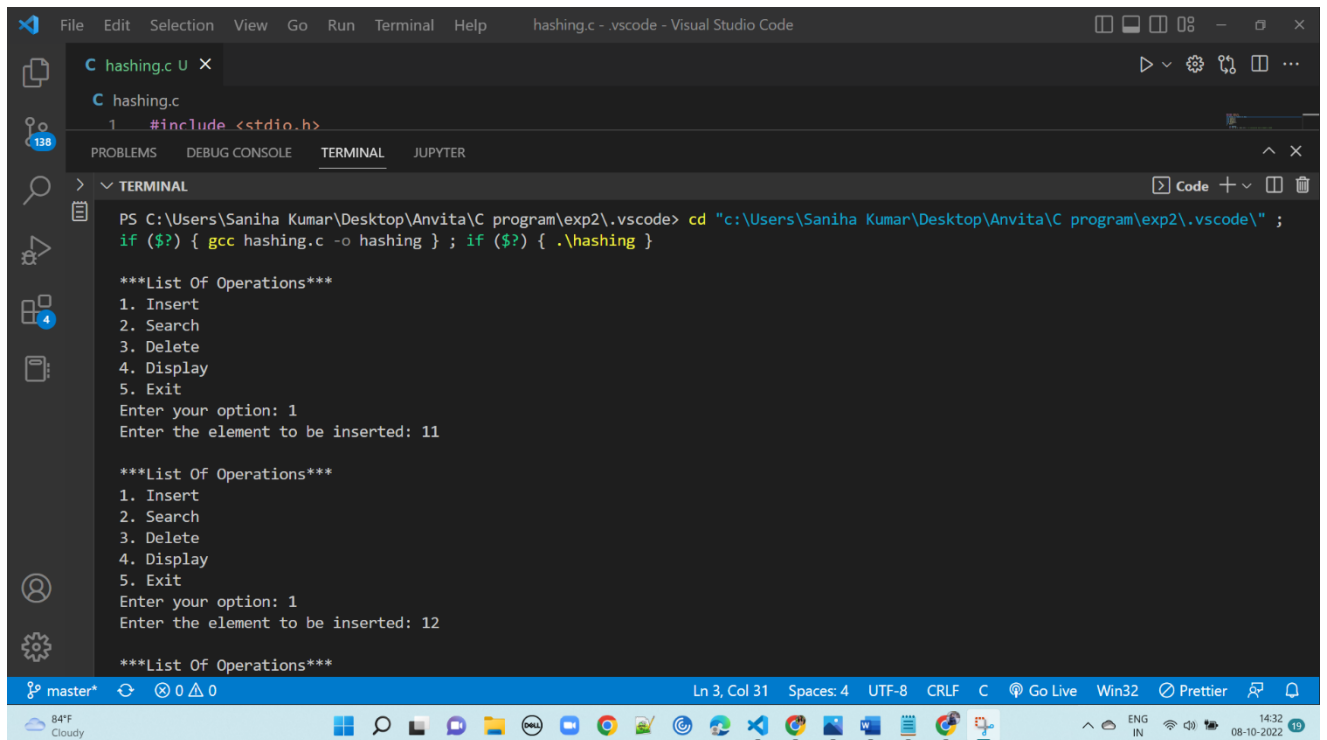
break;

}

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C-22
Roll No.: 2104097

```
    }  
  
    }  
  
    if (flag == 1)  
    {  
        found = 1;  
        printf("\nThe item searched was found at position %d\n", key + 1);  
    }  
  
    else  
    {  
        key = -1;  
        printf("\nThe item searched was not found in the hash table\n");  
    }  
}  
  
void delete()  
{  
    search();  
    if (found == 1)  
    {  
        if (key != -1)  
        {  
            printf("\nThe element deleted is %d\n", ht[key]);  
            ht[key] = -1;  
        }  
    }  
}  
  
void display()  
{  
    for (i = 0; i < 10; i++)  
        printf("\t%d", ht[i]);  
}
```

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C-22
Roll No.: 2104097



```
File Edit Selection View Go Run Terminal Help hashing.c - .vscode - Visual Studio Code

C hashing.c U X
C hashing.c
1 #include <stdio.h>

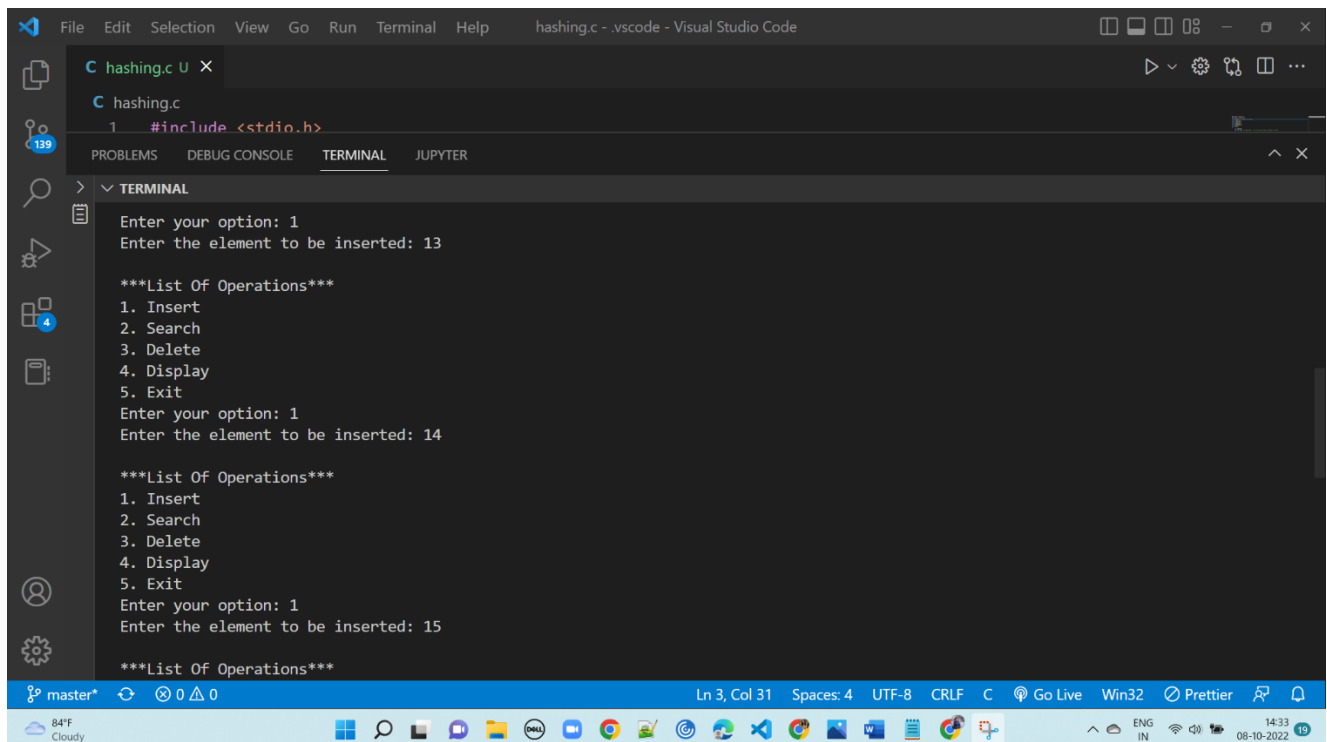
PROBLEMS DEBUG CONSOLE TERMINAL JUPYTER
> TERMINAL
PS C:\Users\Saniha Kumar\Desktop\Anvita\C program\exp2\.vscode> cd "c:\Users\Saniha Kumar\Desktop\Anvita\C program\exp2\.vscode\" ;
if ($?) { gcc hashing.c -o hashing } ; if ($?) { .\hashing }

***List Of Operations***
1. Insert
2. Search
3. Delete
4. Display
5. Exit
Enter your option: 1
Enter the element to be inserted: 11

***List Of Operations***
1. Insert
2. Search
3. Delete
4. Display
5. Exit
Enter your option: 1
Enter the element to be inserted: 12

***List Of Operations***

master* 0 0 0 Ln 3, Col 31 Spaces: 4 UTF-8 CRLF C Go Live Win32 Prettier
84°F Cloudy
```



```
File Edit Selection View Go Run Terminal Help hashing.c - .vscode - Visual Studio Code

C hashing.c U X
C hashing.c
1 #include <stdio.h>

PROBLEMS DEBUG CONSOLE TERMINAL JUPYTER
> TERMINAL
Enter your option: 1
Enter the element to be inserted: 13

***List Of Operations***
1. Insert
2. Search
3. Delete
4. Display
5. Exit
Enter your option: 1
Enter the element to be inserted: 14

***List Of Operations***
1. Insert
2. Search
3. Delete
4. Display
5. Exit
Enter your option: 1
Enter the element to be inserted: 15

***List Of Operations***

master* 0 0 0 Ln 3, Col 31 Spaces: 4 UTF-8 CRLF C Go Live Win32 Prettier
84°F Cloudy
```

ANVITA KUMAR
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```
hashing.c
1 #include <stdio.h>

2. Search
3. Delete
4. Display
5. Exit
Enter your option: 2
Enter the element to be searched: 14

The item searched was found at position 4

***List Of Operations***
1. Insert
2. Search
3. Delete
4. Display
5. Exit
Enter your option: 3
Enter the element to be searched: 11

The item searched was found at position 1

The element deleted is 11
```

```
hashing.c
1 #include <stdio.h>

The item searched was found at position 1

The element deleted is 11

***List Of Operations***
1. Insert
2. Search
3. Delete
4. Display
5. Exit
Enter your option: 4
-1 12 13 14 15 -1 -1 -1 -1 -1

***List Of Operations***
1. Insert
2. Search
3. Delete
4. Display
5. Exit
Enter your option: 5

EXIT POINT!
PS C:\Users\Saniha Kumar\Desktop\Anvita\C program\exp2\.vscode>
```