

Assignment no 5

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#include<iostream>
#include<string.h>
using namespace std;
typedef struct node
{
    char k[20];
    char m[20];
    class node *left;
    class node *right;
}node;
class dict
{
public:
    node *root;
    void create();
    void disp(node *);
    void insert(node * root,node *temp);
    int search(node *,char []);
    int update(node *,char []);
    node* del(node *,char []);
    node * min(node *);
};
void dict :: create()
{
    class node *temp;
    int ch;
    do
    {
        temp = new node;
        cout<<"\nEnter Keyword:";
        cin>>temp->k;
        cout<<"\nEnter Meaning:";
        cin>>temp->m;
        temp->left = NULL;
        temp->right = NULL;
        if(root == NULL)
        {
            root = temp;
        }
        else
        {
            insert(root, temp);
        }
        cout<<"\nDo u want to add more (y=1/n=0):";
        cin>>ch;
    }
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    }
    while(ch == 1);
}
void dict :: insert(node * root,node *temp)
{
    if(strcmp (temp->k, root->k) < 0 )
    {
        if(root->left == NULL)
            root->left = temp;
        else
            insert(root->left,temp);
    }
    else
    {
        if(root->right == NULL)
            root->right = temp;
        else
            insert(root->right,temp);
    }
}
void dict:: disp(node * root)
{
    if( root != NULL)
    {
        disp(root->left);
        cout<<"\n Key Word :"<<root->k;
        cout<<"\t Meaning :"<<root->m;
        disp(root->right);
    }
}
int dict :: search(node * root,char k[20])
{
    int c=0;
    while(root != NULL)
    {
        c++;
        if(strcmp (k,root->k) == 0)
        {
            cout<<"\nNo of Comparisons:"<<c;
            return 1;
        }
        if(strcmp (k, root->k) < 0)
            root = root->left;

        if(strcmp (k, root->k) > 0)
            root = root->right;
    }
}

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    }
    return -1;
}

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int dict :: update(node * root,char k[20])
{
    while(root != NULL)
    {
        if(strcmp (k,root->k) == 0)
        {
            cout<<"\nEnter New Meaning ofKeyword"<<root->k;
            cin>>root->m;
            return 1;
        }
        if(strcmp (k, root->k) < 0)
            root = root->left;
        if(strcmp (k, root->k) > 0)
            root = root->right;
    }
    return -1;
}

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node* dict :: del(node * root,char k[20])
{
    node *temp;
    if(root == NULL)
    {
        cout<<"\nElement No Found";
        return root;
    }
    if (strcmp(k,root->k) < 0)
    {
        root->left = del(root->left, k);
        return root;
    }
    if (strcmp(k,root->k) > 0)
    {
        root->right = del(root->right, k);
        return root;
    }
    if (root->right==NULL&&root->left==NULL)
    {
        temp = root;
        delete temp;
        return NULL;
    }
}

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        if(root->right==NULL)
        {
            temp = root;
            root = root->left;
delete temp;
            return root;
        }
        else if(root->left==NULL)
        {
temp = root;
            root = root->right;
            delete temp;
return root;
        }
        temp = min(root->right);
strcpy(root->k,temp->k);
root->right = del(root->right, temp->k);
        return root;
    }

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node * dict :: min(node *q)
{
    while(q->left != NULL)
    {
        q = q->left;
    }
    return q;
}

```

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int main()
{
    int ch;
    dict d;
    d.root = NULL;
do
    {
cout<<"\nMenu\n1.Create\n2.Disp\n3.Search\n4.Update\n5.Delete\nEnter Your Choice:";
        cin>>ch;
switch(ch)
        {
case 1: d.create();
                                break;
case 2: if(d.root == NULL)
                                {
                                    cout<<"\nNo any Keyword";
                                }
                                else

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        {
            d.disp(d.root);
        }
        break;
case 3: if(d.root == NULL)
    {
        cout<<"\nDictionary is Empty. First add keywords then try again ";
    }
    else
    {
        cout<<"\nEnter Keyword which u want to search:";
        char k[20];
        cin>>k;
        if( d.search(d.root,k) == 1)
            cout<<"\nKeyword Found";
        else
            cout<<"\nKeyword Not Found";
    }
    break;
case 4:
    if(d.root == NULL)
    {
        cout<<"\nDictionary is Empty. First add keywords then try again ";
    }
    else
    {
        cout<<"\nEnter Keyword which meaning want to update:";
        char k[20];
        cin>>k;
        if(d.update(d.root,k) == 1)
            cout<<"\nMeaning Updated";
        else
            cout<<"\nMeaning Not Found";
    }
    break;
case 5:
    if(d.root == NULL)
    {
        cout<<"\nDictionary is Empty. First add keywords then try again ";
    }
    else
    {
        cout<<"\nEnter Keyword which u want to delete:";
        char k[20];
        cin>>k;
        if(d.root == NULL)

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        {
            cout<<"\nNo any Keyword";
        }
        else
        {
            d.root = d.del(d.root,k);
        }
    }
}
while(ch<=5);
return 0;
}

```

Output:

Menu

1.Create

2.Disp

3.Search

4.Update

5.Delete

Enter Your Choice:1

Enter Keyword:57

Enter Meaning:new

Do u want to add more (y=1/n=0):1

Enter Keyword:89

Enter Meaning:world

Do u want to add more (y=1/n=0):1

Enter Keyword:62

Enter Meaning:India

Do u want to add more (y=1/n=0):0

Menu

1.Create

2.Disp

3.Search

4.Update

5.Delete

Enter Your Choice:2

Key Word :57 Meaning :new

Key Word :62 Meaning :India

Key Word :89 Meaning :world

Menu

1.Create

2.Disp

3.Search

4.Update

5.Delete

Enter Your Choice:3

Enter Keyword which u want to search:62

No of Comparisons:3

Keyword Found

Menu

1.Create

2.Disp

3.Search

4.Update

5.Delete

Enter Your Choice:4

Enter Keyword which meaning want to update:89

Enter New Meaning ofKeyword89 era

Meaning Updated

Menu

1.Create

2.Disp

3.Search

4.Update

5.Delete

Enter Your Choice:2

Key Word :57 Meaning :new

Key Word :62 Meaning :India

Key Word :89 Meaning :era

Menu

1.Create

2.Disp

3.Search

4.Update

5.Delete

Enter Your Choice:5

Enter Keyword which u want to delete:89

Menu

1.Create

2.Disp

3.Search

4.Update

5.Delete

Enter Your Choice:2

Key Word :57 Meaning :new

Key Word :62 Meaning :India