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CLASS: SE COMPUTER

DIV: A

BATCH: B3

ASSIGNMENT NO:5

CODE:-

```
#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;
 }
 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;
 }
 return -1;
}
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;
}
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;
 }
 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;
}
node * dict :: min(node *q)
{
 while(q->left != NULL)
 {
  q = q->left;
 }
 return q;
}
int main()
{
 int ch;
 dict d;
 d.root = NULL;
 do
 {
  cout<<"\nMenu\n1.Create\n2.Disp\n3.Search\n4.Update\n5.Delete\nEnter Ur CH:";
  cin>>ch;
  switch(ch)
  {
case 1: d.create();
  break;
case 2: if(d.root == NULL)
  {
  cout<<"\nNo any Keyword";
  }
  else
  {
  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)
   {
   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 Ur CH:1

Enter Keyword:98

Enter Meaning:DSA

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

Enter Keyword:97

Enter Meaning:DELD

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

Enter Keyword:96

Enter Meaning:MP

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

Enter Keyword:95
```

Enter Meaning:M-3

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

Menu
1.Create
2.Disp
3.Search
4.Update
5.Delete
Enter Ur CH:2

 Key Word :95 Meaning :M-3
 Key Word :96 Meaning :MP
 Key Word :97 Meaning :DELD
 Key Word :98 Meaning :DSA
Menu
1.Create
2.Disp
3.Search
4.Update
5.Delete
Enter Ur CH:
3

Enter Keyword which u want to search:97

No of Comparisons:2
Keyword Found
Menu
1.Create
2.Disp
3.Search
4.Update
5.Delete
Enter Ur CH:4

Enter Keyword which meaning want to update:98

Enter New Meaning ofKeyword98SE

Meaning Updated
Menu
1.Create
2.Disp
3.Search
4.Update
5.Delete
Enter Ur CH:2

Key Word :95	Meaning :M-3
Key Word :96	Meaning :MP
Key Word :97	Meaning :DELD
Key Word :98	Meaning :SE

Menu
1.Create
2.Disp
3.Search
4.Update
5.Delete
Enter Ur CH:5

Enter Keyword which u want to delete:95

Menu
1.Create
2.Disp
3.Search
4.Update
5.Delete
Enter Ur CH:2

Key Word :96	Meaning :MP
Key Word :97	Meaning :DELD
Key Word :98	Meaning :SE

Menu
1.Create

2.Disp
3.Search
4.Update
5.Delete
Enter Ur CH:
=== Session Ended. Please Run the code again ===