

SSN COLLEGE OF ENGINEERING (Autonomous)

DEPARTMENT OF CSE

UCS308 Data Structures Lab

Assignment 9

Dictionary Using AVL

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Class : CSE – B

```
#include<stdio.h>
#include<stdlib.h>
#include<ctype.h>
#include<string.h>
#include<math.h>
typedef struct mytree
{
    char ename[50];
    char tname[50];
    char hname[50];
    int height;
    struct mytree *left;
    struct mytree *right;
}tree;
tree* insert(tree *t,char english[50],char tamil[50],char hindi[50])
{
    if(t==NULL)
    {
        t=(tree*)malloc(sizeof(tree));
        strcpy(t->ename,english);
        strcpy(t->tname,tamil);
        strcpy(t->hname,hindi);
        t->height=0;
        t->left=t->right=NULL;
    }
    else if(strcmp(english,t->ename)<0)
    {
        t->left=insert(t->left,english,tamil,hindi);
        if(height(t->left)-height(t->right)==2){
            if(strcmp(english,t->left->ename)<0)
```

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        t=singlerotatewithleft(t);
    else
        t=doublerotatewithleft(t);
    }

}
else if(strcmp(english,t->ename)>0)
{
    t->right=insert(t->right,english,tamil,hindi);
    if(height(t->right)-height(t->left)==2){
        if(strcmp(english,t->right->ename)>0)
            t=singlerotatewithright(t);
        else
            t=doublerotatewithright(t);
    }

}
t->height=max(height(t->left),height(t->right))+1;
return t;
}

tree* singlerotatewithleft(tree *t2)
{
    printf("\n singlerotatewithleft");
    tree *t1;
    t1=t2->left;
    t2->left=t1->right;
    t1->right=t2;
    t2->height=max(height(t2->left),height(t2->right))+1;
    t1->height=max(height(t1->left),t2->height)+1;
    return t1;
}

tree* singlerotatewithright(tree *t2)
{
    printf("\n singlerotatewithright");
    tree *t1;
    t1=t2->right;
    t2->right=t1->left;
    t1->left=t2;
    t2->height=max(height(t2->right),height(t2->left))+1;
    t1->height=max(height(t1->right),t2->height)+1;
    return t1;
}

tree* doublerotatewithleft(tree *t3)
{
    printf("\n doublerotatewithleft");
    t3->left=singlerotatewithright(t3->left);
    return singlerotatewithleft(t3);
}

tree* doublerotatewithright(tree *t3)
{
    printf("\n doublerotatewithright");
    t3->right=singlerotatewithleft(t3->right);
    return singlerotatewithright(t3);
}

static int height(tree *tk)
{
    if(tk==NULL)
        return -1;
    else
        return tk->height;
}

void inorder(tree *tx)

```

```

{
    if(tx!=NULL)
    {
        inorder(tx->left);
        printf("\nENGLISH WORD: %s",tx->ename);
        printf("\nTAMIL WORD: %s",tx->tname);
        printf("\nHINDI WORD: %s",tx->hname);
        printf("\n");
        inorder(tx->right);
    }
}

int max(int a,int b)
{
    if((a>b) || (a==b))
        return a;
    else
        return b;
}

void find(tree *t1,char a[50])
{
    if(strcmp(t1->ename,a)==0)
    {
        printf("\n TAMIL WORD %s",t1->tname);
        printf("\n HINDI WORD %s",t1->hname);
    }
    else if((t1->left)&&(strcmp(a,t1->ename)<0))
    {
        find(t1->left,a);
    }
    else if((t1->right)&&(strcmp(a,t1->ename)>0))
    {
        find(t1->right,a);
    }
}

void main()
{
    char tamil[50],english[50],hindi[50],f[50];
    tree *t1;
    int n;
    for(int i=0;i<15;i++)
    {
        printf("\n");
        printf("\n enter the english word");
        scanf("%[^\\n]",english);
        printf("\n enter the corresponding tamil word");
        scanf("%[^\\n]",tamil);
        printf("\n enter the corresponding hindi word");
        scanf("%[^\\n]",hindi);
        t1=insert(t1,english,tamil,hindi);
        inorder(t1);
    }
    while(1)
    {
        printf("\n 1.search word 2. exit");
        scanf("%d",&n);
        if(n==1)

```

```

        {
            printf("\n enter the english word whose tamil and
hindi meaning to be found");
            scanf("%s",f);
            find(t1,f);
        }
        else
            exit(0);
    }
}

```

Output:

enter the english wordalgorithm

enter the corresponding tamil wordநெறிமுறை

enter the corresponding hindi wordकलन वधि

ENGLISH WORD: algorithm

TAMIL WORD: நெறிமுறை

HINDI WORD: कलन वधि

enter the english wordAnimation

enter the corresponding tamil wordஅசைவூட்டம்

enter the corresponding hindi wordएनीमेशन

ENGLISH WORD: Animation

TAMIL WORD: அசைவூட்டம்

HINDI WORD: एनीमेशन

ENGLISH WORD: algorithm

TAMIL WORD: நெறிமுறை

HINDI WORD: कलन वधि

enter the english wordBit

enter the corresponding tamil wordநுண்மி

enter the corresponding hindi wordबिट

doublerotatewithleft

singlerotatewithright

singlerotatewithleft

ENGLISH WORD: Animation

TAMIL WORD: அசைவூட்டம்

HINDI WORD: एनीमेशन

ENGLISH WORD: Bit

TAMIL WORD: நுண்மி

HINDI WORD: बटि

ENGLISH WORD: algorithm

TAMIL WORD: நெறிமுறை

HINDI WORD: कलन वधि

enter the english wordBrowser

enter the corresponding tamil wordஉலாவி

enter the corresponding hindi wordब्राउज़र

ENGLISH WORD: Animation

TAMIL WORD: அசைவூட்டம்

HINDI WORD: एनीमेशन

ENGLISH WORD: Bit

TAMIL WORD: நுண்மி

HINDI WORD: बटि

ENGLISH WORD: Browser

TAMIL WORD: உலாவி

HINDI WORD: ब्राउज़र

ENGLISH WORD: algorithm

TAMIL WORD: நெறிமுறை

HINDI WORD: कलन वधि

enter the english word
Clipboard

enter the corresponding tamil wordமறைப்பலகை

enter the corresponding hindi wordकरतन पट्ट

doublerotatewithleft
singlerotatewithright
singlerotatewithleft

ENGLISH WORD: Animation

TAMIL WORD: அசைவூட்டம்

HINDI WORD: एनीमेशन

ENGLISH WORD: Bit

TAMIL WORD: நுண்மி

HINDI WORD: बटि

ENGLISH WORD: Browser

TAMIL WORD: உலாவி

HINDI WORD: ब्राउज़र

ENGLISH WORD: Clipboard

TAMIL WORD: மறைப்பலகை

HINDI WORD: कर्तन पट्ट

ENGLISH WORD: algorithm

TAMIL WORD: நெறிமுறை

HINDI WORD: कलन वधि

enter the english wordCompiler

enter the corresponding tamil wordதொகுப்பி

enter the corresponding hindi wordसंकलक

singlerotatewithright

ENGLISH WORD: Animation

TAMIL WORD: அசைவூட்டம்

HINDI WORD: एनीमेशन

ENGLISH WORD: Bit

TAMIL WORD: நுண்மி

HINDI WORD: बिट

ENGLISH WORD: Browser

TAMIL WORD: உலாவி

HINDI WORD: ब्राउज़र

ENGLISH WORD: Clipboard

TAMIL WORD: மறைப்பலகை

HINDI WORD: कर्तन पट्ट

ENGLISH WORD: Compiler

TAMIL WORD: தொகுப்பி

HINDI WORD: संकलक

ENGLISH WORD: algorithm

TAMIL WORD: நெறிமுறை

HINDI WORD: कलन वधि

enter the english wordDigital

enter the corresponding tamil wordஎண்மின்

enter the corresponding hindi wordडजिटल

doublerotatewithleft

singlerotatewithright

singlerotatewithleft

ENGLISH WORD: Animation
TAMIL WORD: அசைவூட்டம்
HINDI WORD: एनीमेशन

ENGLISH WORD: Bit
TAMIL WORD: நுண்மி
HINDI WORD: बिट

ENGLISH WORD: Browser
TAMIL WORD: உலாவி
HINDI WORD: ब्राउज़र

ENGLISH WORD: Clipboard
TAMIL WORD: மறைப்பலகை
HINDI WORD: कर्तन पट्ट

ENGLISH WORD: Compiler
TAMIL WORD: தொகுப்பி
HINDI WORD: संकलक

ENGLISH WORD: Digital
TAMIL WORD: எண்மின்
HINDI WORD: डिजिटल

ENGLISH WORD: algorithm
TAMIL WORD: நெறிமுறை
HINDI WORD: कलन वधि

enter the english wordPrinter

enter the corresponding tamil wordஅச்சுப்பொறி

enter the corresponding hindi wordछापनेवाला यंत्र

ENGLISH WORD: Animation
TAMIL WORD: அசைவூட்டம்
HINDI WORD: एनीमेशन

ENGLISH WORD: Bit
TAMIL WORD: நுண்மி
HINDI WORD: बिट

ENGLISH WORD: Browser
TAMIL WORD: உலாவி
HINDI WORD: ब्राउज़र

ENGLISH WORD: Clipboard
TAMIL WORD: மறைப்பலகை
HINDI WORD: कर्तन पट्ट

ENGLISH WORD: Compiler
TAMIL WORD: தொகுப்பி

HINDI WORD: संकलक

ENGLISH WORD: Digital

TAMIL WORD: எண்மின்

HINDI WORD: डजिटल

ENGLISH WORD: Printer

TAMIL WORD: அச்சுப்பொறி

HINDI WORD: छापनेवाला यन्त्र

ENGLISH WORD: algorithm

TAMIL WORD: நெறிமுறை

HINDI WORD: कलन वधि

enter the english wordEncoding

enter the corresponding tamil wordகுறியாக்கம்

enter the corresponding hindi wordसंकेतीकरण

singlerotatewithleft

ENGLISH WORD: Animation

TAMIL WORD: அசைவூட்டம்

HINDI WORD: एनीमेशन

ENGLISH WORD: Bit

TAMIL WORD: நுண்மி

HINDI WORD: बिट

ENGLISH WORD: Browser

TAMIL WORD: உலாவி

HINDI WORD: ब्राउज़र

ENGLISH WORD: Clipboard

TAMIL WORD: மறைப்பலகை

HINDI WORD: कर्तन पट्ट

ENGLISH WORD: Compiler

TAMIL WORD: தொகுப்பி

HINDI WORD: संकलक

ENGLISH WORD: Digital

TAMIL WORD: எண்மின்

HINDI WORD: डजिटल

ENGLISH WORD: Encoding

TAMIL WORD: குறியாக்கம்

HINDI WORD: संकेतीकरण

ENGLISH WORD: Printer

TAMIL WORD: அச்சுப்பொறி

HINDI WORD: छापनेवाला यन्त्र

ENGLISH WORD: algorithm

TAMIL WORD: நெறிமுறை

HINDI WORD: कलन वधि

enter the english wordGateway

enter the corresponding tamil wordநுழைவாயில்

enter the corresponding hindi wordप्रवेशद्वार

doublerotatewithright

singlerotatewithleft

singlerotatewithright

ENGLISH WORD: Animation

TAMIL WORD: அசைவூட்டம்

HINDI WORD: एनीमेशन

ENGLISH WORD: Bit

TAMIL WORD: நுண்மி

HINDI WORD: बिट

ENGLISH WORD: Browser

TAMIL WORD: உலாவி

HINDI WORD: ब्राउज़र

ENGLISH WORD: Clipboard

TAMIL WORD: மறைப்பலகை

HINDI WORD: कर्तन पट्ट

ENGLISH WORD: Compiler

TAMIL WORD: தொகுப்பி

HINDI WORD: संकलक

ENGLISH WORD: Digital

TAMIL WORD: எண்மின்

HINDI WORD: डिजिटल

ENGLISH WORD: Encoding

TAMIL WORD: குறியாக்கம்

HINDI WORD: संकेतीकरण

ENGLISH WORD: Gateway

TAMIL WORD: நுழைவாயில்

HINDI WORD: प्रवेशद्वार

ENGLISH WORD: Printer

TAMIL WORD: அச்சுப்பொறி

HINDI WORD: छापनेवाला यंत्र

ENGLISH WORD: algorithm

TAMIL WORD: நெறிமுறை

HINDI WORD: कलन वधि

enter the english wordHardware

enter the corresponding tamil wordவன்பொருள்

enter the corresponding hindi wordहार्डवेयर

singlerotatewithright

ENGLISH WORD: Animation

TAMIL WORD: அசைவூட்டம்

HINDI WORD: एनीमेशन

ENGLISH WORD: Bit

TAMIL WORD: நுண்மி

HINDI WORD: बटि

ENGLISH WORD: Browser

TAMIL WORD: உலாவி

HINDI WORD: ब्राउज़र

ENGLISH WORD: Clipboard

TAMIL WORD: மறைப்பலகை

HINDI WORD: कर्तन पट्ट

ENGLISH WORD: Compiler

TAMIL WORD: தொகுப்பி

HINDI WORD: संकलक

ENGLISH WORD: Digital

TAMIL WORD: எண்மின்

HINDI WORD: डिजिटल

ENGLISH WORD: Encoding

TAMIL WORD: குறியாக்கம்

HINDI WORD: संकेतीकरण

ENGLISH WORD: Gateway

TAMIL WORD: நுழைவாயில்

HINDI WORD: प्रवेशद्वार

ENGLISH WORD: Hardware

TAMIL WORD: வன்பொருள்

HINDI WORD: हार्डवेयर

ENGLISH WORD: Printer

TAMIL WORD: அச்சுப்பொறி

HINDI WORD: छापनेवाला यन्त्र

ENGLISH WORD: algorithm

TAMIL WORD: நெறிமுறை

HINDI WORD: कलन वधि

enter the english wordInternet

enter the corresponding tamil wordஇணையம்

enter the corresponding hindi wordअंतराजाल

singlerotatewithright

ENGLISH WORD: Animation

TAMIL WORD: அசைவூட்டம்

HINDI WORD: एनीमेशन

ENGLISH WORD: Bit

TAMIL WORD: நுண்மி

HINDI WORD: बटि

ENGLISH WORD: Browser

TAMIL WORD: உலாவி

HINDI WORD: ब्राउज़र

ENGLISH WORD: Clipboard

TAMIL WORD: மறைப்பலகை

HINDI WORD: कर्तन पट्ट

ENGLISH WORD: Compiler

TAMIL WORD: தொகுப்பி

HINDI WORD: संकलक

ENGLISH WORD: Digital

TAMIL WORD: எண்மின்

HINDI WORD: डिजिटल

ENGLISH WORD: Encoding

TAMIL WORD: குறியாக்கம்

HINDI WORD: संकेतीकरण

ENGLISH WORD: Gateway

TAMIL WORD: நுழைவாயில்

HINDI WORD: प्रवेशद्वार

ENGLISH WORD: Hardware

TAMIL WORD: வன்பொருள்

HINDI WORD: हार्डवेयर

ENGLISH WORD: Internet

TAMIL WORD: இணையம்

HINDI WORD: अंतराजाल

ENGLISH WORD: Printer

TAMIL WORD: அச்சுப்பொறி

HINDI WORD: छापनेवाला यन्त्र

ENGLISH WORD: algorithm

TAMIL WORD: நெறிமுறை

HINDI WORD: कलन वधि

enter the english wordMemory

enter the corresponding tamil wordநினைவகம்

enter the corresponding hindi wordयाददाश्त

doublerotatewithleft

singlerotatewithright

singlerotatewithleft

ENGLISH WORD: Animation

TAMIL WORD: அசைவூட்டம்

HINDI WORD: एनीमेशन

ENGLISH WORD: Bit

TAMIL WORD: நுண்மி

HINDI WORD: बिट

ENGLISH WORD: Browser

TAMIL WORD: உலாவி

HINDI WORD: ब्राउज़र

ENGLISH WORD: Clipboard

TAMIL WORD: மறைப்பலகை

HINDI WORD: कर्तन पट्ट

ENGLISH WORD: Compiler

TAMIL WORD: தொகுப்பி

HINDI WORD: संकलक

ENGLISH WORD: Digital

TAMIL WORD: எண்மின்

HINDI WORD: डिजिटल

ENGLISH WORD: Encoding

TAMIL WORD: குறியாக்கம்

HINDI WORD: संकेतीकरण

ENGLISH WORD: Gateway

TAMIL WORD: நுழைவாயில்

HINDI WORD: प्रवेशद्वार

ENGLISH WORD: Hardware

TAMIL WORD: வன்பொருள்

HINDI WORD: हार्डवेयर

ENGLISH WORD: Internet

TAMIL WORD: இணையம்

HINDI WORD: अंतराजाल

ENGLISH WORD: Memory
TAMIL WORD: நினைவகம்
HINDI WORD: याददाश्त

ENGLISH WORD: Printer
TAMIL WORD: அச்சுப்பொறி
HINDI WORD: छापनेवाला यन्त्र

ENGLISH WORD: algorithm
TAMIL WORD: நெறிமுறை
HINDI WORD: कलन वधि

enter the english wordMonitor

enter the corresponding tamil wordகணித்திரை

enter the corresponding hindi wordमॉनटर

ENGLISH WORD: Animation
TAMIL WORD: அசைவூட்டம்
HINDI WORD: एनीमेशन

ENGLISH WORD: Bit
TAMIL WORD: நுண்மி
HINDI WORD: बिट

ENGLISH WORD: Browser
TAMIL WORD: உலாவி
HINDI WORD: ब्राउज़र

ENGLISH WORD: Clipboard
TAMIL WORD: மறைப்பலகை
HINDI WORD: कर्तन पट्ट

ENGLISH WORD: Compiler
TAMIL WORD: தொகுப்பி
HINDI WORD: संकलक

ENGLISH WORD: Digital
TAMIL WORD: எண்மின்
HINDI WORD: डिजिटल

ENGLISH WORD: Encoding
TAMIL WORD: குறியாக்கம்
HINDI WORD: संकेतीकरण

ENGLISH WORD: Gateway
TAMIL WORD: நுழைவாயில்
HINDI WORD: प्रवेशद्वार

ENGLISH WORD: Hardware

TAMIL WORD: வன்பொருள்
HINDI WORD: हार्डवेयर

ENGLISH WORD: Internet
TAMIL WORD: இணையம்
HINDI WORD: अंतराजाल

ENGLISH WORD: Memory
TAMIL WORD: நினைவகம்
HINDI WORD: याददाश्त

ENGLISH WORD: Monitor
TAMIL WORD: கணித்திரை
HINDI WORD: मॉनटर

ENGLISH WORD: Printer
TAMIL WORD: அச்சுப்பொறி
HINDI WORD: छापनेवाला यंत्र

ENGLISH WORD: algorithm
TAMIL WORD: நெறிமுறை
HINDI WORD: कलन वधि

enter the english wordPassword

enter the corresponding tamil wordகடவுச்சொல்

enter the corresponding hindi wordसंकेत-शब्द

singlerotatewithright
ENGLISH WORD: Animation
TAMIL WORD: அசைவூட்டம்
HINDI WORD: एनीमेशन

ENGLISH WORD: Bit
TAMIL WORD: நுண்மி
HINDI WORD: बिट

ENGLISH WORD: Browser
TAMIL WORD: உலாவி
HINDI WORD: ब्राउज़र

ENGLISH WORD: Clipboard
TAMIL WORD: மறைப்பலகை
HINDI WORD: कर्तन पट्ट

ENGLISH WORD: Compiler
TAMIL WORD: தொகுப்பி
HINDI WORD: संकलक

ENGLISH WORD: Digital
TAMIL WORD: எண்மின்

HINDI WORD: डजिटल

ENGLISH WORD: Encoding

TAMIL WORD: குறியாக்கம்

HINDI WORD: संकेतीकरण

ENGLISH WORD: Gateway

TAMIL WORD: நுழைவாயில்

HINDI WORD: प्रवेशद्वार

ENGLISH WORD: Hardware

TAMIL WORD: வன்பொருள்

HINDI WORD: हार्डवेयर

ENGLISH WORD: Internet

TAMIL WORD: இணையம்

HINDI WORD: अंतराजाल

ENGLISH WORD: Memory

TAMIL WORD: நினைவகம்

HINDI WORD: याददाश्त

ENGLISH WORD: Monitor

TAMIL WORD: கணித்திரை

HINDI WORD: मॉनटर

ENGLISH WORD: Password

TAMIL WORD: கடவுச்சொல்

HINDI WORD: संकेत-शब्द

ENGLISH WORD: Printer

TAMIL WORD: அச்சுப்பொறி

HINDI WORD: छापनेवाला यंत्र

ENGLISH WORD: algorithm

TAMIL WORD: நெறிமுறை

HINDI WORD: कलन वधि

1.search word 2. exit1

enter the english word whose tamil and hindi meaning to be foundPrinter

TAMIL WORD அச்சுப்பொறி

HINDI WORD छापनेवाला यंत्र

1.search word 2. exit1

enter the english word whose tamil and hindi meaning to be foundDigital

TAMIL WORD எண்மின்

HINDI WORD डजिटल

1.search word 2. exit1

enter the english word whose tamil and hindi meaning to be
foundPassword

TAMIL WORD கடவுச்சொல்

HINDI WORD संकेत-शब्द

1.search word 2. exit1

enter the english word whose tamil and hindi meaning to be
foundMonitor

TAMIL WORD கணித்திரை

HINDI WORD मॉनटर

1.search word 2. exit1

enter the english word whose tamil and hindi meaning to be
foundBrowser

TAMIL WORD உலாவி

HINDI WORD ब्राउज़र

1.search word 2. exit2