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| ***Dictionary with Binary Search*** |

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| --- | --- | --- |
| ***GROUP MEMBER NAMES AND SIDs*** | | |
| ***SR#*** | ***NAMES*** | ***SIDs*** |
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| ***2*** |  |  |
| ***3*** |  |  |

**Description**

English Dictionary: contains more than 1000 words and Meaning, User Search a Meaning by entering a word, the Program Uses Binary Search to fine the word

Other Feature: Program can remove the entered word using clear function and also close the program using close function

Program (Project) is made in Python Language. Uses Libraries Numpy as Backend and Tkinter as frontend

**Algorithm**

1. Start
2. Array = {Contain more than 1000 words}
3. arrayMeaning = {Contain more than 1000 Meaning of words}
4. Word = search input
5. Left = 0
6. Right = length of array – 1
7. While loop till left is equal to right
   1. Mid = (left – right)/2
   2. If array[mid] == word
      1. Print(Meaning [mid])
   3. Else if array[mid] > word
      1. Left = mid
   4. Else if array[mid] < word
      1. Right = mid

**Code**

from tkinter import \*

import json

from numpy import array

from difflib import get\_close\_matches

from tkinter import messagebox

#get\_close\_matches(word,possibilities,n,cuttoff)

#close\_match = get\_close\_matches('appel',['ape','apple','peach','puppy'],n=3,cuttoff=0.6)

#Back End

def search():

    data=json.load(open('data.json'))

    word=enterwordEntry.get()

    word = word.lower()

    k = open("keys.txt","r")

    key = array([0 for i in range(2610)], dtype = 'object')

    for i in range(len(key)):

        key[i] = k.readline()

    value = array([0 for i in range(2610)], dtype = 'object')

    v = open("values.txt","r")

    for i in range(len(value)):

        value[i] = v.readline()

    """

    for i in data.keys():

        key[count] = i

        count+=1

    count = 0

    for i in data.values():

        value[count] = i

        count+=1"""

    if word in data:

        """

        meaning=data[word]

        textarea.delete(1.0,END)

        for item in meaning:

            addtextarea.insert(END,u'\u2822'+item+'\n\n')

            textarea.insert(END,u'\u2822'+item+'\n\n')"""

        right = len(key)

        midpoint = len(key)//2

        left = 0

        while(True):

            if(key[midpoint] == word):

                meaning=value[midpoint]

                textarea.delete(1.0,END)

                for item in meaning:

                    addtextarea.insert(END,u'\u2822'+item+'\n\n')

                    textarea.insert(END,u'\u2822'+item+'\n\n')

                break

            elif(word > key[midpoint]):

                left = midpoint

                midpoint = (right - left)//2

            elif(word < key[midpoint]):

                right = midpoint

                midpoint = (right - left)//2

    elif len(get\_close\_matches(word,data.keys()))>0:

        cloased\_match = get\_close\_matches(word,data.keys())[0]

        res = messagebox.askyesno('Confirm','Did you mean '+cloased\_match+' instead?')

        if res == True:

            enterwordEntry.delete(0,END)

            enterwordEntry.insert(END,cloased\_match)

            meaning = data[cloased\_match]

            textarea.delete(1.0, END)

            for item in meaning:

                addtextarea.insert(END,u'\u2822'+item+'\n\n')

                textarea.insert(END,u'\u2822'+item+'\n\n')

        else:

            textarea.delete(1.0, END)

            messagebox.showinfo('Information', 'Please type a correct word')

            enterwordEntry.delete(0, END)

    else:

        messagebox.showerror('Error', 'The word doesnt exist.Please double check it.')

        enterwordEntry.delete(0,END)

        textarea.delete(1.0,END)

"""

def binary\_search():

    data=json.load(open('data.json'))

    word=enterwordEntry.get()

    word = word.lower()

    #data.sort()

    midpoint = len(data)//2

    while(True):

        if(data[midpoint] == word):

            meaning=data[midpoint]

            textarea.delete(1.0,END)

            for item in meaning:

                addtextarea.insert(END,u'\u2822'+item+'\n\n')

                textarea.insert(END,u'\u2822'+item+'\n\n')

            break

        if(word > data[midpoint]):

            data = data[midpoint]

        if(word < data[midpoint]):

            data = data[0: midpoint]

        midpoint = (len(data)//2)

"""

def clear():

    enterwordEntry.delete(0,END)

    textarea.delete(1.0,END)

def addclear():

    addenterwordEntry.delete(0,END)

    addtextarea.delete(1.0,END)

def iexit():

    res = messagebox.askyesno('Confirm','Do you want to exit? ')

    if res == True:

        root.destroy()

    else:

        pass

#Front End

root = Tk()

root.geometry('1000x626+100+50')

root.title('DSA Project Dictionary')

root.resizable(False,False)

bgimage = PhotoImage(file='bg.png')

bgLabel = Label(root,image=bgimage)

bgLabel.place(x=0,y=0)

enterwordlabel = Label(root,text='Search Word',font=('castellar',25,'bold',),foreground='red')

enterwordlabel.place(x=550,y=20)

enterwordEntry = Entry(root,font=('arial',23,'bold'),justify=CENTER,bd=8,relief=GROOVE)

enterwordEntry.place(x=510,y=80)

addenterwordlabel = Label(root,text='Add Word',font=('castellar',25,'bold',),foreground='red')

addenterwordlabel.place(x=80,y=20)

addenterwordEntry = Entry(root,font=('arial',23,'bold'),justify=CENTER,bd=8,relief=GROOVE)

addenterwordEntry.place(x=30,y=80)

searchimage = PhotoImage(file='search.png')

searchButton = Button(root,image = searchimage, bd = 0,bg='whitesmoke',cursor='hand2',activebackground='whitesmoke',command=search)

searchButton.place(x=880,y=75)

Meaninglabel = Label(root,text='Meaning',font=('castellar',30,'bold',),foreground='red')

Meaninglabel.place(x=570,y=200)

textarea = Text(root,width=34,height=8,font=('arial',18,'bold'),bd=8,relief=GROOVE)

textarea.place(x=460,y=270)

addMeaninglabel = Label(root,text='Add Meaning',font=('castellar',30,'bold',),foreground='red')

addMeaninglabel.place(x=60,y=200)

addtextarea = Text(root,width=32,height=8,font=('arial',18,'bold'),bd=8,relief=GROOVE)

addtextarea.place(x=10,y=270)

clearimage = PhotoImage(file='clear.png')

clearButton = Button(root,image = clearimage, bd = 0,bg='whitesmoke',cursor='hand2',activebackground='whitesmoke', command=clear)

clearButton.place(x=600,y=530)

addclearimage = PhotoImage(file='clear.png')

addclearButton = Button(root,image = clearimage, bd = 0,bg='whitesmoke',cursor='hand2',activebackground='whitesmoke', command=addclear)

addclearButton.place(x=100,y=530)

addButtonimage = PhotoImage(file='addition.png')

addButton = Button(root,image = addButtonimage, bd = 0,cursor='hand2',activebackground='whitesmoke', command=addclear)

addButton.place(x=200,y=530)

exitimage = PhotoImage(file='exit.png')

exitButton = Button(root,image = exitimage, bd = 0,bg='whitesmoke',cursor='hand2',activebackground='whitesmoke', command=iexit)

exitButton.place(x=700,y=530)

def enter\_function(event):

    searchButton.invoke()

root.bind('<Return>',enter\_function)

root.mainloop()

Output

