Q1: Write a program to find the number of vowels in each of the 5 strings stored in two dimensional arrays, taken from the user.

Answer:

#include<stdio.h>

int main()

{

    char string[5][20], vowel[10]=”AaEeIiOoUu”,count[5];

    int i,j,h,counter=0;

    printf("Please input the 5 string\n");

    for(i=0;i<5;i++)

    {

        fgets(string[i],20,stdin);

    }

    for(i=0;i<5;i++)

    {

        for(j=0;string[i][j];j++)

        {

            for(h=0;h<10;h++)

            {

                if(string[i][j]==vowel[h])

                {

                    counter++;

                }

            }

        }

        count[i]=counter;

        counter=0;

    }

    printf("Number of Vowels for each string is as below\n");

    for(i=0;i<5;i++)

    {

        printf("Number of vowel in string[%d] is: %d\n",i,count[i]);

    }

}

Q2: Write a program to sort 10 city names stored in two dimensional arrays, taken from the user.

#include<stdio.h>

#include<string.h>

void sort(char \*);

int main()

{

    char str[10][20];

    int i;

    for(i=0;i<10;i++)

    {

        fgets(str[i],20,stdin);

        sort(str[i]);

        printf("%s\n",str[i]);

    }

}

void sort(char b[])

{

    int i,temp,j,length;

    length=strlen(b);

    for(i=0;i<(length-2);i++)

    {

        for(j=i+1;j<(length-1);j++)

        {

            if(b[i]>b[j])

            {

                temp=b[i];

                b[i]=b[j];

                b[j]=temp;

            }

        }

    }

}

Q3: Write a program to read and display a 2D array of strings in C language.

#include<stdio.h>

int main()

{

    char str[2][20];

    int i;

    printf("Enter the name of city: \n");

    for(i=0;i<2;i++)

    {

        fgets(str[i],20,stdin);

    }

    printf("\nPrinting the entered city: \n");

    for(i=0;i<2;i++)

    {

        printf("%s",str[i]);

    }

    return 0;

}

Q4: Write a program to search a string in the list of strings.

#include<stdio.h>

#include<string.h>

int main()

{

    char str[2][20]={"kotak","kolkata"},find[20];

    int i,count=0,l,j;

    printf("Please provide the search string: ");

    fgets(find,20,stdin);

    for(i=0;i<2;i++)

    {

        l=strlen(str[i])-1;

        for(j=0;j<l;j++)

        {

            if(str[i][j]==find[j])

            {

                count++;

                continue;

            }

            else

            {

                break;

            }

        }

        if(count==l)

            break;

        else

            count=0;

    }

    if(count==l)

        printf("Input value is present in the string array");

    else

        printf("Input value has not matched in the string array");

    return 0;

}

Q5: Suppose we have a list of email addresses, check whether all email addresses have ‘@’ in it. Print the odd email out.

#include<stdio.h>

#include<string.h>

int main()

{

    char email[2][50];

    int i,count=0,l,j,print=1,count1=0;

    printf("Please enter your email addresses:\n");

    for(i=0;i<2;i++)

    {  fgets(email[i],50,stdin); }

    for(i=0;i<2;i++)

    {

        l=strlen(email[i])-1;

        for(j=0;j<l;j++)

        {

            if(email[i][j]=='@')

            {

                count++;

                break;

            }

        }

        if(count==0 && print)

        {

            printf("\nBelow are the addresses which doesn't contain '@':\n");

            print--;

        }

        if(count==0)

        {

            printf("%s",email[i]);

            count1++;

        }

        count=0;

    }

    if(count1==0)

        printf("\nAll mail addresses has '@' symbol in array");

    return 0;

}

Q6: Write a program to print the strings which are palindrome in the list of strings.

#include<stdio.h>

#include<string.h>

int main()

{

    char str[4][20]={"Kolkata","evve","WOW","DEoED"};

    int i,l,count=0,j,palindrome=0,P=1,x;

    for(i=0;i<4;i++)

    {

        l=strlen(str[i]);

        count=l/2;

        for(j=0;j<count;j++)

        {

            x=(l-1)-j;

            if(str[i][j]==str[i][x])

            {

                palindrome++;

                continue;

            }

            else

            {

                break;

            }

        }

        if(P&&palindrome==count)

        {

            P--;

            printf("The Palindromes are as below: \n");

        }

        if(palindrome==count)

        {

            printf("%s\n",str[i]);

            palindrome=0;

        }

    }

    return 0;

}

Q7: From the list of IP addresses, check whether all ip addresses are valid.

#include<stdio.h>

#include<string.h>

int main()

{

    int ip[4][4],i,j,count=0;

    char valid[4][10];

    printf("Enter the IPv4 Addresses below: \n");

    for(i=0;i<4;i++)

    {

        scanf("%d.%d.%d.%d",&ip[i][0],&ip[i][1],&ip[i][2],&ip[i][3]);

    }

    for(i=0;i<4;i++)

    {

        count=0;

        for(j=0;j<4;j++)

        {

            if(ip[i][j]>0&&ip[i][j]<256)

                count++;

            else

                break;

        }

        if(count==4)

            strcpy(valid[i],"Valid");

        else

            strcpy(valid[i],"Invalid");

    }

    printf("\n\nThe result of IP Addresses is as below: \n");

    for(i=0;i<4;i++)

    {

        printf("%d.%d.%d.%d - %s\n",ip[i][0],ip[i][1],ip[i][2],ip[i][3],valid[i]);

    }

    return 0;

}

Q8: Given a list of words followed by two words, the task is to find the minimum distance between the given two words in the list of words.

(Example : s = {“the”,”quick”,”brown”,”fox”,”quick”}

word1 = “the”, word2 = “fox”, OUTPUT : 1 )

#include<stdio.h>

#include<string.h>

int main()

{

    char str[5][20]={"the","quick","brown","fox","love"};

    char word1[20],word2[20];

    int i,j,LengthWord1,LengthWord2,word1Count,word2Count,count=0,output;

    printf("Enter the first word: ");

    fgets(word1,20,stdin);

    LengthWord1=strlen(word1)-1;

    printf("\nEnter the second word: ");

    fgets(word2,20,stdin);

    LengthWord2=strlen(word2)-1;

    for(i=0;i<5;i++)

    {

        for(j=0,count=0;j<LengthWord1;j++)

        {

            if(word1[j]==str[i][j])

            {

                count++;

            }

        }

        if(LengthWord1==count)

        {

            word1Count=i;

        }

    }

    for(i=0;i<5;i++)

    {

        for(j=0,count=0;j<LengthWord2;j++)

        {

            if(word2[j]==str[i][j])

            {

                count++;

            }

        }

        if(LengthWord2==count)

        {

            word2Count=i;

        }

    }

    output=(word2Count-word1Count)-1;

    printf("Minimum distance between two word is: %d",output);

    return 0;

}

Q9: Write a program that asks the user to enter a username. If the username entered is one of the names in the list then the user is allowed to calculate the factorial of a number. Otherwise, an error message is displayed

#include<stdio.h>

#include<string.h>

int main()

{

    char username[5][20]={"rajadeb66","debangdas","debangshu.das","seshi","ankita"};

    char user[20];

    int i,j,LengthUsername,count=0,Access=0,l;

    printf("Enter the username to access Factorial program: ");

    fgets(user,20,stdin);

    LengthUsername=strlen(user)-1;

    for(i=0;i<5;i++)

    {

        for(count=0,j=0;j<LengthUsername;j++)

        {

            if(user[j]==username[i][j])

            {

                count++;

            }

        }

        l=strlen(username[i]);

        if(count==l)

        {

            Access+=1;

            break;

        }

    }

    switch(Access)

    {

        case 1:

            int x,factorial=1;

            printf("\n\nEnter the number to perform Factorial: ");

            scanf("%d",&x);

            while(x>0)

            {

                factorial=factorial\*x;

                x--;

            }

            printf("\nThe Result of factorial is: %d",factorial);

            break;

        case 0:

            printf("\nAccess Denied as Incorrect Username");

    }

    return 0;

}

Q10: Create an authentication system. It should be menu driven.

#include<stdio.h>

#include<string.h>

int main()

{

    //username database where even index numbers are username and odds are password

    char username[4][20]={"rajadeb66","Adyangshi@22","debangshu.das","adyangshi22"};

    char user[20],password[20];

    int i,j,LengthUsername,usercount=0,Access=0,l,p,LengthPassword,passwordcount=0;

    //Take input of username

    printf("Enter the username: ");

    fgets(user,20,stdin);

    //Take input of password

    printf("Enter the password: ");

    fgets(password,20,stdin);

    //finding the length of input username and passsword

    LengthUsername=strlen(user)-1;

    LengthPassword=strlen(password)-1;

    /\*matching username and password. Here index number 0 is username and 1 is it's password. To check username we are incrementing 'i' by 2.

    Each username will check password right after that username\*/

    for(i=0;i<4;i+=2)

    {

        //username matching

        for(usercount=0,j=0;j<LengthUsername;j++)

        {

            if(user[j]==username[i][j])

            {

                usercount++;

            }

        }

        //password matching

        for(passwordcount=0,j=0;j<LengthPassword;j++)

        {

            if(password[j]==username[i+1][j])

            {

                passwordcount++;

            }

        }

        //matching the letter count of database username and input username

        l=strlen(username[i]);

        //matching the letter count of database password and input password

        p=strlen(username[i+1]);

        if(usercount==l && passwordcount==p)

        {

            Access+=1;

            break;

        }

    }

    switch(Access)

    {

        case 1:

            printf("Welocome you logged in Successfully");

            break;

        case 0:

            printf("\nAccess Denied as Incorrect Username or Password");

    }

    return 0;

}

}