AIM:-

Assignment 1

To perform various string operations using pointer.

a) String length.

b) String compare.

c) String copy.

d) String concate.

e) String reverse.

OBJECTIVE:-

Performing various string operations such as finding the length of the string,

comparing two strings, copying one string into another string, joining two strings or reversing

a string can be done by using the concept of pointers.

THEORY:-

1) We know that, string is a collection of characters. By writing char x[20] where x

is any variable, we declare an array of characters giving it a size of 20.

2) A string can also be declared using pointers.

3) char \*p, this stores the address of x (p=x) ,therefore the value of \*p = x[20].

4) We can perform different kinds of string functions under pointers in predefined

string functions.

ALGORITHM:-

TO FIND LENGTH

Step1:define length function

Step 2:take input in str1[20]

Step 3:declare integer i and pointer ptr1 ,initialise i=0 and ptr1=str1

Step 4:increament i and ptr1 until ptr1!=NULL

Step 5 :Print length of string as value of i

COMPARE STRINGS

Step 1: define compare function

Step 2: declare 2 strings str1 and str2

Step 3: find length of both strings using length function

Step 4: if lengths are different, strings are different

Step 5: else compare each character of string,if each and every character is identical strings are identical else strings are different

CONCAT STRINGS

Step 1: declare 2 strings str1 and str2

Step 2: take input from user for both strings

Step 3: join two strings using following code

for(i=0;\*ptr1!='\0';i++,ptr1++);

char \*ptr2;

ptr2=str2;

int j;

for(j=0;\*ptr2!='\0';j++,ptr2++,ptr1++)

{ \*ptr1=\*ptr2; }

\*ptr1='\0';

Step 4:str1 will be the concatenated string, print str1

COPY STRINGS

Step 1: define copy function

Step 2: declare 2 strings str1 and str2

Step 3: take input in str1

Step 4: copy str1 in str2 using following code

char \*ptr1;

ptr1=str1;

char \*ptr2;

ptr2=str2;

int i=0;

for(i=0;\*ptr1!='\0';i++,ptr1++,ptr2++)

{ \*ptr2=\*ptr1; }

\*ptr2='\0';

Step 5:print str2 as copied string

REVERSE STRING

Step 1:declare string str1 and str2

Step 2:take input in str1

Step 3:reverse string 3 using following code

char \*ptr1;

ptr1=str1;

char \*ptr2;

ptr2=str2;

int i,j,k;

for(i=0;\*ptr1!='\0';i++,ptr1++);

cout<<i<<endl;

k=i-1;

i--;

for(j=0;j<=k;j++,i--)

{ str2[j]=str1[i];

}

str2[j]='\0';

Step 4:str2 is reversed string, print str2

SOURCE CODE:-

#include<iostream>

#include<string>

using namespace std;

void length()

{

char str1[20];

cout<<"Enter the string 1 : ";

cin>>str1;

char \*ptr1;

ptr1=str1;

int i;

for(i=0;\*ptr1!='\0';i++,ptr1++);

cout<<"Length of string 1 = "<<i<<endl<<"\n";

}

void compare()

{

char str1[20];

char str2[20];

cout<<"Enter the string 1 : ";

cin>>str1;

cout<<"Enter the string 2 : ";

cin>>str2;

char \*ptr1;

ptr1=str1;

int i,j;

for(i=0;\*ptr1!='\0';i++,ptr1++);

cout<<"Length of string 1 = "<<i<<endl<<"\n";

char \*ptr2;

ptr2=str2;

for(j=0;\*ptr2!='\0';j++,ptr2++);

cout<<"Length of string 2 = "<<j<<endl<<"\n";

if(i==j)

{

ptr1=str1;

ptr2=str2;

int k=0;

while(\*ptr1==\*ptr2)

{

if(\*ptr1!='\0')

{

k++;

}

ptr1++;

ptr2++;

}

cout<<"K="<<k<<endl<<"\n";

if(k==i)

{ cout<<"Both strings are identical"<<endl<<"\n";}

else

{ cout<<"Strings are different"<<endl<<"\n"; }

}

else

{ cout<<"Strings are different"<<endl<<"\n"; }

}

void concat()

{

char str1[20];

char str2[20];

cout<<"Enter the string 1 : ";

cin>>str1;

cout<<"Enter the string 2 : ";

cin>>str2;

char \*ptr1;

ptr1=str1;

int i=0;

for(i=0;\*ptr1!='\0';i++,ptr1++);

char \*ptr2;

ptr2=str2;

int j;

for(j=0;\*ptr2!='\0';j++,ptr2++,ptr1++)

{ \*ptr1=\*ptr2; }

\*ptr1='\0';

cout<<"Concatenated strings : "<<str1<<endl;

}

void Copy()

{

char str1[20];

char str2[20];

cout<<"Enter the string 1 : ";

cin>>str1;

char \*ptr1;

ptr1=str1;

char \*ptr2;

ptr2=str2;

int i=0;

for(i=0;\*ptr1!='\0';i++,ptr1++,ptr2++)

{ \*ptr2=\*ptr1; }

\*ptr2='\0';

cout<<"Copied strings : "<<str2<<endl;

}

void rev()

{

char str1[20];

char str2[20];

cout<<"Enter the string 1 : ";

cin>>str1;

char \*ptr1;

ptr1=str1;

char \*ptr2;

ptr2=str2;

int i,j,k;

for(i=0;\*ptr1!='\0';i++,ptr1++);

cout<<i<<endl;

k=i-1;

i--;

for(j=0;j<=k;j++,i--)

{ str2[j]=str1[i];

}

str2[j]='\0';

cout<<"Reversed strings : "<<str2<<endl;

}

int main()

{

int choice;

cout<<"Please select your choice\n\n1. Length\n\n2. Compare\n\n3. Concat\n\n4. Copy\n\n5. Reverse\n"<<endl;

cin>>choice;

switch(choice)

{

case 1: length();

break;

case 2: compare();

break;

case 3: concat();

break;

case 4: Copy();

break;

case 5: rev();

break;

}

int i;

cout<<"Do you want to perform more operations?\n\n1. YES\n\n2.NO\n"<<endl;

cin>>i;

if(i==1)

{ main(); }

else

{ cout<<"Thank You\n"; }

}

OUTPUT:-

Please select your choice

1. Length

2. Compare

3. Concat

4. Copy

5. Reverse

1

Enter the string 1 : kaivalya

Length of string 1 = 8

Do you want to perform more operations?

1. YES

2.NO

1

Please select your choice

1. Length

2. Compare

3. Concat

4. Copy

5. Reverse

2

Enter the string 1 : abc

Enter the string 2 : abc

Length of string 1 = 3

Length of string 2 = 3

K=3

Both strings are identical

Do you want to perform more operations?

1. YES

2.NO

1

Please select your choice

1. Length

2. Compare

3. Concat

4. Copy

5. Reverse

2

Enter the string 1 : abc

Enter the string 2 : Abc

Length of string 1 = 3

Length of string 2 = 3

K=0

Strings are different

Do you want to perform more operations?

1. YES

2.NO

1

Please select your choice

1. Length

2. Compare

3. Concat

4. Copy

5. Reverse

3

Enter the string 1 : kai

Enter the string 2 : valya

Concatenated strings : kaivalya

Do you want to perform more operations?

1. YES

2.NO

1

Please select your choice

1. Length

2. Compare

3. Concat

4. Copy

5. Reverse

4

Enter the string 1 : abc

Copied strings : abc

Do you want to perform more operations?

1. YES

2.NO

1

Please select your choice

1. Length

2. Compare

3. Concat

4. Copy

5. Reverse

5

Enter the string 1 : abc

3

Reversed strings : cba

Do you want to perform more operations?

1. YES

2.NO

2

Thank You

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CONCLUSION:-

1) It is a way of using a contagious chunk of memory.

2) Pointers can hold only the address of the string and not the characters of the strings

3) Pointers are basically used to store and manage address dynamically.

4) Pointers increase the processing speed.

5) Pointers save the memory