**Assignment: - 05/ 2D arrays and Strings**

1. **Write a C program to add two matrices.**

#include <stdio.h>

int main()

{

int m, n, c, d, first[10][10], second[10][10], sum[10][10];

printf("Enter the number of rows and columns of matrix\n");

scanf("%d%d", &m, &n);

printf("Enter the elements of first matrix\n");

for (c = 0; c < m; c++)

for (d = 0; d < n; d++)

scanf("%d", &first[c][d]);

printf("Enter the elements of second matrix\n");

for (c = 0; c < m; c++)

for (d = 0 ; d < n; d++)

scanf("%d", &second[c][d]);

printf("Sum of entered matrices:-\n");

for (c = 0; c < m; c++) {

for (d = 0 ; d < n; d++) {

sum[c][d] = first[c][d] + second[c][d];

printf("%d\t", sum[c][d]);

}

printf("\n");

}

return 0;

}

Output

Enter the number of rows and columns of matrix

2

2

Enter the elements of first matrix

4

5

6

8

Enter the elements of second matrix

7

8

9

4

Sum of entered matrices:-

11 13

15 12

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Process exited after 13.62 seconds with return value 0

Press any key to continue . . .

1. **Write a C program to check whether a String is palindrome**

#include <stdio.h>

#include <string.h>

int main()

{

char a[100], b[100];

printf("Enter a string to check if it's a palindrome\n");

gets(a);

strcpy(b, a); // Copying input string

strrev(b); // Reversing the string

if (strcmp(a, b) == 0) // Comparing input string with the reverse string

printf("The string is a palindrome.\n");

else

printf("The string isn't a palindrome.\n");

return 0;

}

Output

Enter a string to check if it's a palindrome

sas

The string is a palindrome.

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Process exited after 4.155 seconds with return value 0

Press any key to continue . . .

Enter a string to check if it's a palindrome

sdf

The string isn't a palindrome.

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Process exited after 2.017 seconds with return value 0

Press any key to continue . . .

1. **Write a C program to copy one String into another and count the number of characters copied without using any library function. Define separate functions for string copy and count of characters**

**#include<stdio.h>**

**#include<string.h>**

**int main()**

**{**

**char str1[50], str2[50];**

**int i=0,length=0;**

**printf("enter a string ");**

**gets(str1);**

**while(str1[i]!='\0')**

**{**

**length++;**

**i++;**

**}**

**printf("the length of the string %s = %d\n",str1,length);**

**i=0;**

**while(str1[i]!='\0')**

**{**

**str2[i]=str1[i];**

**i++;**

**}**

**printf("i=%d\n",i);**

**str2[i]='\0';**

**printf("the 2nd string is= ");**

**puts(str2);**

**}**

Output

enter a string sabuj

the length of the string sabuj = 5

i=5

the 2nd string is= sabuj

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Process exited after 7.809 seconds with return value 0

Press any key to continue . . .

1. **Write a C program to define string functions equivalent to *strcat(), strcmp(), strrev()***

#include<stdio.h>

void strconcat(char \*,const char \*);

int strcompr(char \*,char \*);

void strreverse(char \*);

int main()

{

char a[100],b[100];

int ch,x;

printf("\n1.Press 1 to concatenate two strings\n 2.Press 2 to compare two strings\n 3.Press 3 to reverse a string\n");

printf("\nEnter your choice: ");

scanf("%d",&ch);

switch(ch)

{

case 1: printf("Enter the first string: ");

scanf("%s",a);

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

scanf("%s",b);

printf("Concatenated string is ");

strconcat(a,b);

puts(a);

break;

case 2: printf("\nEnter the first string: ");

scanf("%s",a);

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

scanf("%s",b);

x=strcompr(a,b);

if(x==0)

printf("Both strings are equal");

else if(x>0)

printf("First string is bigger");

else

printf("Second string is bigger");

break;

case 3: printf("Enter a string\n");

scanf("%s",a);

strreverse(a);

printf("Reverse of the string is %s\n", a);

break;

default: printf("\nWrong choice");

}

return 0;

}

void strconcat(char \*a,const char \*b)

{

while(\*a!='\0')

{

a++;

}

\*a=' ';

a++;

while(\*b!='\0')

{

\*a=\*b;

a++;

b++;

}

\*a='\0';

}

int strcompr(char \*a,char \*b)

{

while(\*a!='\0' && \*b!='\0')

{

if(\*a!=\*b)

break;

else

{

a++;

b++;

}

}

if(\*a==\*b)

return 0;

else if(\*a>\*b)

return 1;

else

return -1;

}

void strreverse(char \*a)

{

int len, i;

char temp;

for(len=0;a[len]!='\0';len++);

for (i = 0; i < len/2; i++)

{

temp = a[i];

a[i] = a[len-1-i];

a[len-1-i] = temp;

}

}

Output

1.Press 1 to concatenate two strings

2.Press 2 to compare two strings

3.Press 3 to reverse a string

Enter your choice: 1

Enter the first string: sabuj

Enter the second string:golui

Concatenated string is sabuj golui

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Process exited after 14.16 seconds with return value 0

Press any key to continue . . .

1.Press 1 to concatenate two strings

2.Press 2 to compare two strings

3.Press 3 to reverse a string

Enter your choice: 2

Enter the first string: house

Enter the second string: home

First string is bigger

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Process exited after 12.66 seconds with return value 0

Press any key to continue . . .

1.Press 1 to concatenate two strings

2.Press 2 to compare two strings

3.Press 3 to reverse a string

Enter your choice: 3

Enter a string

zoom

Reverse of the string is mooz

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Process exited after 11.51 seconds with return value 0

Press any key to continue . . .