**Pointers**

**1.Write a C program to swap two numbers without using third variable using call by reference.**

Program:

#include <stdio.h>

void swap(int \*a,int \*b)

{

\*a=\*a+\*b;

\*b=\*a-\*b;

\*a=\*a-\*b;

}

int main()

{

int n1,n2;

printf("Input the two number: ");

scanf("%d%d",&n1,&n2);

swap(&n1,&n2);

printf("The values after swapping are %d and %d",n1,n2);

return 0;

}

**OUTPUT:**

Text

Description automatically generated

**2.Write a C program to read array elements using pointers and print with**

**addresses.**

Program:

#include <stdio.h>

int main()

{

int n,i;

printf("Enter the size of the array: ");

scanf("%d",&n);

int arr[n];

printf("Enter the values: ");

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

scanf("%d",(arr+i));

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

{

printf("\nThe address at index %d is %u value is %d",i,arr+i,\*(arr+i));

}

return 0;

}

**OUTPUT:**

Text

Description automatically generated

**3.Write a C program to copy one array to another using pointer.**

Program:

#include <stdio.h>

int main()

{

int n,i;

printf("Enter the size of the array: ");

scanf("%d",&n);

int arr1[n],arr2[n];

printf("Enter the values of the array: ");

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

scanf("%d",arr1+i);

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

{

\*(arr2+i)=\*(arr1+i);

}

printf("\nValues copied in the second array: ");

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

printf("%d ",arr2[i]);

return 0;

}

**OUTPUT:**

A picture containing text, black

Description automatically generated

**4.Use an array of function pointers to perform any on the following arithmetic operation +, -, \*, / based on the user choice.**

Program:

#include <stdio.h>

float add(float a, float b)

{

return a+b;

}

float sub(float a, float b)

{

return a-b;

}

float mul(float a, float b)

{

return a\*b;

}

float divi(float a, float b)

{

return a/b;

}

float (\*ptr[4]) (float x, float y);

int main()

{

float n1,n2;

int choice;

printf("Input the first decimal: ");

scanf("%f",&n1);

printf("Input the second decimal: ");

scanf("%f",&n2);

ptr[0]=add;

ptr[1]=sub;

ptr[2]=mul;

ptr[3]=divi;

printf("\n1: Addition\n2: Subtraction\n3: Multiplication\n4: Division\nEnter Choice :");

scanf("%d",&choice);

printf("Output: %f",(\*ptr[choice-1])(n1,n2));

return 0;

}

**OUTPUT:**

**Text

Description automatically generated**

**String**

**Q1. Write a C Program to get two string inputs from the user. Compare the two strings using string function and print strings are equal or not.**

Program:

#include <stdio.h>

#include<string.h>

int main()

{

char str1[50],str2[50];

printf("Input the first string: ");

gets(str1);

printf("Input the second string: ");

gets(str2);

if(strcmp(str1,str2))

printf("The two strings are not equal");

else

printf("The two strings are equal");

return 0;

}

**OUTPUT:**

Text

Description automatically generatedA picture containing text, black

Description automatically generated

**Q2. Write a function int isPalindrome(char str[ ]) that takes a string and returns 1 if str is a palindrome and 0 (zero) otherwise. Implement the function by employing a for loop.**

Program:

#include <stdio.h>

#include<string.h>

int isPalindrome(char str[])

{

int t=1;

for(int i=0;i<strlen(str)/2;i++)

{

if(str[i]!=str[strlen(str)-i-1])

{

t=0;

break;

}

}

return t;

}

int main()

{

char c[50];

printf("Input the string: ");

gets(c);

if(isPalindrome(c))

printf("Given string is a palindrome");

else

printf("Given string is not a palindrome");

return 0;

}

**OUTPUT:**

Text

Description automatically generatedText

Description automatically generated

**Q3.Write a C program to accept first name, middle name and last name from user, store them in 3 different character arrays. Concatenate these 3 strings in one and print as full name.**

Program:

#include <stdio.h>

int main()

{

char c1[50],c2[50],c3[50],c4[150];

printf("Enter first name: ");

gets(c1);

printf("Enter middle name: ");

gets(c2);

printf("Enter last name: ");

gets(c3);

strcpy(c4,c1);

strcat(c4," ");

strcat(c4,c2);

strcat(c4," ");

strcat(c4,c3);

printf("Full name is: %s",c4);

return 0;

}

**OUTPUT:**

A picture containing text, screen

Description automatically generated

**Q4. Write a C program to accept a string from the user and count the number of vowels and consonants in it.**

Program:

#include <stdio.h>

#include<ctype.h>

#include<string.h>

int main()

{

char str[50];

int i,aph=0,vow=0,con=0;

printf("Input the string: ");

gets(str);

for(i=0;i<strlen(str);i++)

{

if(isalpha(str[i]))

{

aph++;

if(str[i]=='a'||str[i]=='A'||str[i]=='e'||str[i]=='E'||str[i]=='i'||str[i]=='I'||str[i]=='o'||str[i]=='O'||str[i]=='u'||str[i]=='U')

vow++;

else

con++;

}

}

printf("String Length: %d",strlen(str));

printf("\nTotal Aplhabets: %d",aph);

printf("\nTotal Vowels: %d",vow);

printf("\nTotal Consonants: %d",con);

return 0;

}

**OUTPUT:**

A picture containing text, screen, screenshot

Description automatically generated