**WEEK #6**

**OBJECTIVES**

* To help the students in learning the concepts of pointers in C++.
* To help the students in implementing and handling pointers with the help onρ various examples.
* To help the students in understanding various operations associated with theρ pointers.

**OUTCOMES**

After completing this, the students would be able to:

Handle pointers in the programs.

* Developρ & implement simple examples of pointers.
* Implement extensive use of pointers for memory, array, structures andρ functions.

1# Write a C++ Program for Add Two Numbers Using Pointer.

//C++ Program for Add Two Numbers Using Pointer.

#include<iostream>

using namespace std;

void sum(int num1, int num2){

int\* ptr1 = &num1;

int\* ptr2 = &num2;

int sum = \*ptr1 + \*ptr2;

cout<<"The sum of the number is : "<<sum;

}

int main(){

int num1;

cout<<"Enter the first number :";

cin>>num1;

int num2;

cout<<"Enter the second number :";

cin>>num2;

sum(num1, num2);

return 0;

}

2# Write a C++ Example Program for Swap Numbers Using Pointers.

// C++ program to swap two numbers using pointers

#include<iostream>

using namespace std;

void swapNum(int \*num1, int \*num2){

int temp;

temp = \*num1;

\*num1= \*num2;

\*num2= temp;

cout<<"Number 1 ="<<\*num1<<endl;

cout<<"Number 2 = "<<\*num2;

}

int main(){

int num1;

cout<<"Enter the first number :" ;

cin>>num1;

int num2;

cout<<"Enter the second number :" ;

cin>>num2;

swapNum(&num1, &num2);

return 0;

}

3# Write a C++ Program to Print the address of the Variable Using a Pointer.

// C++ Program to print adress of a variable using pointer

#include<iostream>

using namespace std;

int main(){

int num1;

int \*ptr =&num1;

cout<<"The adress of the variable is :"<<ptr;

return 0;

}

4# Write a C++ Program for Increment and Decrement Integer Using Pointer.

// C++ Program for Increment and Decrement Integer Using Pointer.

#include<iostream>

using namespace std;

int main(){

int num = 1;

int \*ptr = &num;

++\*ptr;

cout<<"Incremented Number is :"<<num<<endl;

--\*ptr;

--\*ptr;

cout<<"Decremented Number is :"<<num;

return 0;

}

5# Write a C++ Program for Print String Using Pointer.

//C++ Program for Print String Using Pointer.

#include<iostream>

using namespace std;

int main(){

string strr;

cout<<"Enter the String: ";

getline(cin,strr);

string \*ptr = &strr;

cout<<\*ptr;

return 0;

}

6# Write a C++ program to concatenate two strings using pointers.

// C++ program to concatenate two strings using pointers.

#include<iostream>

using namespace std;

int main(){

string s1, s2, \*str1, \*str2;

cout<<"Enter the first string : ";

cin>>s1;

cout<<"Enter the second string : ";

cin>>s2;

str1=&s1;

str2=&s2;

cout<<"concate : "<<\*str1 + \*str2;

return 0;

}

7# Write a program for reading elements using a pointer into an array and display the

values using an array.

i. Declare a set of elements.

ii. Declare the pointer and initialize it to the first element address of

a set of elements(array).

ii. Repeat the loop until the pointer reaches to the last element and

displays each element.

#include <iostream>

using namespace std;

int main()

{

int size;

cout << "Enter size of the array: ";

cin >> size;

int \*arr = new int[size];

for(int i = 0; i < size; i++)

{

cout << "-> ";

cin >> \*(arr + i);

}

cout << "The array is ";

cout << "[";

for (int i = 0; i < size; i++)

{

cout << \*(arr + i) << " ";

}

cout << "]" << endl;

}

8# Write a program through a pointer variable to the sum of n elements from the array.

#include<iostream>

using namespace std;

int main(){

int size;

cout<<"Enter the size of array:";

cin>>size;

int \*arr = new int[size];

cout<<"Enter the elements of array: ";

for(int i=0; i<size; i++){

cin>>arr[i];

}

int sum = 0;

cout<<"\nArray is : "<<"[ ";

for(int i =0; i<size; i++){

cout<<arr[i]<<" ";

sum = sum+ arr[i];

}

cout<<"] ";

cout<<"\nThe sum is : "<<sum;

return 0;

}

9# Write a program for reading elements using a pointer into th e array and display the

values using an array.

#include<iostream>

using namespace std;

int main(){

int size;

cout<<"Enter the size of array:";

cin>>size;

int \*arr = new int[size];

cout<<"Enter the elements of array: ";

for(int i=0; i<size; i++){

cin>>\*(arr+i);

}

cout<<"\nArray is : "<<"[ ";

for(int i =0; i<size; i++){

cout<<arr[i]<<" ";

}

cout<<"] ";

return 0 ;

}

10# Write a C++ program to reverse a string using pointers.

#include <iostream>

#include <cstring>

using namespace std;

void reverseString(char\* str) {

int length = strlen(str);

char\* beginPtr = str;

char\* endPtr = str + length - 1;

char temp;

while (beginPtr < endPtr) {

temp = \*beginPtr;

\*beginPtr = \*endPtr;

\*endPtr = temp;

beginPtr++;

endPtr--;

}

}

int main() {

char str[100];

cout << "Enter a string: ";

cin.getline(str, sizeof(str));

cout << "Original string: " << str << endl;

reverseString(str);

cout << "String after reverse: " << str << endl;

return 0;

}