**Data Structures and Algorithms-**



**Lab**

**Assignment No 1**

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**Program No 1:**

#include <iostream> using namespace std; void change(int \*n1, int \*n2) { int temp; temp = \*n1; \*n1 = \*n2;

\*n2 = temp; } int main() { int num1, num2; cout<<"Enter the first number : "; cin>>num1; cout<<"\nEnter the Second number : "; cin>>num2; change(&num1, &num2); cout<<"\nFirst number : "<< num1; cout<<"\nSecond number: "<<num2;

return (0);

}

**Program No 2:**

#include <iostream> using namespace std; int main() {

int ar[5], i, sum = 0; int \*ptr; cout << "Enter any 5 numbers :"; for (i = 0; i < 5; i++) { cin >> ar[i];

} ptr = ar; for (i = 0; i < 5; i++) { sum = sum + \*(ptr + i);

}

cout << "\nSum of the array elements :" << sum; return 0;

}

**Program No 3:**

#include <iostream> using namespace std;

int main() {

int arr[5],i;

int \*p=arr; cout<<"Enter five numbers :"; cin>>\*p>>\*(p+1)>>\*(p+2)>>\*(p+3)>>\*(p+4); cout<<"Numer in reverse order are:\n"; for(i=4;i>=0;i--) cout<<\*(p+i)<<endl;

return 0;

}

**Program No 4:**

#include <iostream>

#include<conio.h> using namespace std; void circlearea(float \*v, float \*r) {

\*r = 3.14 \* (\*v) \* (\*v);

}

int main() { float radius, area; cout << "Enter the radius of Circle : "; cin>>radius; circlearea(&radius, &area); cout << "\nArea of Circle : " << area; return 0; }

**Program No 5:**

#include <iostream> #include<conio.h> using namespace std;

int main() { char str[20], \*pt; int i = 0; cout << "Calculate Length of String \n";

cout << "Enter Any string [below 20 chars] : "; cin>>str; pt = str;

while (\*pt != '\0') { i++; pt++;

}

cout << "\nLength of String : " << i; return 0;

}

**Program No 6:**

#include <iostream> #include<conio.h> using namespace std; int main() { char str[20], \*pt;

int i = 0, c = 0; cout << " Program to Count vowels in String \n"; cout << "Enter Any string [below 20 chars] : "; cin>>str; pt = str; while (\*pt != '\0') { if (\*pt == 'a' || \*pt == 'e' || \*pt == 'i' || \*pt == 'o' || \*pt == 'u'||\*pt == 'A' || \*pt == 'E' || \*pt == 'I' ||

\*pt == 'O' || \*pt == 'U') c++; i++; pt++;

}

cout << "\nLength of String : " << i; cout << "\nVowels Count In the String : " << c; cout << "\nConstant Count in the String : " << (i - c); return 0;

}

**Program No 7:**

#include <iostream> #include<conio.h> using namespace std;

int main() {

char str[30], \*pt; cout << "Enter Any string [below 30 chars] : "; cin>>str; pt = str;

while (\*pt != '\0') {

cout << \*pt; pt++; } return 0;

}

**Program no 8:**

#include <iostream> #include<conio.h> using namespace std; int main() { int \*p1, \*p2; int num1, num2, d; cout << "\nEnter Two Numbers for Find a Difference : \n"; cin>>num1; cin>>num2; p1 = &num1; p2 = &num2; d = \*p1 - \*p2; cout << "Difference :" << d; return 0;

}

**Program No 9:**

#include <iostream> #include<conio.h> using namespace std; int main() {

int a; int \*ptrr; a = 10; ptrr = &a; (\*ptrr)++; cout << "Increment Value of A = " << a;

++(\*ptrr); cout << "\nIncrement Value of A = " << a;

(\*ptrr)--;

cout << "\nDecrement Value of A = " << a;

--(\*ptrr);

cout << "\nDecrement Value of A = " << a; return 0; }

**Program No 10:**

#include <iostream> #include<conio.h> using namespace std; int main() { int a = 20; int \*pa = &a; char b = 'x'; char \*pb = &b; float c = 20.02; float \*pc = &c; double d = 20.01; double \*pd = &d; long e = 20.02; long \*pe = &e; cout << "sizeof(a): = " << sizeof (a); cout << "\nsizeof(\*pa) : = " << sizeof (\*pa);

cout << "\nsizeof(b) : = " << sizeof (b); cout << "\nsizeof(\*pb): = " << sizeof (\*pb);

cout << "\nsizeof(c) : = " << sizeof (c); cout << "\nsizeof(\*pc) : = " << sizeof (\*pc);

cout << "\nsizeof(d): = " << sizeof (d); cout << "\nsizeof(\*pd) : = " << sizeof (\*pd);

cout << "\nsizeof(e): = " << sizeof (e); cout << "\nsizeof(\*pe) : = " << sizeof (\*pe);

return 0; }

**Program no 11:**

#include <iostream>

#include<conio.h>

using namespace std;

int main() {

int a; int \*pt; a = 560; pt = &a; cout << "a:Value of A = " << a; cout << "\n\*pt:Value of A = " << \*pt; cout << "\n&a :Address of A = " << &a; cout << "\npt:Address of A = " << pt; cout << "\n&pt:Address of pt = " << &pt; cout << "\npt:Value of pt = " << pt; return 0;

}

**Program No 12:**

#include <iostream> #include<conio.h> using namespace std; int main() { float a;

float \*pt; a = 564.01; pt = &a; (\*pt)++; cout << "Increment Value of A = " << a;

++(\*pt); cout << "Increment Value of A = " << a;

(\*pt)--;

cout << "Decrement Value of A = " << a;

--(\*pt);

cout << "Decrement Value of A = " << a;

return 0;

}

**Program No 13:**

#include <iostream> using namespace std; int main() { int num1, num2; int \*ptr1, \*ptr2; int mul; cout << "Enter first number: "; cin >> num1; cout << "\n Enter second number: "; cin >> num2; ptr1 = &num1; ptr2 = &num2; mul = \*ptr1 \* \*ptr2; cout << "\n Multiple is: " << mul; return 0; }

**Program no 14:**

#include <iostream> using namespace std; int main() { float num1, num2; float \*ptr1, \*ptr2; float div; cout << "Enter first number: "; cin >> num1; cout << "\nEnter second number: "; cin >> num2; ptr1 = &num1;

ptr2 = &num2; if(\*ptr1>\*ptr2){ div = \*ptr1 / \*ptr2; cout << "\nDivide is: " << div;

}

else{

cout<<"Cant divide by small number";

}

return 0;

}

**Program No 15:**

#include <iostream> #include <conio.h> using namespace std; int main() { int i,\*ptr; ptr=&i; for(\*ptr=0; \*ptr<=1000; \*ptr=\*ptr+5)

{

cout<<\*ptr<<" ";

} return 0;

}