**Part 1**

#include<iostream>

using namespace std;

void Test1()

{

int a,b,c; //Addresses of a, b, c are 10, 20 and 30 respectively

int \*w , \*x, \*y, \*z; //Addresses of w,x,y,z are 40,50,60 and 70 respectively

a = 10;

b = a \* 5;

w = &a;

x = &b;

\*y = \*w + \*x; //Runtime Exception: Illegal Memory Access

}

void Test2()

{

int a,b,c; //Addresses of a, b, c are 10, 20 and 30 respectively

int \*w , \*x, \*y, \*z; //Addresses of w,x,y,z are 40,50,60 and 70 respectively

a = 10;

b = a \* 5;

w = &a;

x = &b;

c = \*x + (\*w \* 2);

y = &a;

\*y = c;

cout<<" \*w =\t"<<\*w<<endl;

cout<<" \*x =\t"<<\*x<<endl;

cout<<" \*y =\t"<<\*y<<endl;

}

void Test3()

{

int a,b,c; //Addresses of a, b, c are 10, 20 and 30 respectively

int \*w , \*x, \*y, \*z; //Addresses of w,x,y,z are 40,50,60 and 70 respectively

z = 0;

a = 10;

b = a \* 5;

w = &a;

x = &b;

c = \*w + \*x;

\*z = c; //Null Reference Exception

cout<<" \*w =\t"<<\*w<<endl;

cout<<" \*x =\t"<<\*x<<endl;

cout<<" \*y =\t"<<\*y<<endl;

}

void main()

{

//Test1();

//Test2();

Test3();

}

**Part 2**

#include<iostream>

using namespace std;

void main()

{

int size = 5;

cout<<"Enter size of array:\t";

cin>>size;

int myArray[size]; //syntax error: size must be a constant. Make it constant to run program successfully.

for(int i=0 ; i<5 ; i++)

cout<<myArray[i]<<endl;

}

**Part 3**

#include<iostream>

using namespace std;

void main()

{

int size = 5;

cout<<"Enter size of array:\t";

cin>>size;

int\* myArrayPtr = new int[size]; //Allocate memory

cout << "\n\nAddress of size:\t" << &size << endl;

cout << "\n\nAddress of myArrayPtr:\t" << &myArrayPtr << endl;

cout << "\n\nAddress saved in myArrayPtr:\t" << myArrayPtr << endl;

cout << "\n\nAddresses of Array Cells:\n\n";

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

{

cout << "Address of index " << i << ":\t" << &myArrayPtr[i] << endl;

}

cout<<"\n\nValues in Array before and after initialization:\n\n";

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

{

cout<<myArrayPtr[i];

myArrayPtr[i] = i+1;

cout<<"\t"<<myArrayPtr[i]<<endl;

}

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

{

cout << "Enter value "<<i<<":\t";

cin >> myArrayPtr[i];

}

cout << "\n\n\nValues entered by user:\n";

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

{

cout << "myArrayPtr[" << i << "]:\t" << myArrayPtr[i]<<endl;

}

}

**Part 4**

#include<iostream>

using namespace std;

void main()

{

int size = 5;

cout<<"Enter size of array:\t";

cin>>size;

int\* myArrayPtr = new int[size]; //Allocate memory

cout << "\n\nAddress of size:\t" << &size << endl;

cout << "\n\nAddress of myArrayPtr:\t" << &myArrayPtr << endl;

cout << "\n\nAddress saved in myArrayPtr:\t" << myArrayPtr << endl;

cout<<"\n\nValues in Array before and after initialization:\n\n";

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

{

cout<<myArrayPtr[i];

myArrayPtr[i] = i+1;

cout<<"\t"<<myArrayPtr[i]<<endl;

}

cout<<"\n\nAddresses of Array Cells:\n\n";

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

{

cout<<"Address of index "<<i<<":\t"<<&myArrayPtr[i]<<endl;

}

// We will cover following lines in next lecture.

delete[] myArrayPtr; //Deallocate Memory

}

**Part 5**

#include<iostream>

using namespace std;

void main()

{

int size;

cout<<"Enter size of array:\t";

cin>>size;

int\* myArrayPtr = new int[size]; //Allocate memory

int\* temp = myArrayPtr;

cout<<"\n\nValues in Array before and after initialization:\n\n";

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

{

cout<<myArrayPtr[i];

myArrayPtr[i] = i+1;

cout<<"\t"<<myArrayPtr[i]<<endl;

}

cout<<"\n\nValues in Array before and after update:\n\n";

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

{

cout<<\*temp;

\*temp = (i+1)\*5;

cout<<"\t"<<\*temp<<endl;

temp++; //Move the pointer to next integer

}

int index = 0;

int\* temp2 = myArrayPtr;

cout<<"\n\nEnter the index which you want to read:\t";

cin>>index;

cout<<"\n\nValue saved at index "<<index<<" is :\t"<<\*(temp2+index)<<endl;

delete[] myArrayPtr; //Deallocate Memory

}