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| Edith Cowan University School of Science |  |

Workshop 6

Understanding Pointers and References

**Related Objectives:**

* Learn about memory addresses and the vector container class.

**Activity:**

1. Work your way through the following code by hand – what should the output be? Check your answer by putting it into a program.

struct Stuff

{

int x;

};

Stuff myStuff;

vector<Stuff> someStuff;

myStuff.x = 1;

someStuff.push\_back(myStuff);

myStuff.x = 2;

someStuff.push\_back(myStuff);

Stuff otherStuff;

vector<Stuff\*> collection;

otherStuff.x = 3;

collection.push\_back(&otherStuff);

otherStuff.x = 4;

collection.push\_back(&otherStuff);

cout << someStuff[0].x;

cout << someStuff[1].x;

cout << ", ";

cout << collection[0]->x;

cout << collection[1]->x;

system("pause");

1. Create a new blank solution Win32 console project and add the following code:

#include<iostream>

#include<string>

#include <fstream>

using namespace std;

int main()

{

string filename = "names.txt";

long begin, end, lineNumber;

string record;

cout << "Attempting to read text file...\n";

ifstream myfile(filename);

if (myfile.is\_open())

{

lineNumber = 0;

while (!myfile.eof())

{

getline(myfile, record);

cout << "Line Number : " << lineNumber << " - " << record << endl;

++lineNumber;

}

myfile.close();

}

else cout << "Unable to open file";

system("pause");

}

Copy the file **names.txt** from this week’s blackboard folder into your projects code directory and run the program.

1. Modify the program:
   * Create an Employee struct which stores a single string variable *name*.
   * Store each name read from the file in an instance of the Employee struct in the while loop.
   * Add each Employee instance to a vector of Employees (don’t forget to #include<vector>
   * Once all records are read from the file (after myfile.close), use a range-based for loop to print out all the names from your vector of Employees.
   * Once you can read the file in and print all records, modify the program so that it does not treat lines starting with ‘//’ as records.