ELEC362 - Week 5

Practical Exercises

1. Implement the following class hierarchy using class inheritance:

Shape

TwoD ThreeD

Rectangle Circle Sphere Box

The following functions should be included:

1. “Print” function: printing the type of the shape.
2. “Area” function: returning the area of the shape in 2D and the surface area in 3D.
3. “Volume” function: only defined for 3D shapes.
4. “Perimeter” function only defined for 2D shapes.

Test the code by defining 4 objects of the different classes and calculate their areas, and print the areas to the console.

1. Create a STL List, with the following items “eggs," "milk," "sugar," "chocolate," and "flour". Suing the member functions of List, remove the first item and insert the item “coffee” instead. Use the member functions to find the element “sugar” and replace it with “honey”. Make sure your code works correctly by printing the list after each step.

Questions to think about:

1. What is class inheritance, what is advantages does it have?
2. How to class access keywords relate to inheritance?
3. What are virtual functions in classes?
4. What are STL containers? What are the advantages of using containers?
5. What is the difference between the ‘size’ and ‘capacity’ of a vector?