You have been asked to design and implement a program that simulates sales of products between three

companies.

• BIG-Alpha produces: widgets

• BIG-Beta produces : braces

• BIG-Cappa produces: crates

Each of the companies produces one product and must trade with the other two to buy products.

Company BIG-Alpha is a supplier of widgets and buys braces 's and crates, while company BIG-Beta is a

supplier of braces and buys widgets and crates, and company BIG-Cappa is a supplier of crates and buys

widgets and braces.

Each company has 40 depots, each containing a varying number of native products and external products.

The minimum stock of native products for each depot is 15, and the maximum stock is 40. The same way,

each depot can hold a minimum of 2 and a maximum of 30 of the external product.

Specific requirements

You are required to implement the following program specification.

To do this, you must implement/customise at least TWO Object Oriented Design Patterns. You also must

use best practice in Object Oriented software development and demonstrate knowledge of ObjectOriented programming principles.

When the program starts running the simulation should start, adhering to the following rules: [0-40]

• Companies and depots most be created in memory with random values of allowance, stock (native

and external produce) and prices (products and delivery).

• Each depot must have its own product price and delivery price. These should be random numbers

between 1 and 10

• Every depot has a random initial cash allowance between 50 and 100

• Each depot from one company should try to trade with all depots from the other companies

• A depot cannot go below its minimum stock of its native product

• A depot cannot store above its maximum stock of its native product

• A depot cannot go below its minimum stock of its purchase products

• A depot cannot store above its maximum stock of its purchase products

Once the simulation is complete the user should be presented with a menu that allows them to see detailed information about the whole trading simulation: [0-20]

• See all transactions

• See all transactions for a particular company

• For a given company, detailed information about each of the depots:

o Own product stock

o Foreign products stock

o Cash balance

All this information must also be saved to a text file so it can be retrieved from the file system at a later

stage. [0-10]

Along with your source code, you must also produce a one-page document that includes: [0-20]

• Justification of the design patterns used.

All code to be commented [0-10]