**SENG2200 Assignment 3**

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**Lecturer:** Nan Li

**Lab Demonstrator:** Daniel Bell

**1. Produce a UML class diagram that shows the classes (and interfaces) in your program and the relationship(s) between them.**

**2. Comment on your use of Inheritance and Polymorphism and how you arrived at the particular Inheritance/Polymorphic relationships you used in your program.**

The first instance of polymorphism was used when creating several Stages as a linked list. At first, the plan was to have separate classes for each Stages despite me knowing that an abstract class could also be used to achieve the same goal. However, after some testing and discovering that linking the Stages as nodes is not possible with separate classes, it became necessary to implement a polymorphic structure to the Stages. Thereby, adding the Stage as the superclass with StartStage, MiddleStage and FinishStage as the subclasses. This was also suggested by Dan’s drawings in one of the Zoom labs which helped.

Following this comment, most of the linked list features were implemented in the Stage class whereas most of the smaller adjustments and creation of the class was produced in the inherited classes. For example, StartStage needed to be linked with the Interstorage Q01 in comparison to FinishStage where an Interstorage is not required because Items are only going in one direction.

**3. How easy will it be to alter your program to cater for a production line with a different topology – e.g. one with 4 stations or 10 stations, or one that has stations S3a/b/c rather than just S3a/b?**

**4. How easy will it be to alter your program to cater for a production line that is more complicated than the “straight line” item processing that your program does – e.g. one that involves taking two different types of items and assembling them to make a new type of item? Would you design your program differently if you had known that this might be a possibility? E.g. the following production line?**