System Design

## Joshua Froggatt | [frojy009@mymail.unisa.edu.au](mailto:frojy009@mymail.unisa.edu.au) | 110375072

* **Item** inherits from the **abstract item** interface, which houses the basic variables and functions that all items share.
* **Item** has different multipliers that it adds to certain simulation parameters, item can have 1 or many different multipliers, this is why composition was used.
* The **bought\_items** multimap, is used to keep track of the different multipliers that the items have, because item multipliers remain static throughout gameplay, for example:
  + The scrap value multipliers are all added to the multi map under the **value** key, this key keeps track of all of the value multipliers, which are then applied to scrap value during the landed phase.
  + The keys for the bought\_items multi map are:
    - value
    - explorer
    - operator
    - save
    - loot
* The simulation parameter multipliers are constant as they cannot and will not change
* **Inherited Moon** is made up of a composition of **Abstract Moon** and **Travel Cost** if it is a moon with a cost.
* **Abstract Item** has a single Set() function which is used to set whether the item is bought or not, which means whether it can affect the simulation parameters.