Cash Register

Functional Assumptions:

1. I assume, Insert / Update / Delete functionalities are not part of this requirement for both Item and Coupon.
2. I assume, in order to scan an item, the system requires to get item specific inputs from the user.
3. I assume, an Item can be quantified either by weight or quantity (Number of units), but I was not sure about scanning an item by both weight and quantity. So, I created a generic property named “Number of Units” in the item model to enter either weight or quantity. For example, apples will be quantified with weight and Tomato sauce bottles will be quantified with quantity.
4. There is no specific requirement to apply more than one coupon for a cash register, so I assume the system should always accept one coupon per cash register.
5. I assume, “Buy ‘X’ and get ‘Y’ free” coupon is not an item specific discount. So, I count total number of units and apply the coupon. Discount value will be calculated based on the least amount transactions in the register (comments in the code will explain better).

Technical Details:

1. Used “Microsoft Visual Studio Community 2017”
2. Solution has been designed in such a way that it can be extended to any level by inserting any number of layers in between.
3. Solution contains 5 different projects
   1. CashRegister – Handles UI (Console Application)
   2. CashRegister.BusinessLayer – Handles Business Components
   3. CashRegister.DataLayer – Handles Data Layer (No db connection, just using sample data for the proof of concept. Its been designed in such a way that a class with Entity Framework’s DBContext will do the Job).
   4. CashRegister.Common – Handles common components.
   5. CashRegister.Test – Unit test project for the business components. Created test class for “CashRegisterManager” component with more than 80% code coverage.
4. Used “Dependency Injection (Constructor Injection) in all business components.
5. Used “Console application” as a User Interface, but that can be replaced with any of the available UI techniques.
6. Maximize the console window for the better experience.