**QAP 2, Part 2 – Database Design – Alex Ridgeley**

**Sample Business Scenario**

A Guild (in a fantasy RPG world, of course) contracts out its services to clients. These services include tasks such as escorting VIPs, transporting cargo, creating valuable arms and armor, and surveying the land for danger and other oddities. They require a system that will enable them to keep detailed information on their **members**, their **clients**, and the **missions** they have taken on.

The members are all given a **rank** when they join and can increase in rank as time goes on. Each member can choose to select certain fields to **specialize** in – allowing them to be given priority when missions meeting their preferred areas come up. When a mission is completed, each member can file a **mission report** for that mission – the system must be able to keep track of these as well.

The Guild also has a list of **products** that they sell on the side. The system will need to be able to maintain a list of active products, with info on each one. They need to be able to process purchases of these products in the form of an **invoice**.

**Entities:**

* Members:
  + All guild members, active or otherwise. Each one has a rank (only one), and as many specializations as they desire.
* Clients:
  + List of clients along with info necessary for registering them. Organization info if relevant. Include a field for if active or not.
* Missions:
  + Info on each mission. Creation date, deadline date, client who hired us, etc. Specific task information contained in **mission detail** entity. Each mission can have only one client.
* Mission Detail:
  + Contains info on each mission task or requested product. Tied to mission number. A mission can contain many details, but a detail can only be for a single mission. Each unique product requested will also need its own detail.
* Ranks:
  + There are 4 distinct ranks, they are stored/referenced from here. Members can only have one rank each, but the same rank can be held by multiple members.
* Specializations:
  + Members can identify areas that they feel like they are particularly strong. Each spec can be held my many members at a time, and members can have many specs. Handled via **member/spec** join table.
* Mission Reports:
  + Member-written reports for when a mission is completed. Members can write many reports, and missions can have many reports. But each report can only be written by a single member and can only reference a single mission.
* Products:
  + A list of all the small items the guild sells on the side – these can be requested by missions or by invoices
* Invoices:
  + Information on purchases made by clients – date of sale, client who purchased, etc. Each invoice can have only one client but can contain multiple items. Details recorded in **Invoice Detail** table.
* Invoice Detail:
  + Contains info on each invoice item. Product number, quantity, and total cost are all found here. Each unique product will need its own detail item. Links to invoice number. An invoice can contain multiple details, but a detail can only be for a single invoice.