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| Moises Garip | Mariam Saffar |

For phase two, we have kept the 3 principal entities to be used in the system-to-be redacted for phase one. However, two new entities were added that reworked the relationships between the resources, tracking schemas, and users.

Firstly, a **Bank Accounts** table was added to better track the separate funds stored in user accounts. Secondly, the resources are no longer directly associated with the users as ownership. Instead, the resources are primarily associated with the tracking schemas by a new “umbrella” entity that encapsulates all resources. The previously mentioned “umbrella” entity is known as **Resources,** having only the necessary details for table interaction.

The changes were made after suggestions regarding the resource “ownership” as well as a blind spot regarding user money transactions.

System Administrators (SysAdmins), Requesting Users (Requesters), and Supplying Users (Suppliers) are known as the Users.

* **System Administrators** manage the accounts created in the system for the both supplying and requesting users; they also manage the backend tracking tables, but not the individual resources. Multiple administrators may exist.
  + uid: The unique user id.
  + Name: Name of the user.
  + Password: Login credentials for the user.
  + Uname: The name that other users view as this user in the system.
* **Requesting Users** are users in the system that are currently in need of resources. Requesters may own multiple resources by foreign key as well as have multiple bank accounts registered in the system. Requesting users may request resources in the system by soliciting the resources for a certain amount of time (timeNeeded) or money (payAmount), which is tracked by the ReqResources tracking schema.
  + Uid: The unique user id.
  + Name: Name of the user.
  + Password: Login credentials for the user.
  + Uname: The name that other users view as this user in the system.
* **Supplying Users** are users in the system that are currently able to provide resources for those in need. Suppliers may own multiple resources by foreign key as well as have multiple bank accounts registered in the system. Requesting users are tracked by AvailResources and ResResources, for sold resources and lent resources respectively. Lent resources are provided with the supplying user’s uid for returning, while sold resources are provided along with their price.
  + uid: The unique user id.
  + Name: Name of the user.
  + Password: Login credentials for the user.
  + Uname: The name that other users view as this user in the system.

Required Resources (ReqResources), Available Resources (AvailResources), and Reservable Resources (ResResources) are known as the Trackers. Here, we also define the Bank Accounts table for tracking user funds.

* **Required Resources** track the resources solicited by Requesters. Requesters provide funds (payAmount), and time needed (timeNeeded) for purchasable and reservable resources. The tracker is fulfilled by being lent or purchased through the supply trackers Available Resources and Reservable Resources.
  + Rid: The resource’s unique ID.
  + Amount: Amount of the resource requested.
* **Available Resources** track the resources provided for purchase by Suppliers. Suppliers provide the rid and amount of resources they’re putting up for purchase. The Available Resources then allow Required Resources to find the resources needed to fulfill the requests done by the Requesters.
  + Rid: The resource’s unique ID.
  + Amount: Amount of the resource requested.
* **Reservable Resources** track the resources provided for free to be lent to Requesters by Suppliers. Suppliers provide the resource’s id and their system user id. The Reservable Resources then allow Required Resources to find the resources needed to fulfill the requests done by the Requesters, provided the time needed on user request.
  + Rid: The resource’s unique ID.
  + Amount: Amount of the resource requested.
* **Bank Accounts** track the bank accounts and related funds in the system, as well as their associated users.
  + Routingnumber: Account ID associated with account; first part of the primary key.
  + Banknumber: Bank ID associated with account; second part of the primary key.
  + Uid: User associated with the bank account; one user may have multiple accounts.
  + Funds: Current amount of money found within the associated account in the system.

The items of need that are in demand of the system by Requesters and fulfilled by Suppliers, needs like fuel, batteries, food, and medicine, are known as Resources. The system provides umbrella terms for Resources; baby food, canned food are both categorized under food.

Each resource shares the same relationship between two entities: Suppliers and Requesters. A single Supplier may own a plurality of resources to be provided for the system. Requesters may own an amount of resources obtained by the system, some to be returned due to being lent instead of purchased.

All resources are abstracted to their essential details for storing in the tracking schemas.

* **Resource:** The resource abstraction entity. Related to the resource details by their unique rid as well as its rkind (**canned** food, **diesel** fuel, **hammer** tool, etc.).
  + Type: What the resource is, such as food, fuel, tools, etc.
  + Amount: The amount of resource associated with the entity.
  + Uid: The uid of the user who owns the resource.
* **Heavy Equipment:** Equipment needed by Requesters. They range anywhere from jackhammers to excavators.
  + eRequirement: The energy requirement needed by the equipment.
  + eType: The energy type needed by the equipment (electricity, diesel, gasoline, etc)
  + Weight: The weight of the equipment.
  + Age: The time since the equipment was first used.
  + Brand: The equipment’s supplier.
* **Food:** Sustenance needed by Requesters. They range anywhere from canned foods, to baby food. Primarily, non-perishable food.
  + Brand: The food’s supplier.
  + Flavor: The food’s advertised flavor.
  + exDate: the food’s printed expiration date.
  + Size: The amount of food per ration in ounces.
* **Medication:** Medicine needed by Requesters. They range anywhere from painkillers to insulin shots. Reusable devices are classified next, only single-time medicine are classified here as Medication.
  + Brand: The medicine’s supplier (or generic).
  + Form: What form the medicine takes (shot, pill, gel cap, etc).
  + Prescription: Whether the medicine requires a doctor’s prescription.
  + exDate: The medicine’s expiration date.
  + Size: The amount of medicine per ration.
* **Medical Device:** Medical devices needed by requesters. They range anywhere from tongue depressors to automatic medicine injectors.
  + eRequirement: The energy requirement for the device (none, AA batteries, electric current, etc).
  + Weight: The amount the device weighs.
* **Water:** Water needed by Requesters. Mainly provided in the form of ice, gallons, or water bottles.
  + Brand: The water’s suppliers.
  + exDate: The water’s printed expiration date.
  + Size: The amount of water provided by ration in ounces.
* **Clothing:** Clothing needed by Requesters.
  + Gender: The gender the clothing was primarily designed for.
  + Brand: The clothing’s suppliers.
  + Size: The clothing’s primarily designed wearable size.
  + Material: What the clothing is made of.
* **Battery:** Batteries needed by Requesters. Mainly commercially available batteries such as AAA batteries, D batteries, car batteries, etc.
  + Brand: The battery’s supplier.
  + exDate: The battery’s printed expiration date, if applicable.
  + Size: The amount of batteries per ration.
* **Tool**: Tools needed by Requesters. They range anywhere from screwdrivers to power drills. Tools that can generally be handled by hand.
  + eRequirement: The energy requirement needed to handle the tool, if applicable.
  + Weight: The amount the tool weighs.
  + Material: What the tool is made out of.
* **Power Generator:** Power generators needed by Requesters. Power generators are classified as equipment that can generate power in exchange for some fuel source.
  + Fuel: The kind of fuel the power generator requires.
  + eOut: The energy output expected by the power generator.
  + Age: The amount of time since the generator was first used.
  + Weight: The power generator’s weight.
* **Fuel:** Fuel needed by Requesters. Generally required for other resources.
  + Octane: The fuel’s octane rating.