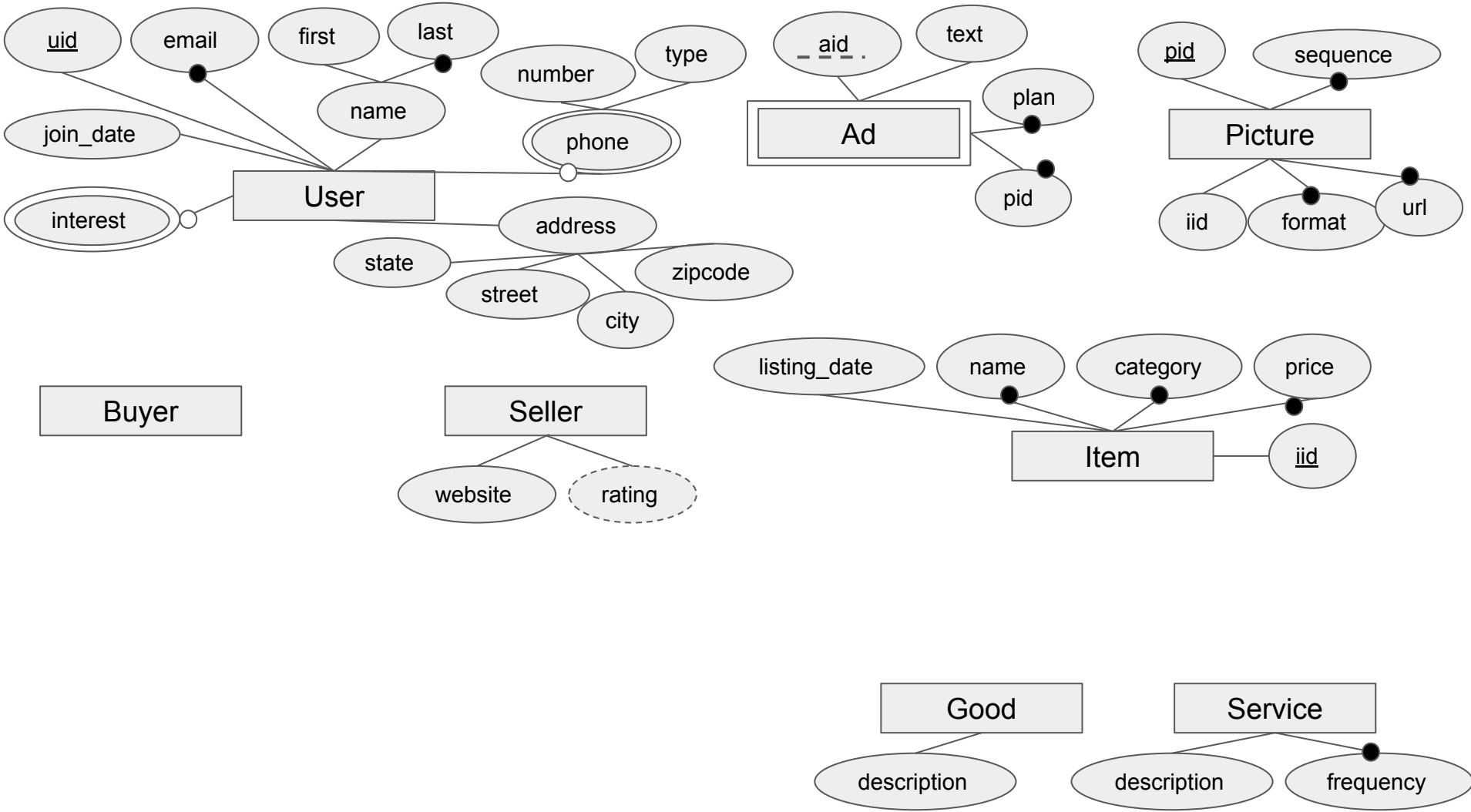
Your name: Micah Chesney Fadrigo

Your student ID: 42923836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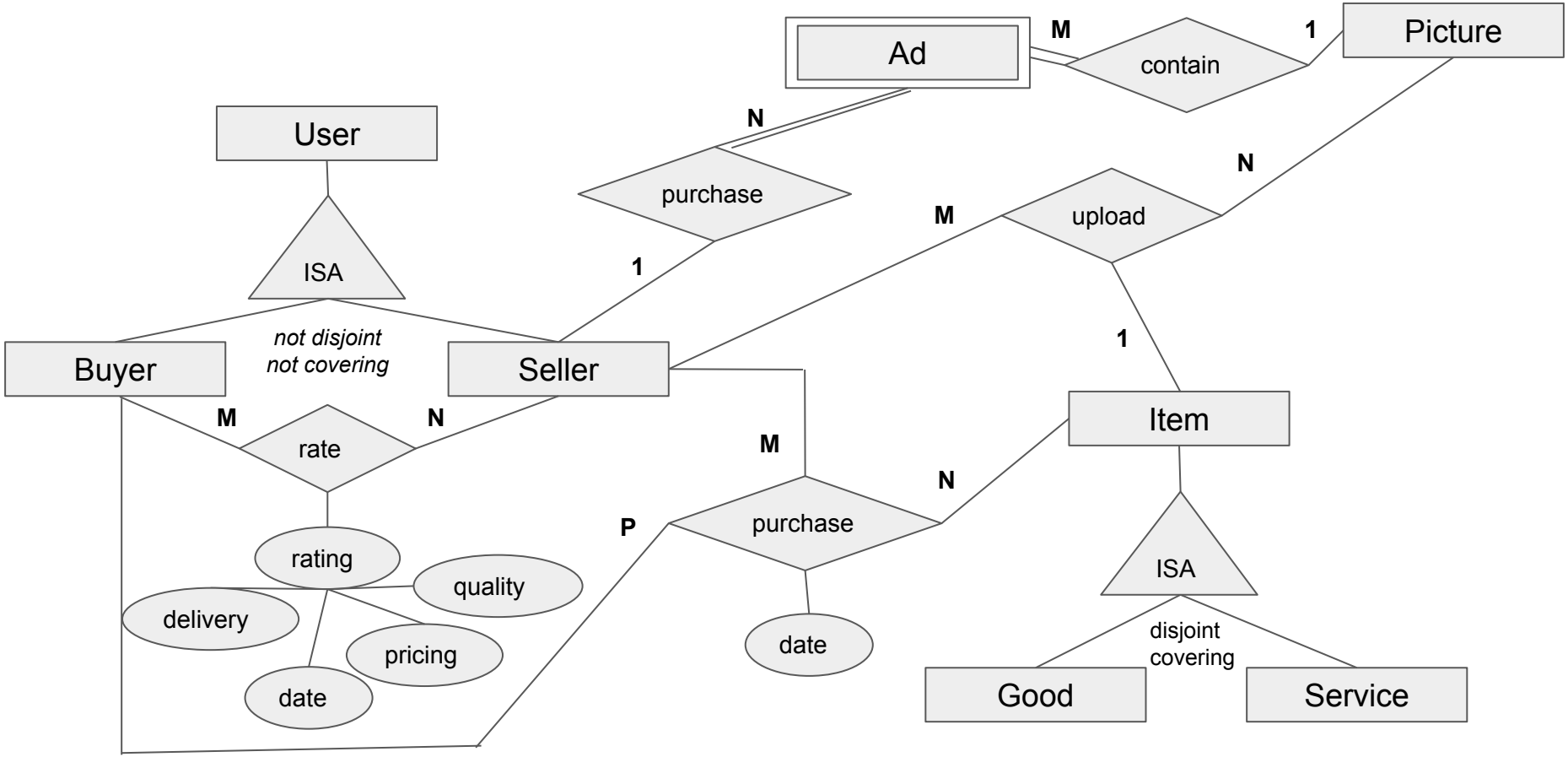
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Partner's Name: Niki Chong

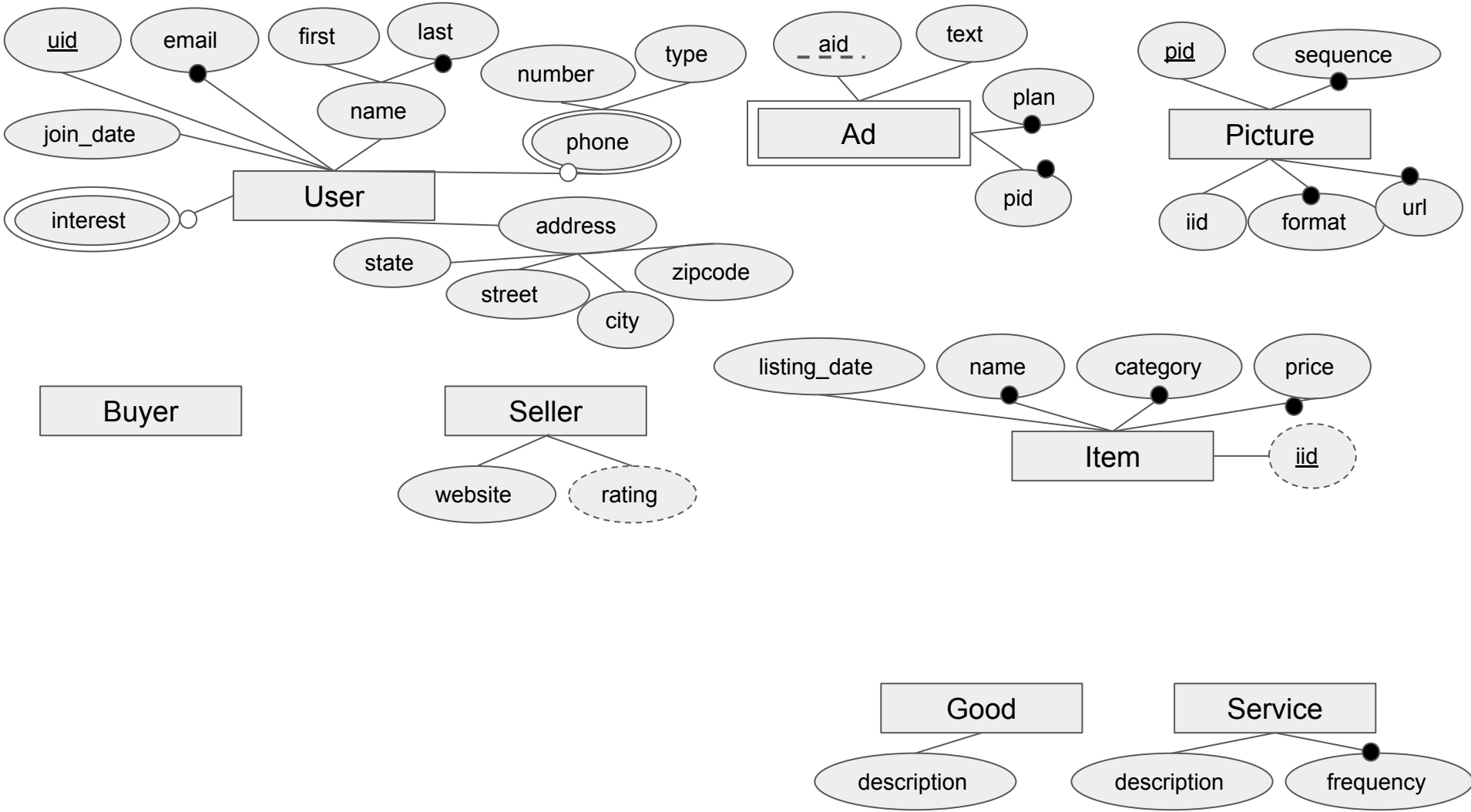
Main differences between yours and your partner's design:

- My diagram: USER entity has the **name** attribute, which is a composite attribute comprising of sub-attributes first name and last name. Niki's diagram: USER entity has **first_name** and **last_name** atomic attributes.
- My diagram: USER entity has multi-valued, composite **phone** attribute since a user can have zero or more phones (data can have multiple occurrences per entity), and each phone can have a **type** and **number**. Niki's diagram: Assumes **phone** as a single-valued, atomic attribute, with no type or number sub-attributes.
- My diagram: USER entity has multi-valued **interest** attribute since a user can have zero or more interest categories. Niki's diagram: Assumes **interest** to be a single-valued attribute where all categories for a user are listed within the same entry.
- My diagram: SELLER entity has the derived attribute **rating** (which represents one overall numeric rating for a seller) and is computed/aggregated based on the one-to-five star ratings from buyers (on quality, pricing, and delivery). I incorporated a **rate** relationship between BUYER and SELLER, with attributes that represent a buyer's rating of that seller, incorporating the 3 categories. Niki's diagram: SELLER entity has the single-valued composite attribute **rating** with sub-attributes: pricing, quality, and delivery. A particular seller can have 3 overall ratings for pricing, quality, and delivery. Also, individual buyer ratings incorporating those 3 categories are descriptive attributes of the **buy** relationship between BUYER and ITEM. The logic here is that when a buyer buys an item (from a seller), the buyer can rate the transaction/seller. For my diagram, I decided to separate the BUY and RATE relationship because a buyer technically does not have to buy an item from the seller in order to rate them. Also, the buyer is rating the seller, not necessarily the item associated with the transaction, which is why I separated **rating** from the buy/purchase relationship between a BUYER and ITEM.
- My diagram: ITEM entity has the derived attribute item id (**iid**) because it is generated based on the system and thus it is a calculated value based on other data. Niki's diagram: ITEM entity has the item id as a regular attribute. In my final diagram I changed item id to a regular attribute because although it is system-generated, it is not specified whether or not it is actually calculated based on other attributes.

- My diagram: GOOD entity has optional description attribute. Niki's diagram: GOOD entity is missing optional description attribute and assigns **frequency** as the primary key. This is incorrect because **frequency** does not uniquely identify a service, since multiple services can have the same frequency. She shows that GOOD and SERVICE ISA ITEM, and so iid would be the primary key.
- My diagram: Ternary relationship (purchase) between BUYER, SELLER, and ITEM. For a given buyer and seller, a buyer can purchase multiple goods and services from the seller. For a given buyer and item, a buyer can purchase the item from multiple sellers. For a given seller and item, a seller can sell that item to multiple buyers. Niki's diagram: Two separate relationships: **buy** relationship between BUYER and ITEM and **sell** relationship between SELLER and ITEM.
- My diagram: Ternary relationship (upload) between SELLER, PICTURE, and ITEM. A giv Niki's diagram: An ITEM must contain at least one picture, contain 1:N relationship between ITEM and PICTURE. She shows that a picture can be contained in 0 or 1 items.
- My diagram: Total participation with a 1:N relationship to the owner entity (SELLER) and many weak entities (ADs). Niki's diagram: Implies that an AD *can* be bought by a seller, and does not show that AD is a weak entity to the owner entity SELLER. AD entity has the additional attributes: **valid_from**, **date_created**, **valid_till**. Also, she created a total participation **contain** relationship between AD and PICTURE because an AD must have exactly 1 picture. In my final ER diagram, I also decided to include this, except mine is a 1:N relationship instead of a 1:1 relationship.
- My diagram: BUYER and SELLER ISA USER hierarchy has the constraints: not disjoint (because a user can be a buyer and a seller) and not covering (because "a user ***can be*** potential buyers and/or sellers"). Niki's diagram: BUYER and SELLER ISA USER hierarchy has the constraints: disjoint (implicitly) and covering (a user must be either a buyer and/or seller, a user itself cannot exist).

What I learned from doing this comparison exercise is that there is no one correct answer for modeling entities and relationships, because we all have our own unique perspectives of the world around us. The interview is not going to give all the information possible and small details can be overlooked or not emphasized, and so it is up to the engineer to rely on one's current knowledge of the world in order to fill in the gaps. Once we start creating the database and relations and insert actual data, we may realize that we have to go back and make some changes to our initial ER diagram, whether that be changes that create new structures or remove existing structures that are not cost-efficient or memory-efficient.

Your initial diagram: (see next 2 pages)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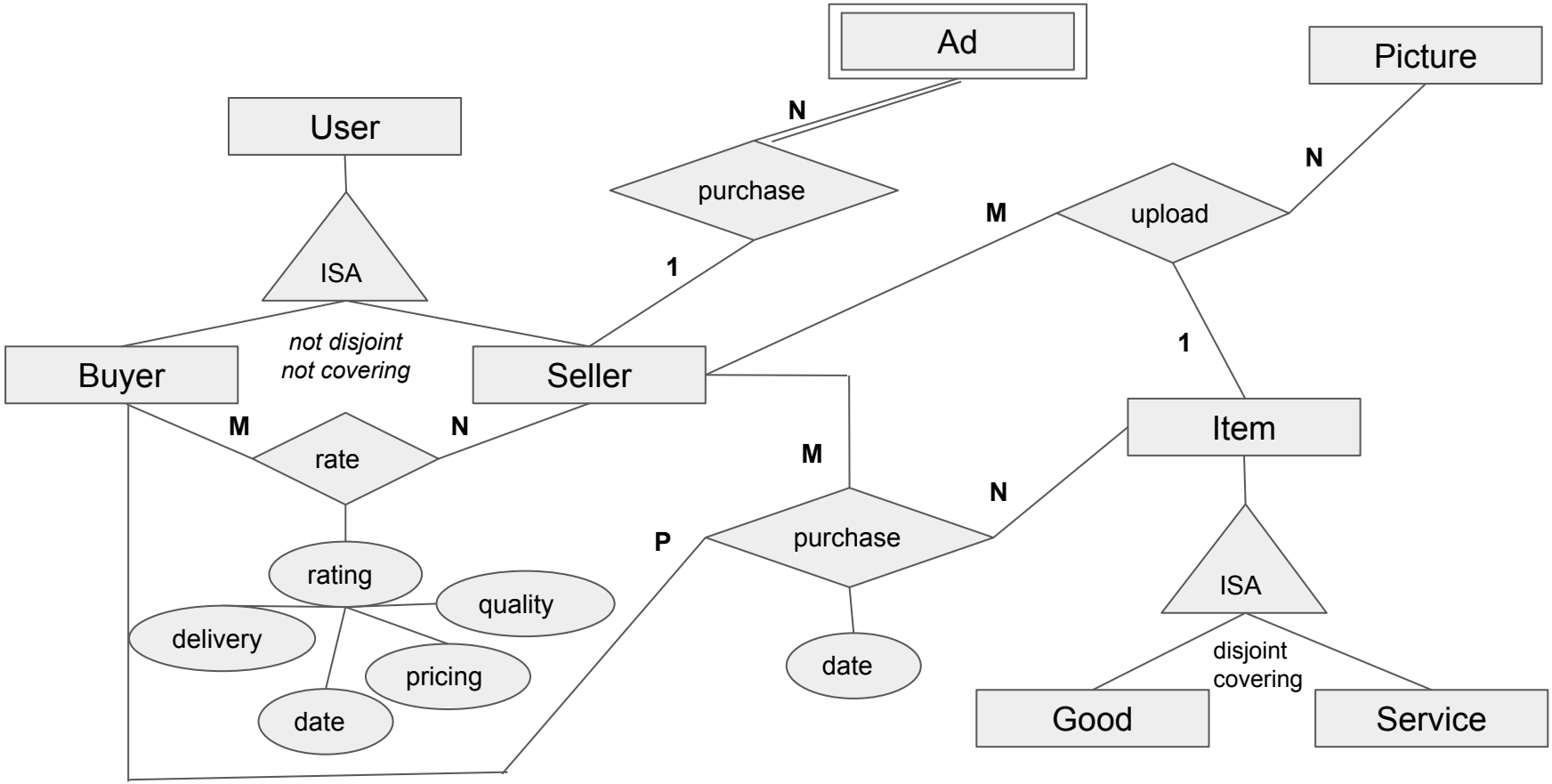
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