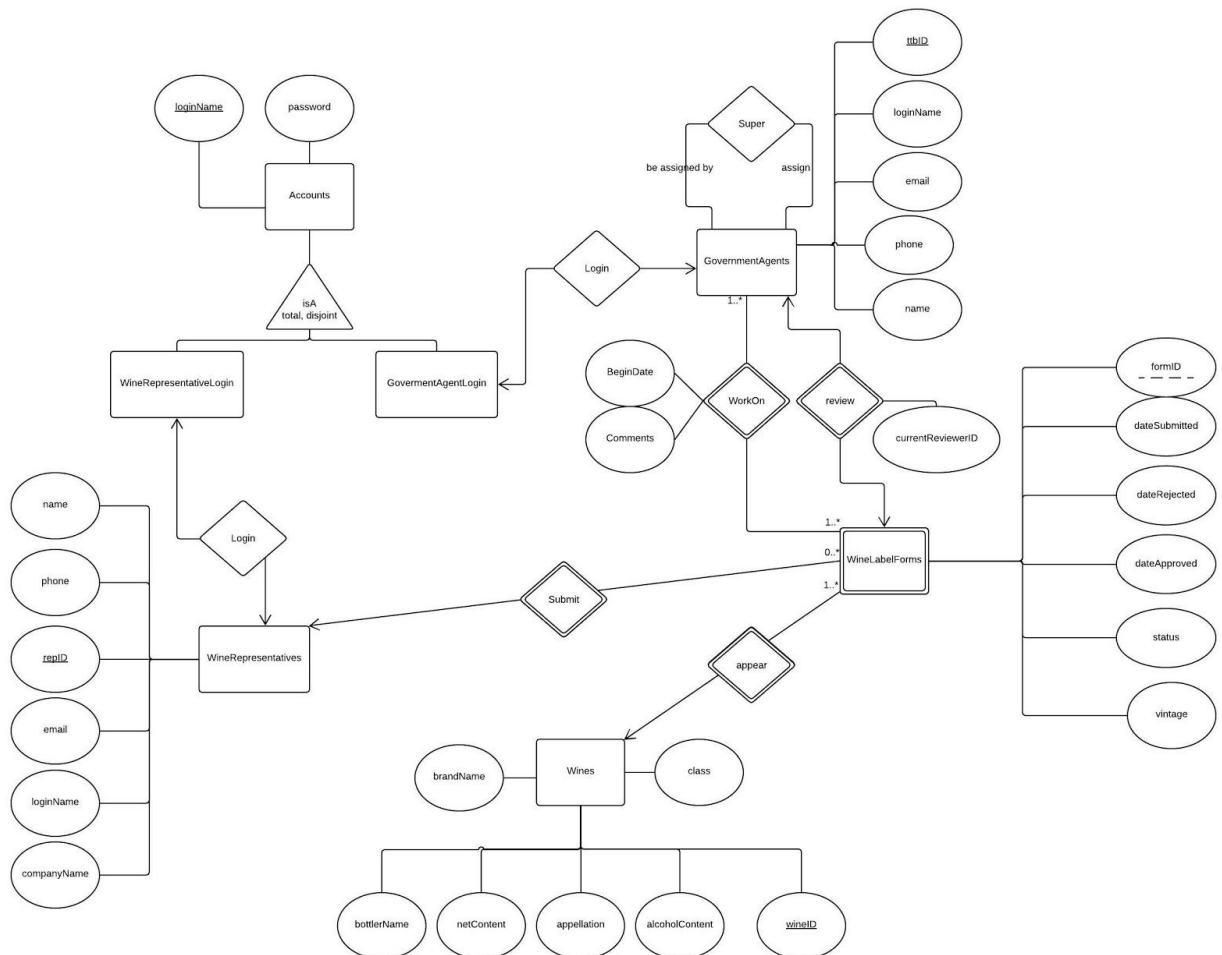


**Problem 1 conceptual ERD:**



**Assumption:**

Assumed that the entity Account has primary key loginName which remains unique across this entire relation.

Assumed that the entity GovernmentAgents has primary key ttbID.

Assumed that the entity WineRepresentatives has primary key repID.

Assumed that the entity Wines has primary key wineID.

Assumed that the entity WineLabelForms is a weak entity and has discriminant formID. The primary key is the combination of formID, ttbID, repID, and wineID.

Assumed that the attribute currentReviewerID belongs to the relationship review, references ttbID in GovernmentAgents, and represents the ttb agent currently reviewing the WineLabelForm.

We have added 2 entities for the ISA relationship WineRepresentativeLogin and GovernmentAgentLogin entities.

## Problem 2: relational Schema

Accounts (loginName, password, role)

WineRepresentativeLogin ( **loginName**, **password**, **role**, **repID**)

Foreign Key WineRepresentativeLogin (loginName, password, role) references Accounts (loginName, password, role)

Foreign Key WineRepresentativeLogin ( repID) references WineRepresentatives(repID)

GovernmentAgentLogin ( **loginName**, **password**, **role**, **ttbID**)

Foreign Key GovernmentAgentLogin (loginName, password, role) references Accounts (loginName, password, role)

Foreign Key GovernmentAgentLogin ( ttbID) references GovernmentAgents(ttbID)

GovernmentAgents (ttbID, **loginName**, **superAgentID**, email, phone, name)

Foreign Key GovernmentAgents (loginName) references Accounts (loginName)

Foreign Key GovernmentAgents (superAgentID) references Accounts (ttbID)

WineRepresentatives (repID, **loginName**, companyName, email, phone, name)

Foreign Key WineRepresentatives (loginName) references Accounts (loginName)

Wines (wineID, brandName, class, bottlerName, netContent, alcoholContent, appellation)

WineLabelForms (formID, **currentReviewerID**, **ttbID**, **repID**, dateSubmitted, dateRejected, dateApproved, status, **wineID**, vintage, BeginDate, Comments)

Foreign Key WineLabelForms(ttbID) references GovernmentAgents (ttbID)

Foreign Key WineLabelForms(currentReviewerID) references GovernmentAgents (ttbID)

Foreign Key WineLabelForms(repID) references WineRepresentatives (repID)

Foreign Key WineLabelForms(wineID) references Wines (wineID)