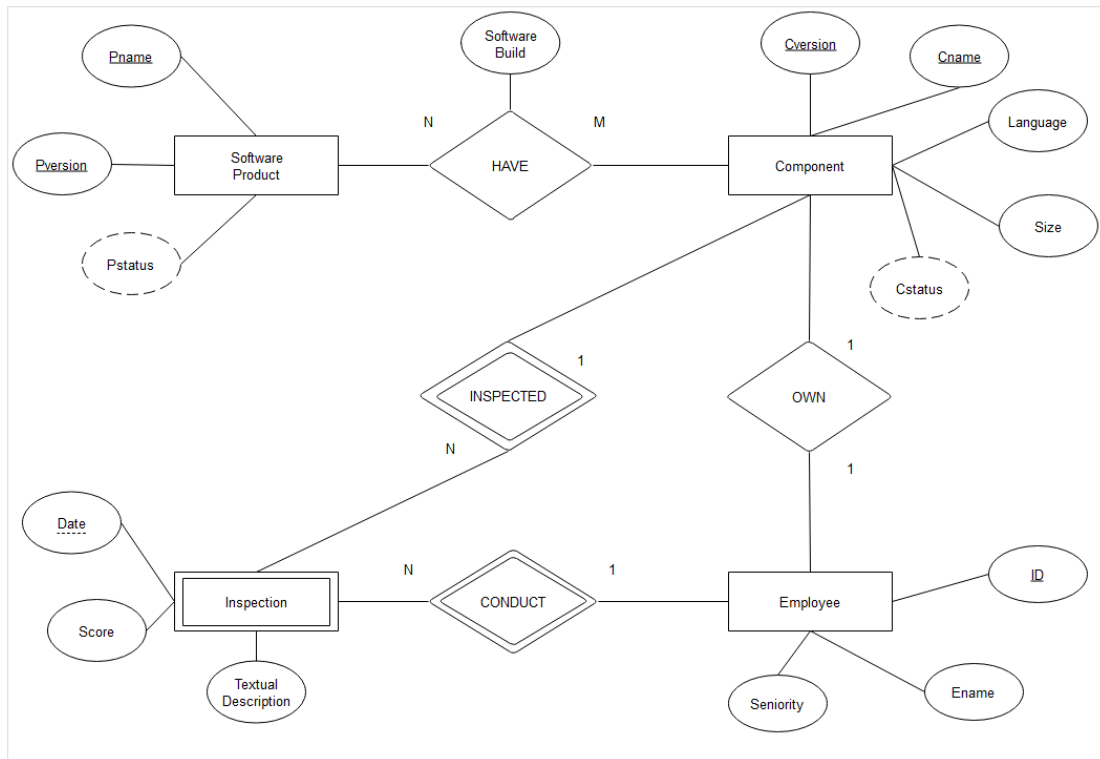
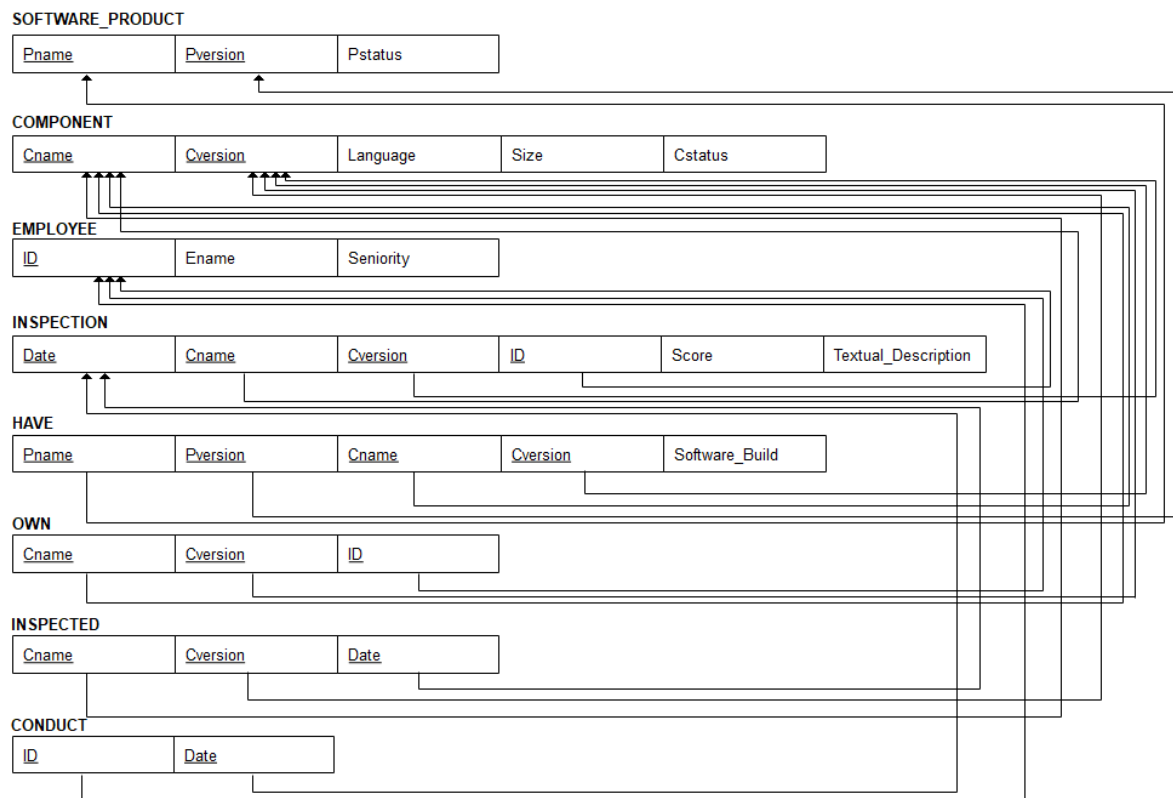


Project Phase1

Part 1. ER diagram



Part 2. Relational Schemas



Part 3. Description

- a) There are 4 relations called “HAVE”, “OWN”, “INSPECTED”, “TAKE”. There are 8 tables in this project.
- b) Table called “SOFTWARE_PRODUCT” takes “Pname” and “Pversion”, because in the requirement it said a product was identified by its name and version. This table has a computed attribute “Pstatus”. It can be decided in the status of components.
- c) Table called “COMPONENT” takes “Cname” and “Cversion” as the primary key. It also has a computed attribute “Cstatus” that can be decided by the inspection score.
- d) Table called “EMPLOYEE” represents the people in OSF. It includes the people who own the product and the people who inspect the component. This table has a primary key “ID” which is unique.
- e) Table called “INSPECTION” is a weak entity, since it exists relying on entity “COMPONENT” and “EMPLOYEE”. Table “INSPECTION” has a partial key “Date”. It has foreign key “Cname” and “Cversion” from table “COMPONENT”, and has foreign key “ID” from table “EMPLOYEE”.
- f) Relation “HAVE” has its attribute “Software_Build” because in the requirement, each software product requires a software build, and it can identify the components needed for a product. Obviously, table “HAVE” has foreign key “Cname” and “Cversion” from table “COMPONENT”, and has foreign key “Pname” and “Pversion” from table “SOFTWARE_PRODUCT”. One product includes several components, while components may be shared among products. Thus, it is M:N relation.
- g) Relation “OWN” means each component has one person identified as its owner, so a person(employee) can own a component. It is a 1:1 relation. It has foreign key “Cname” and “Cversion” from table “COMPONENT”, and has foreign key “ID” from table “EMPLOYEE”.
- h) Relation “INSPECTED” means each component can be inspected and get the status to an inspection. Because Components may be inspected multiple times, so this relation should be 1:N relation. This table has foreign key “Cname” and “Cversion” from table “COMPONENT”, and has the foreign key “Date” from table “INSPECTION”.
- i) Relation “CONDUCT” means an employee conducted the inspection. One employee in OSF may be responsible for more than one inspections. In addition, although multiple employee can participate in an inspection, we just consider the condition that only one employee tasks with and responsible for the review. Thus, this relation should be 1:N relation. This table has foreign key “ID” from table “EMPLOYEE”, and foreign key “Date” from table “INSPECTION”.