Somya Singh CSE 7330 Fall 2017
Email: somyas@smu.edu
Student ID: 47304053 (Distance Education)

Term Project

Term Project Phase I

Modified ER Diagram

1. ENTITES-
   a) SOFTWARE_PRODUCT-Strong Entity
   b) COMPONENT-Strong Entity
   c) Employee-Strong Entity
   d) Employee_exit – Weak Entity
   e) INSPECTION - Weak Entity – identified by two Strong entity PERSONS and COMPONENT
   f) PROGRAMMINGLANGUAGE- Strong Entity

2. RELATION Among entities
   a) Software_Build relation between SOFTWARE_PRODUCT and COMPONENT table (M: N).
      Many–to-many relation as one software_product can have many component and one component can be shared among many software products.
      SOFTWARE_PRODUCT total participation in the Software_Build relation. Each SOFTWARE_PRODUCT entity is involved in the relationship Software_build.

   b) Owner relation between PERSON and COMPONENT table (1: N)
      One to many relationships because one person can be owner of many component and one component can belong to only one person.

   c) Inspected relation between COMPONENT and INSPECTION table.
      (1: N)
      It is identifying relation. One to many relationships. One component can be inspected many time.

   d) Employee relation between INSPECTION and Employee table (1: N).
      It is identifying relation. One to many relationship, as one person can perform many inspections but one inspection belongs to only one person.

   e) Used relation between PROGRAMMING_LANGUAGE and COMPONENT table (1: N)
      One component can have one language. One language can belong to many component

   f) Self-relation exists in EMPLOYEE table as managed (1: N). One manager can have managed many employees. One employee is subordinate of only one manager.

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Attribute of ENTITIES

1) SOFTWARE_PRODUCT –
   - SID(Primary Key)
   - SName
   - SVersion
   - Product_status- Derived attribute
   - Composite key-(SName,SVersion)

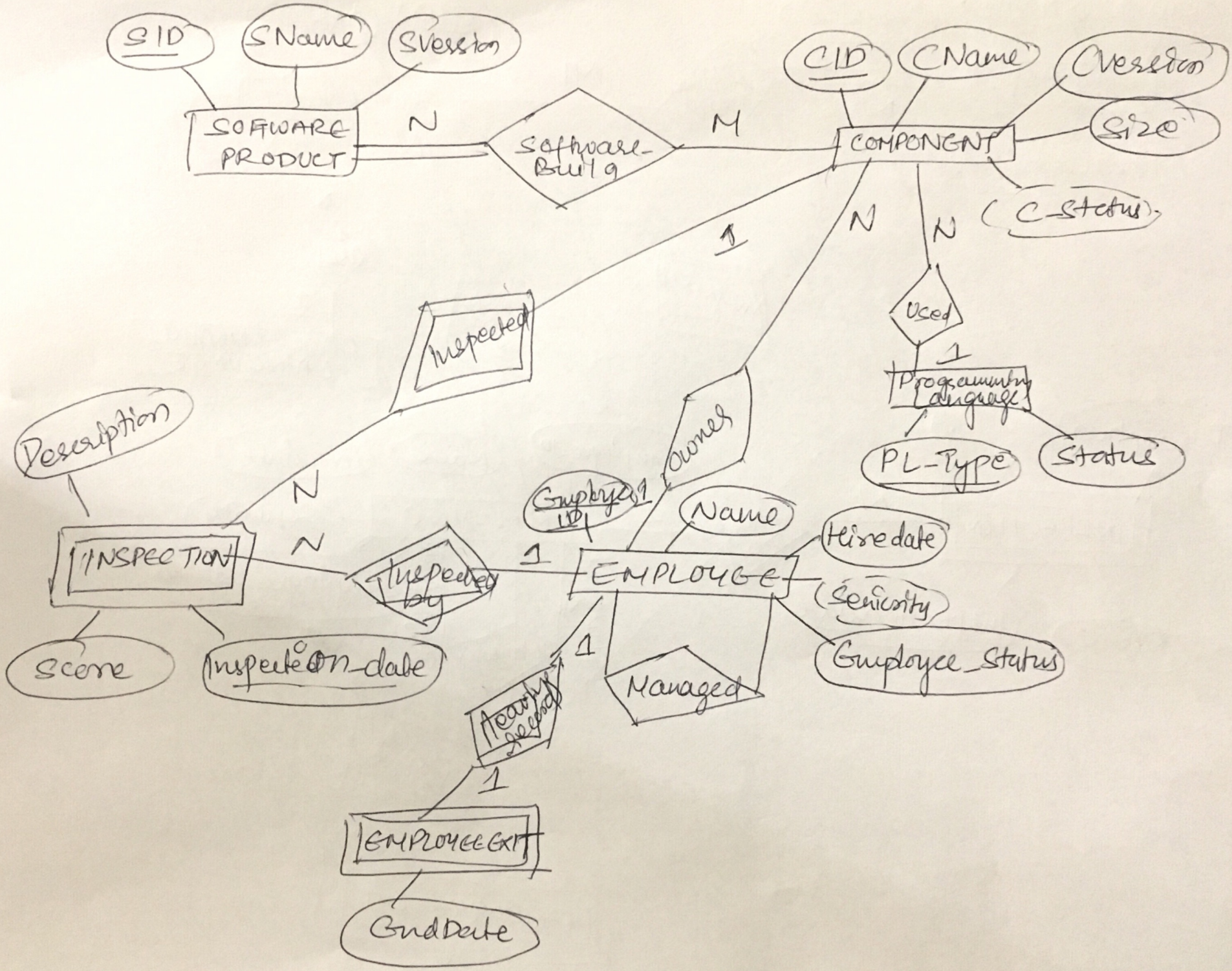
2) COMPONENT-
   - CID(Primary Key)
   - CName
   - CVersion
   - Program_language
   - Size
   - Component_status-Derived attribute
   - Composite key-(CName,CVersion)

3) EMPLOYEE
   - Employee_ID –Primary Key
   - Name
   - Hire_date
   - Manager_ID(FOREIGN KEY)

4) INSPECTION
   - WEAK ENTITY
   - Inspection_date –partial key
   - descripition
   - Inspection_score
   - Primary key - (Inspection date, Employee_ID , CID)

5) PROGRAMMING_LANGUAGE
   - Language_Type- primary key
   - Language _Status

6) Employee_Exit
   - Employee_ID –Foreign Key
   - Exit_date


SID
SName
SVersion
SOFTWARE PRODUCT
N
Software-Build
M
CID
CName
CVersion
Size
COMPONENT
C_Status
1
N
N
Used
1
Programming Language
PL-Type
Status
Inspected
Description
N
N
INSPECTION
Inspected by
1
Owns
Employee ID
Name
Hire date
EMPLOYEE
Seniority
Employee_Status
Score
Inspection_date
1
Managed
Security needed
1
EMPLOYEEEXIT
GradDate

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Modified Relational Schema

In Relational Schema, some assumption and additional attribute I introduce are: -

1) SID as a primary key for SOFTWARE_PRODUCT table.
2) CID as a primary key for COMPONENT table.
3) Software_Build is a relation table which include SID and CID. To uniquely identifies the product and component software builds as there is a many –to-many relation between the SOFTWARE_PRODUCT and COMPONENT.
4) Hire_date attribute in PERSON table to derived the seniority attribute of PERSON.
5) INSPECTION table rows can be Uniquely Identified by using Both Foreign Key as CID and Person_ID.

Tables and its Attributes: -

1) SOFTWARE_PRODUCT
   - SID -Primary Key
   - SName
   - SVersion
   - Product_status- Derived attribute

2) COMPONENT-
   - CID-Primary Key
   - CName
   - CVersion
   - Program_language
   - Size
   - Component_status-Derived attribute

3) EMPLOYEE
   - Employee_ID –Primary Key
   - Name
   - Hire_date
   - Foreign Key-CID
   - Foreign Key-Manager_ID

4) INSPECTION (WEAK ENTITY)
   - Inspection_date –partial key
   - Textual_description
   - Inspection_score

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Foreign Key- Employee_ID, CID
Primary key-(Inspection date, Employee_ID, CID)

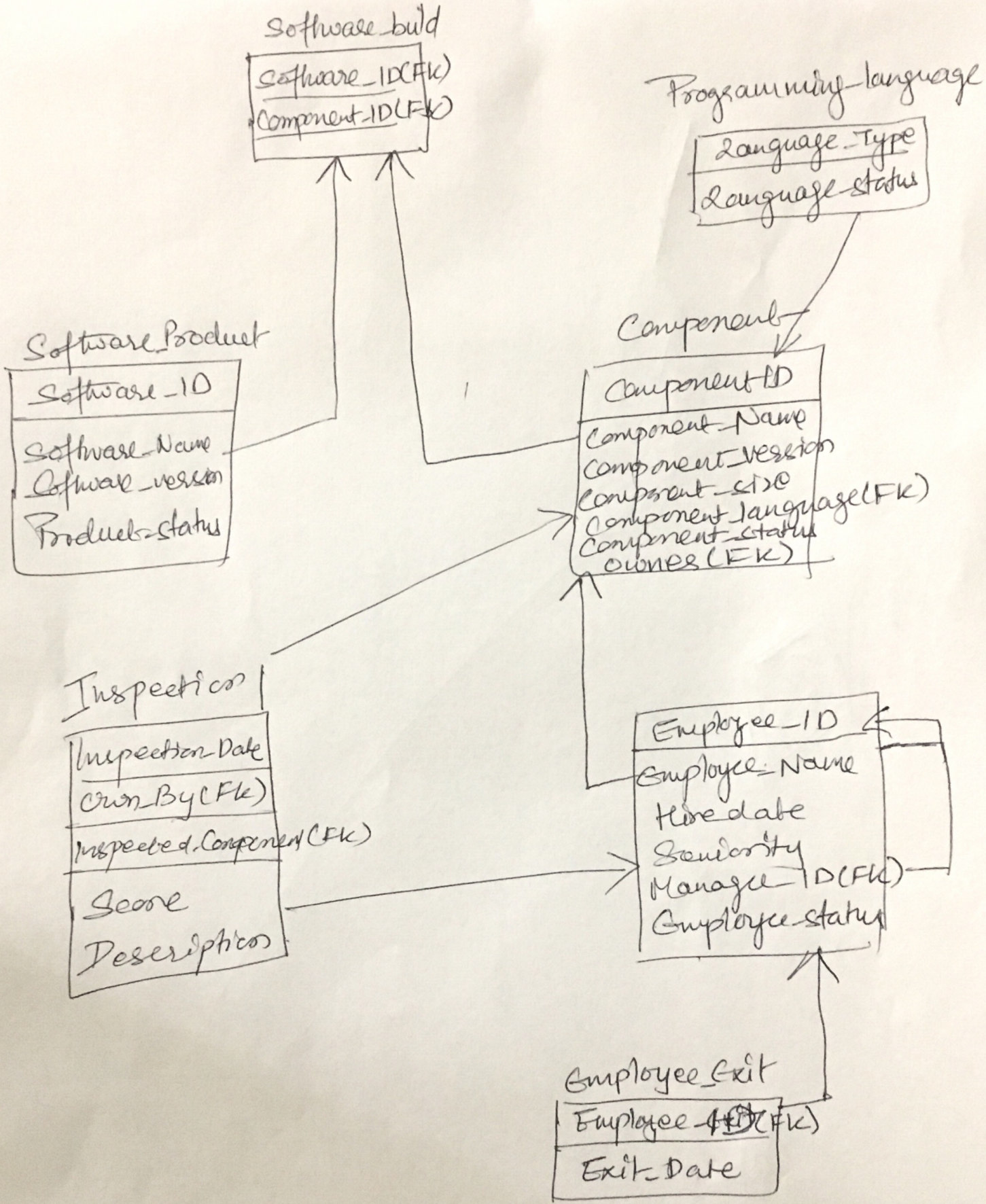
5) SOFTWARE_BUILD
   CID- Foreign Key
   SID- Foreign key
   Primary Key-(CID, SID)

6) PROGRAMMING_LANGUAGE
   Language_Type primary key
   Language _Status

7) Employee_Exit
   Employee_id
   Exit_date

Major Modification are as follows: -

1) Included new table PROGRAMMING_LANGUAGE with attributes Language_Type (primary key) and Language _Status.
2)Self-relation as a managed in the EMPLOYEE table(1: N). One manager can have managed many employees. One employee is subordinate of only one manager.
3)Total participation of the SOFTWARE_PRODUCT table in a relation Software_Build. Each SOFTWARE_PRODUCT entity is involved in the relationship Software_Build


Software_build
Software_ID(FK)
Component_ID(FK)
Programming_language
Language_Type
Language_status
Software_Product
Software_ID
Software_Name
Softwar_version
Product_status
Component
Component_ID
Component_Name
Component_Version
Component_size
Component_language(FK)
Component_status
Owner(FK)
Inspection
Inspection_Date
Own_By(FK)
Inspected_Component(FK)
Score
Description
Employee_ID
Employee_Name
Hire_date
Seniority
Manage_ID(FK)
Employee_status
Employee_Exit
Employee_ID(FK)
Exit_Date