**CP2404 : SP51-2023**

**Assignment 1 – Database (conceptual) Modelling**

Task 2: point-form summary

**Assumptions**

* A BRANCH will employs many EMPLOYEE, also many EMPLOYEE will work in a BRANCH.
* A BRANCH is supervised by a Branch Manager who is also an EMPLOYEE.
* PERMANENT\_STAFF is a sub-type of the EMPLOYEE and CAUSUAL\_WORKER is also a sub-type of the EMPLOYEE.
* ADMIN\_STAFF and TRAINING\_STAFF are the sub-types of the PERMANENT\_STAFF.
* A TRAINING\_STAFF must have at least one or more QUALIFICATION, and a QUALIFICATION may be owned by many TRAINING\_STAFF.
* ACCESS\_CARD and IPAD are sub-types of the EQUIPTMENTS.
* An ACCESS\_CARD is given to one EMPLOYEE, and an EMPLOYEE has only one ACCESS\_CARD.
* CAUSUAL\_WORKER is given an ACCESS\_CARD but not an IPAD.
* IPAD are only hired to PERMANENT\_STAFF and a PERMANENT\_STAFF can hire one IPAD.
* An EQUIPMENT must have an EQUIPMENT\_HIRE history, also an EQUIPMENT\_HIRE history must be associated with an EQUIPMENT.
* An EQUIPMENT may or may not have one or more EQUIPMENT\_REPAIR history, but an EQUIPMENT\_REPAIR history must be associated with an EQUIPMENT.
* A CUSTOMER have one or more CHILD. A CHILD is send to the TRAINING\_SECTION by only one CUSTOMER.
* A TRANING\_SECTION must have one TRAINGING\_STAFF. A TRAINGING\_STAFF must train one or more TRAINING\_SECTION.
* A CHILD may attend one or more TRAINING\_SECTION, a TRAINING\_SECTION must have one CHILD.
* A TRAINING\_SECTION may or may not use one or more GEAR, and a GEAR must use in one TRAINING\_SECTION.
* A TRAINING\_SECTION will produce one or more INVOICE, but the one INVOICE represent only one TRANING\_SECTION.
* An INVOICE may have one or more DISCOUNT, a DISCOUNT may or may not be in an INVOICE.
* CUSTOMER\_INVOICE and EMPLOYEE\_INVOICE are sub-types of the INVOICE.
* A CUSTOMER may have one or more CUSTOMER\_INVOICE, a CUSTOMER\_INVOICE is only deliver to one CUSTOMER.
* A EMPLOYEE may have one or more EMPLOYEE\_INVOICE, a EMPLOYEE\_INVOICE is only deliver to one EMPLOYEE.

**Justifications**

* EMPLOYMENT\_HISTORY table is to record the Employment status of the EMPLOYEE, which is assigned EMPLOYEE\_ID with a BRANCH\_ID with it’s EMPLOYMENT\_StartDate and EMPLOYMENT\_EndDate. The EMPLOYMENT\_EndDate may be null if the EMPLOYEE is still working.
* The CAUSAL\_WORKER has it’s own StartDate and EndDate, which it’s EndDate may be null if he or she is still at work.
* The relation between CUSTOMER and CHILD should be strong relation and one to many relation. Because we consider that the CUSTOMER will pay for the cost of GEARS and without a CHILD the person would not become a CUSTOMER.
* An EMPLOYEE may also buy GEARS in the TRAINING\_SECTION.
* The cost of the TRAINING\_SECTION will be stored in the INVOICE. Since both of the CUSTOMER and EMPLOYEE can buy GEARS in TRAINING\_SECTION, two subtype INVOICE entities, EMPLOYEE\_INVOICE and CUSTOMER\_INVOICE with respective ID column space as their own attribute that exist in the subtype.
* DISCOUNT is formed as a different entity with respective DISCOUNT\_ID so that discount rates can be changed or added without tempering the INVOICE entity. For example, when we want to add other discount types and rates, we can change the rate of the discount any time.
* An Employee’s salary is calculated using work hours and pay rate.
* In EQUIPTMENT\_REPAIR table the return date and the repair price might be null if the equipment is not finish repairing.
* In EQUIPTMENT\_HIRE table the EndDate might be null if the employee is still using the equipment.
* In the TRAINING\_SECTION I use the Boolean value to the TRAINING\_SECTION\_AttendanceStatus which function is to point out that the CHILD or the TRAINING\_STAFF has attend that section or not. So that we can get the last date of the CHILD attend in the section.

**Limitations**

* If we want to decide the type of CUSTOMER we need to fetch a lot of data.
* This database stores only the current data of EMPLOYEE and should have to manually update the data when it changes.