**Schema**

Person

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SSN** | age | gender | firstName | lastName | GId |

3NF

Company

|  |  |  |
| --- | --- | --- |
| **cName** | cAddress | GId |

3NF

Guest

|  |  |  |
| --- | --- | --- |
| **GId** | guestType | VId |

3NF

VIP

|  |  |
| --- | --- |
| **VId** | status |

3NF

注：Guest的union type的實現方式是surrogate key.

Guest的specialization的實現方式是c. single relation with type attribute t.

Gym

|  |  |
| --- | --- |
| **FacilityId** | type |

3NF

ChessRoom

|  |  |
| --- | --- |
| **FacilityId** | size |

3NF

Facility (語意為預訂的設備服務)

|  |  |  |
| --- | --- | --- |
| **FacilityId** | **ServiceId** | duration |

3NF

注：Facility的union type的實現方式是inheit the same key.

Food 預訂的食物服務

|  |  |  |
| --- | --- | --- |
| FoodId | **ServiceId** | deliveredTime |

注：Specialization Food & Facility的實現方式是 a. Multiple Relations – superclass and subclass.

3NF

Service

|  |  |  |
| --- | --- | --- |
| **ServiceId** | cost | RoomId |

注：Relationship Orders的實現方式是 Foreign key.

3NF

Room

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **RoomId** | available | price | BigFlag | DoubleFlag | SingleFlag |

注：Specialization BigRoom & DoubleRoom & SingleRoom的實現方式是 d. Single relation with multiple type attributes.

3NF

Administrator

|  |  |
| --- | --- |
| **UserId** | password |

3NF

Employee

|  |  |
| --- | --- |
| **UserId** | password |

3NF

注：Specialization User的實現方式是 b. Multiple relations – subclass relations only.

Bill

|  |  |
| --- | --- |
| **ResId** | total |

3NF

注：weak entity 繼承了owner entity的primary key – Gid.

Contact

|  |  |
| --- | --- |
| **GId** | **telNo** |

3NF

注：telNo是Multivalue attribute.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| EmpId | GId | RoomId | **ResId** | startDate | endDate |

3NF

注：Reserve的實現方式是Relationship relation.