LAB 1 – DBI202

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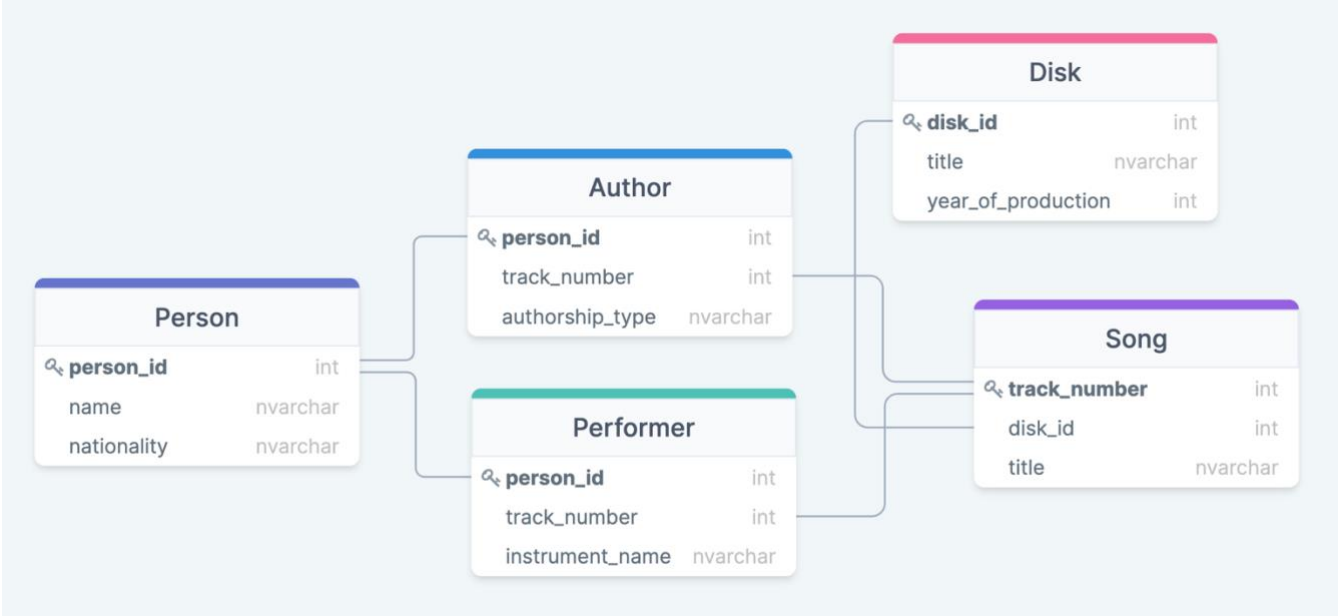
Exercise 1: Music Database

1. Disk(**disk_id**: integer; title: String; year_of_production: integer)
2. Song(**track_number**: integer; disk_id: integer; title: String)
3. Person(**person_id**: integer; name: String; nationality: String)
4. Author(**person_id**: integer; track_number: integer; authorship_type: string)
5. Performer(**person_id**: integer; track_number: integer; instrument_name: string)

In this database schema,

- **Bold text** is referred to **Primary key**.
- Underlined text is referred to Foreign key.
- **"nvarchar"** is a set of Unicode character data as string.



Exercise 2: Relational Algebra

1. $\pi_{\text{Firstname, Lastname, Salary}}(\sigma_{\text{Department\_id == 103}}(\text{Employee}))$
2. $\pi_{\text{Firstname, Lastname, Salary}}(\sigma_{\text{gender == "Nam"}}(\text{Employee}))$
3. $\pi_{\text{Firstname, Lastname, Salary}}(\sigma_{\text{gender == "Nữ" AND Salary > 7000000}}(\text{Employee}))$
4. $\pi_{\text{Firstname, Lastname, Salary}}(\sigma_{\text{gender == "Nam" AND Department\_id == 103 AND Salary > 6000000}}(\text{Employee}))$
5. $\pi_{\text{Firstname, Lastname, Salary}}(\sigma_{\text{gender == "Nữ" AND Department\_id == 102 AND Salary >= 4000000}}(\text{Employee}))$
6. $\pi_{\text{Dept\_name}}(\sigma_{\text{Dept\_name == "HR"}}(\text{Department}))$

7. $COUNT(\sigma_{gender == \text{“Nam”}}(Employee))$
8. $COUNT(\sigma_{gender == \text{“Nữ” AND Department\_id} == 102}(Employee))$
9. $COUNT(\sigma_{gender == \text{“Nam” AND Department\_id == 101 AND Salary >= 7000000}}(Employee))$
10. $SUM(\pi_{Salary}(\sigma_{Department\_id == 103}(Employee)))$