

# **LAPORAN PRAKTIKUM PENGENALAN BASIS DATA**

**Data Integrity**



**Franklyn Aldo Ignatia Lumbantoruan  
11323010**

**DIII Teknologi Informasi**

**INSTITUT TEKNOLOGI DEL  
FAKULTAS VOKASI**

### **Case Study 1: SDS College**

Design a database for a college SDS. Many student seek admission in the college. The college has a number of department and student can enrolled to this department. The department also offers a number of courses to the student, each with a different duration from the other. Each department has its Head of Department (HOD) and many teacher under him. The syllabus of each course also defined. Teacher recruited by the college for teaching the said course to the student. The teacher may have different qualifications and experience. The may also teach different subject if required. Each student in the college has a unique ID. We need to store the names of the student studying in the college, their residential address, date of birth. We also need to store information about the college like the name, address, contact number, reference ID, department of the college, name of the HOD, number of teacher and student in the department. The course offered by the department, the syllabus, the duration and the course ID. We can also store information about the teachers like their qualification, experience, name and subject taught.

#### **Task:**

- 1. Draw ER diagram of the case using Chen or Martin notation.**

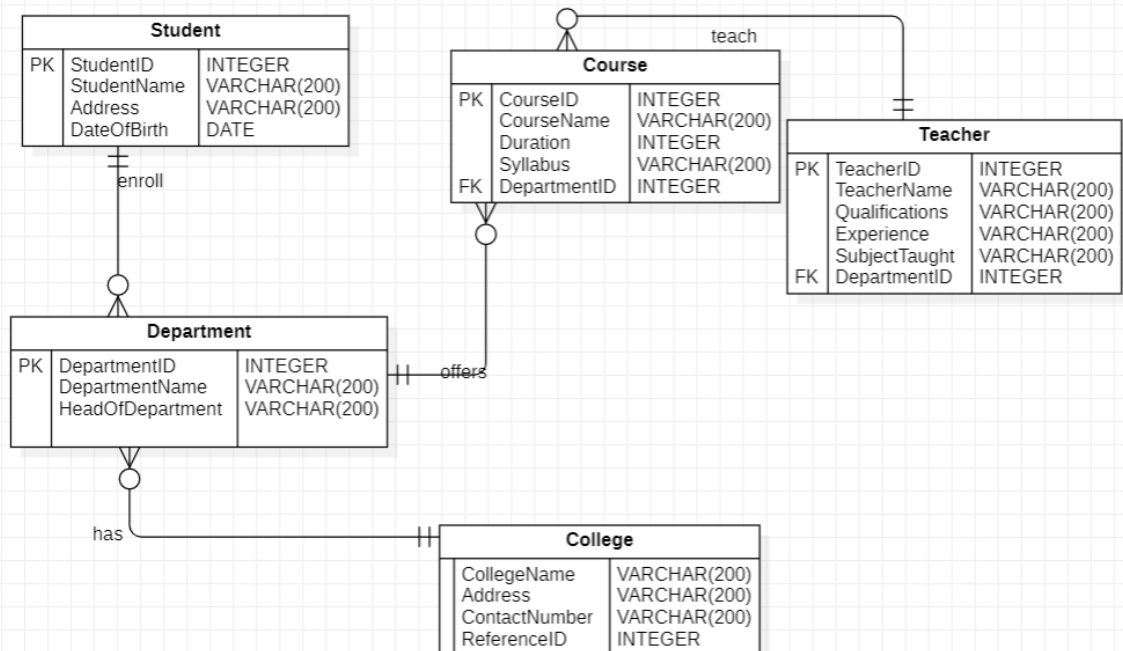
#### **Jawaban:**

##### **Entity dan Attribute :**

- Student
  - StudentID
  - StudentName
  - Address
  - DateOfBirth
- Department
  - DepartmentID
  - DepartmentName
  - HeadOfDepartment
- College

- CollegeName
- Address
- ContactNumber
- ReferenceID
- Course
  - CourseID
  - CourseName
  - Duration
  - Syllabus
- Teacher
  - TeacherID
  - TeacherName
  - Qualifications
  - Experience
  - SubjectTaught

Franklyn Aldo Ignatia Lumbantoruan\_11323010



2. Describe and provide examples of the application of data integrity in this case. Including for domain integrity, entity integrity, and referential integrity using dummy data.

**Jawaban:**

**Student**

INTEGER	VARCHAR(200)	VARCHAR(200)	DATE
StudentID	StudentName	Address	DateOfBirth
123470032	Kelpok	Girsang	07-07-2005
123470033	Jeremi	Parapat	22-11-2004
115040010	Joel	Jl. Josep	25-12-2005

**College**

VARCHAR(200)	VARCHAR(200)	VARCHAR(200)	INTEGER
CollegeName	Address	ContactNumber	ReferenceID
ITERA	Lampung	082162912161	143786
ITB	Bandung	085925551916	221222
UI	Jawa	081383533025	123456

**Department**

INTEGER	VARCHAR(200)	VARCHAR(200)
DepartmentID	DepartmentName	HeadOfDepartment
31036	Bersama	Agus
21563	Sukses	Bagus
25897	Nathgur	Bagas

**Teacher**

INTEG ER	VARCHAR( 200)	VARCHAR( 200)	VARCHAR( 200)	VARCHAR( 200)	INTEGER
-------------	------------------	------------------	------------------	------------------	---------

Teacher ID	TeacherName	Qualifications	Experience	SubjectTaught	DepartmentID
1228795	Togar	Excellent	Teaching	KIMDAS	31036
1224563	Pina	Excellent	Teaching	FISDAS	21563
1123457	Kalit	Excellent	Teaching	MADAS	25897

### Course

INTEGER	VARCHAR(200)	INTEGER	VARCHAR(200)
CourseID	CourseName	Duration	Syllabus
25328	Bahasa Indonesia	60 menit	Info124
13587	PBD	30 menit	Info543
34687	ALJALI	120 menit	Info598

### Case Study 2: National Hockey League (NHL)

Suppose you are given the following requirements for a simple database for the National Hockey League (NHL); the NHL has many teams; each has a name, a city, a coach, a captain, and a set of players; each player belongs to only one team; each player has a name, a position (such as left wing or goalie), a skill level, and a set of injury records; a team captain is also a player; a game is played between two teams (referred to as host\_team and guest\_team) and has a date (such as February 21th, 2022) and a score (such as 4 to 2).

### Task:

1. Draw ER diagram of the case using Chen or Martin notation.

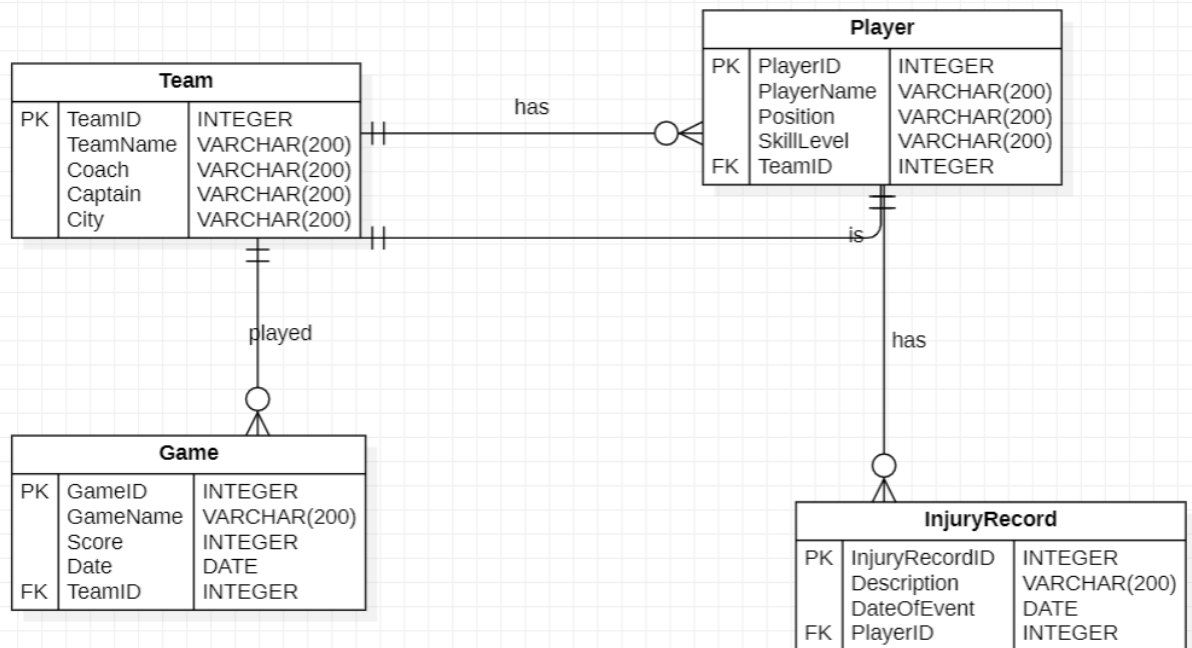
### Jawaban:

### Entity dan Attribute:

- Team
  - TeamID
  - TeamName

- Coach
  - Captain
  - City
- Player
  - PlayerID
  - PlayerName
  - Position
  - SkillLevel
- Game
  - GameID
  - GameName
  - Score
  - Date
- InjuryRecord
  - InjuryRecordID
  - Description
  - DateOfEvent

Franklyn Aldo Ignatia Lumbantoruan\_11323010



2. Describe and provide examples of the application of data integrity in this case. Including for domain integrity, entity integrity and referential integrity using dummy data.

Jawaban:

#### Team

INTEGER	VARCHAR(200)	VARCHAR(200)	VARCHAR(200)	VARCHAR(200)
TeamID	TeamName	Coach	Captain	City
3578	BTK	Joel	Nathgur	Parapat City

#### Player

INTEGER	VARCHAR(200)	VARCHAR(200)	VARCHAR(200)	INTEGER
PlayerID	PlayerName	Position	SkillLevel	TeamID

5678	Jojo	Anchor	High	3578
------	------	--------	------	------

### Game

INTEGER	VARCHAR(200)	INTEGER	DATE	INTEGER
GameID	GameName	Score	Date	TeamID
6059	Futsal	10	22-12-2022	3578

### InjuryRecord

INTEGER	VARCHAR(200)	DATE	INTEGER
InjuryRecordID	Description	DateOfEvent	PlayerID
1246	Recovery	22-11-2022	5678