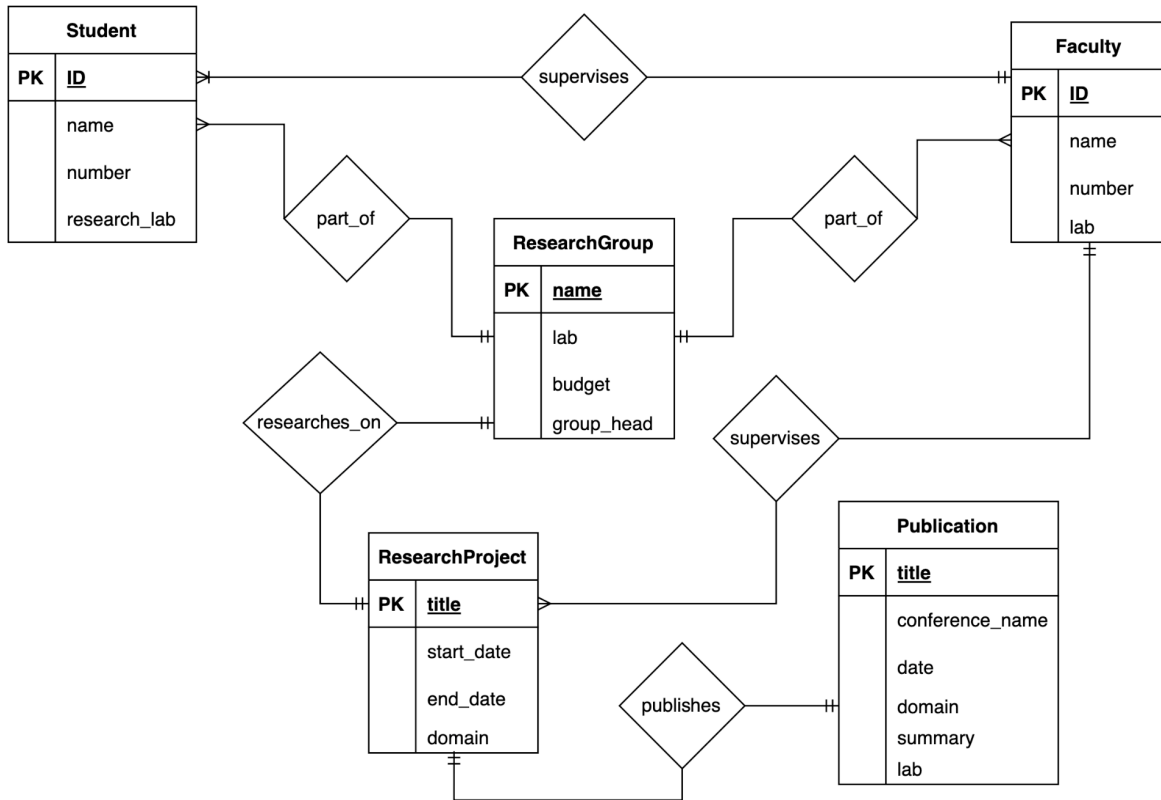# CSE 4308
Database Management Systems Lab

Lab-07
Group-B

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BSc. in Software Engineering

Task 1

Please check the "220042148_ER.pdf" for better quality.

Task 2

For adding foreign keys, I need to create the tables in such an order that I can assign them accordingly.

Creating "Publication" table

```sql
CREATE TABLE Publication(
    title VARCHAR(50) NOT NULL,
    conference_name VARCHAR(50),
    date DATE,
    domain VARCHAR(15),
    summary VARCHAR(90),
    lab VARCHAR(20),
    project VARCHAR(50), -- WILL ADD FOREIGN KEY LATER
    PRIMARY KEY (title)
);
```

Creating "ResearchGroup" table

```sql
CREATE TABLE ResearchGroup(
    name VARCHAR(20) NOT NULL,
    lab VARCHAR(20),
    budget numeric(8,2) check (budget > 0),
    head VARCHAR(5), -- WILL ADD FOREIGN KEY LATER
    PRIMARY KEY (name)
);
```

Creating a "Faculty" table and adding foreign key 'group_name' for the 'part_of' relation.

```sql
CREATE TABLE Faculty(
    ID VARCHAR(5) NOT NULL,
    name VARCHAR(20),
    number INT,
    lab VARCHAR(20),
    group_name VARCHAR(20),
    PRIMARY KEY (ID),
    FOREIGN KEY (group_name) REFERENCES
ResearchGroup (name)
    ON DELETE SET NULL
);
```

Creating "Student" table and adding foreign key 'advisor' and 'group_name' for 'supervisor' and 'part_of' relation.

```sql
CREATE TABLE Student(
    ID VARCHAR(5) NOT NULL,
    name VARCHAR(20),
    number INT,
    research_lab VARCHAR(20),
    advisor VARCHAR(5),
    group_name VARCHAR(20),
```

```sql
    PRIMARY KEY (ID),
    FOREIGN KEY (advisor) REFERENCES Faculty
(ID)
    ON DELETE SET NULL,
    FOREIGN KEY (group_name) REFERENCES
ResearchGroup (name)
    ON DELETE SET NULL
);
```

adding foreign key constraints for the head of
the group

```sql
ALTER TABLE ResearchGroup
ADD CONSTRAINT FK_HEAD
FOREIGN KEY (head) REFERENCES Student(ID)
ON DELETE SET NULL;
```

Creating "ResearchProject" table and adding
foreign key 'group_name' and 'supervisor' for
'researches_on' and 'supervises' relation

```sql
CREATE TABLE ResearchProject(
    title VARCHAR(50) NOT NULL,
    start_date DATE,
    end_date DATE,
```

```sql
    domain VARCHAR(30),
    group_name VARCHAR(20),
    supervisor VARCHAR(5),


    PRIMARY KEY (title),
    FOREIGN KEY (group_name) REFERENCES
ResearchGroup (name)
    ON DELETE SET NULL,
    FOREIGN KEY (supervisor) REFERENCES
Faculty (ID)
    ON DELETE SET NULL
);
```

adding foreign key in "Publication" table for the 'publishes' relation

```sql
ALTER TABLE Publication
ADD CONSTRAINT FK_PROJECT
FOREIGN KEY (project) REFERENCES
ResearchProject(title)
ON DELETE SET NULL;
```

Task 3

Dropping foreign keys for dropping the tables.

```sql
ALTER TABLE Publication
DROP CONSTRAINT FK_PROJECT;


ALTER TABLE ResearchGroup
DROP CONSTRAINT FK_HEAD;
```

Dropping the tables created above.

```sql
DROP TABLE Publication;
DROP TABLE Student;
DROP TABLE ResearchProject;
DROP TABLE Faculty;
DROP TABLE ResearchGroup;
```

Output:

✔	109	20:56:34	CREATE TABLE Publication(title VARCHAR(50) NOT NULL, conference_nam...
✔	110	20:56:34	CREATE TABLE ResearchGroup(name VARCHAR(20) NOT NULL, lab VARCHA...
✔	111	20:56:34	CREATE TABLE Faculty(ID VARCHAR(5) NOT NULL, name VARCHAR(20), n...
✔	112	20:56:34	CREATE TABLE Student(ID VARCHAR(5) NOT NULL, name VARCHAR(20),...
✔	113	20:56:34	ALTER TABLE ResearchGroup ADD CONSTRAINT FK_HEAD FOREIGN KEY (hea...
✔	114	20:56:34	CREATE TABLE ResearchProject(title VARCHAR(50) NOT NULL, start_date...
✔	115	20:56:34	ALTER TABLE Publication ADD CONSTRAINT FK_PROJECT FOREIGN KEY (proj...
✔	116	20:56:34	ALTER TABLE Publication DROP CONSTRAINT FK_PROJECT
✔	117	20:56:34	ALTER TABLE ResearchGroup DROP CONSTRAINT FK_HEAD
✔	118	20:56:34	DROP TABLE Publication
✔	119	20:56:34	DROP TABLE Student
✔	120	20:56:34	DROP TABLE ResearchProject
✔	121	20:56:34	DROP TABLE Faculty
✔	122	20:56:34	DROP TABLE ResearchGroup