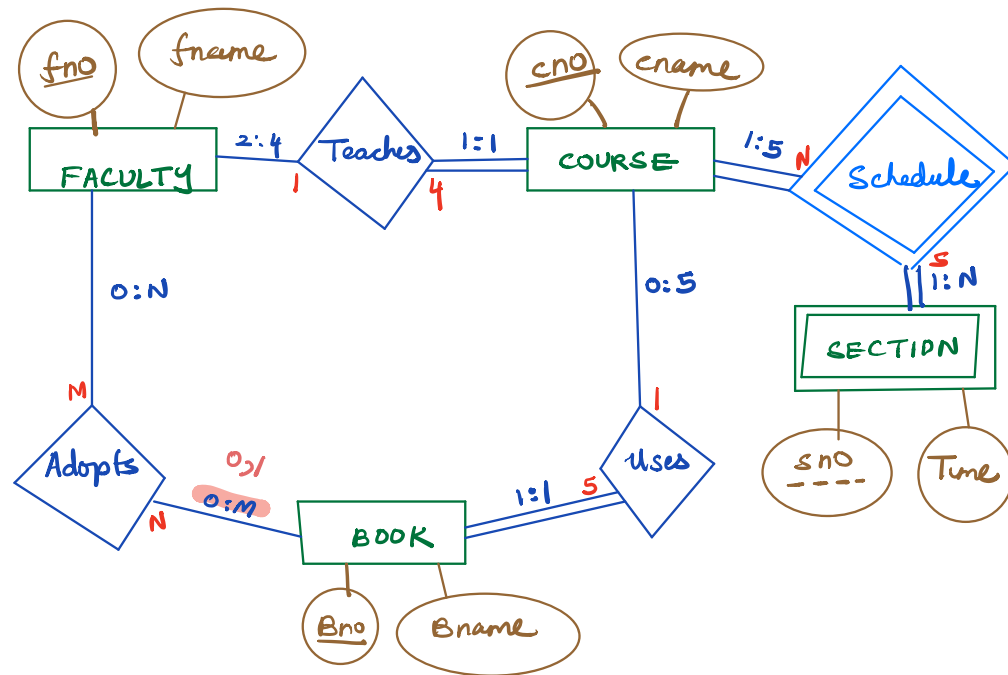


Example:



faculty (fno, fname)
 course (cno, cname, fno)
 book (bno, bname, cno)
 section (sno, cno, time)
 adopts (fno, bno)

Question: If there are 3 rows in faculty table, what is the maximum # of rows in course table?

Constraints

Chapter: 5.2, 5.3, 6.1, 6.2, 6.4, 7.2, 7.4

Old : 3.2, 3.3, 4.1, 4.2, 4.4, 5.2, 5.4

* written once - schema DDL - and stored in the database.

* execution at: - bulk loading
 - insert
 - delete
 - update

Types of integrity constraints:

- * key: UNIQUE & NON-NULL, PRIMARY
 - * foreign key constraints (referential constraints)
 - * NON-NULL
 - * attribute based
 - * tuple based
 - * inter-relation constraints
- } not in MySQL

```
CREATE TABLE Department
(
  DNO      INT
  Dname    String    NON NULL
  ⋮
  mgrSSN   Char(9)
```

primary key (DNO) *unique & non-null*

UNIQUE (Dname) \rightarrow *candidate*

foreign key (mgr-SSN) REFERENCES

EMPLOYEE (SSN);



*primary key of
EMPLOYEE*

$x \in \text{Department} \cdot \text{mgrSSN} \Rightarrow x \in \text{Employee} \cdot \text{SSN}$

Foreign key violations :

- ① insert into Department $y \notin \text{Emp} \cdot \text{SSN}$
- ② delete from Emp
- ③ update emp.SSN
- ④ update Dept.mgrSSN

Possible foreign key violation actions :

Department Table

* insert

* update

default action : **RESTRICT** - not allowed ; error msg

Employee Table : primary key SSN

* delete

* update

Possible actions :

- ① RESTRICT (default)
- ② SET NULL
- ③ CASCADE