

# Database system

## Assignement 1 Solution 3

### Apr 2024 Semester

Name: Jeslyn Ho Ka Yan

ID: 10241485

## Table of Content

1	WRITE EACH STATEMENTS AS A FUNCTIONAL DEPENDENCY .....	3
---	--	---

## 1 Write each statements as a functional dependency

### Explaining the passage (line by line)

1. Each manufacturer manufactures many disk-drives, and the manufacturer assigns each disk-drive a serial number.  
**manufacturers  $\rightarrow$  serialNum (one to many relationships)**
2. The serial number is unique within a manufacturer, but not across all other manufacturers.  
- **serialNum, manufacturer  $\rightarrow$  DiskDrive (one to one relationship)**
3. The manufacturer registers the model of the disk-drive it produces to the intellectual property Office of Singapore (IPOS) so that the model of the disk drive is protected and cannot be used by other manufacturer.  
**Manufactures  $\rightarrow$  model (one to many relationships)**
4. manufactured in a batch are of the same model, and all the disk-drives of the same model have the same capacity.  
**Batch  $\rightarrow$  model (one to one relationship)**  
**Model  $\rightarrow$  capacity (many to one relationship)**  
**Manufacturer & Model  $\rightarrow$  Capacity (many to one relationship)**
5. A distributor collaborates with many manufacturers to help the manufacturers to distribute the disk-drives the distributor receives to retailers.  
**Retailer  $\rightarrow$  manufacturer**  
**Manufacturers  $\rightarrow$  diskDrive**

**Write each statements as a functional dependency**

- i. The manufacturer and serial number uniquely identify the drive.  
(Manufacturer, serialNum)  $\rightarrow$  all diskDrive attributes  
**ANS: (manufacturer, serialNum)  $\rightarrow$  model, batch, capacity, retailer**
- ii. A model number is registered by a manufacturer and therefore cannot be used by another manufacturer.  
**ANS: model  $\rightarrow$  manufacturer**
- iii. All disk drives in a particular batch are the same model.  
**ANS: batch  $\rightarrow$  model**
- iv. All disk drives of a certain model of a particular manufacturer have exactly the same capacity.  
**ANS: (model, manufacturer)  $\rightarrow$  capacity**