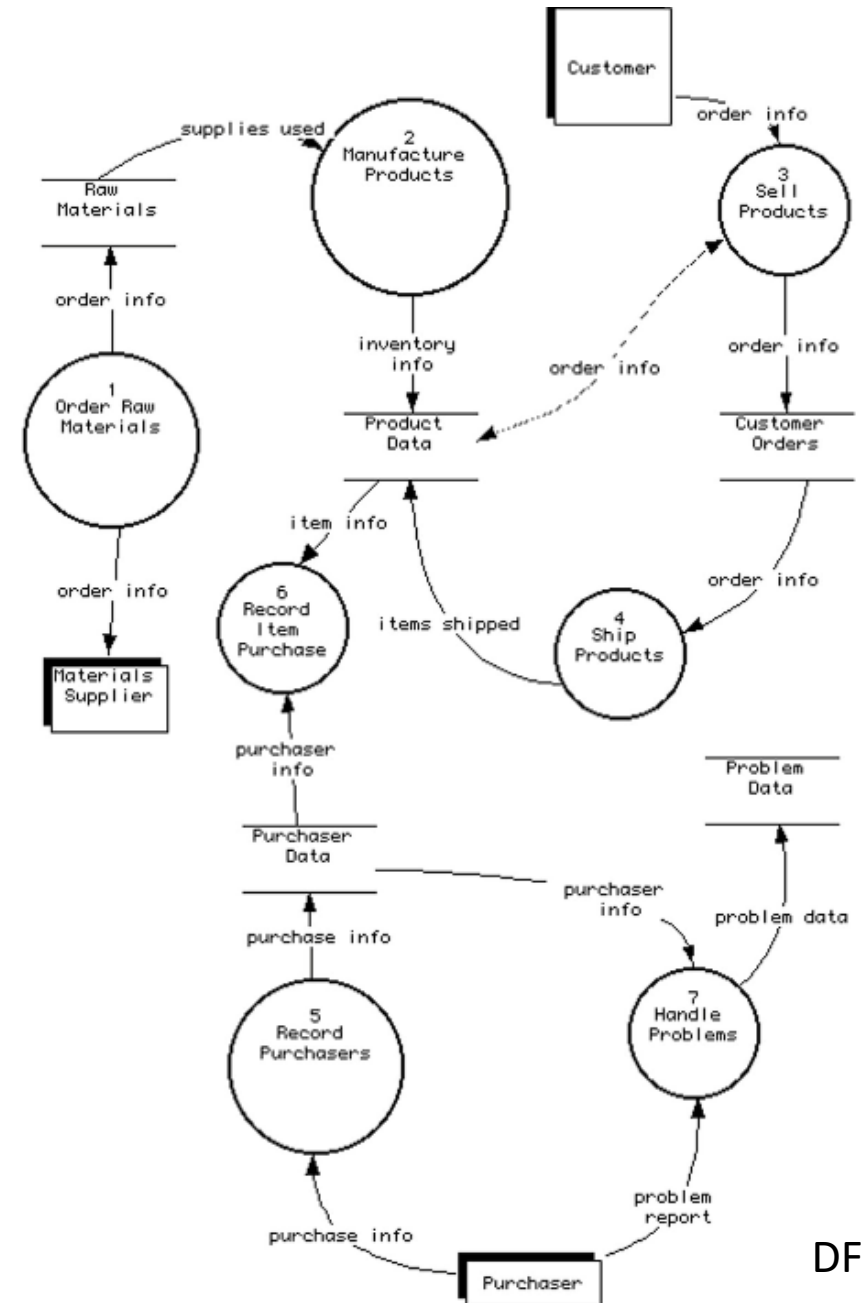# Lab 2

CS 327E
October 2, 2017

1) In the MMM case study, the data flow diagram was used to analyze the interactions between the business processes and the operational data stores.
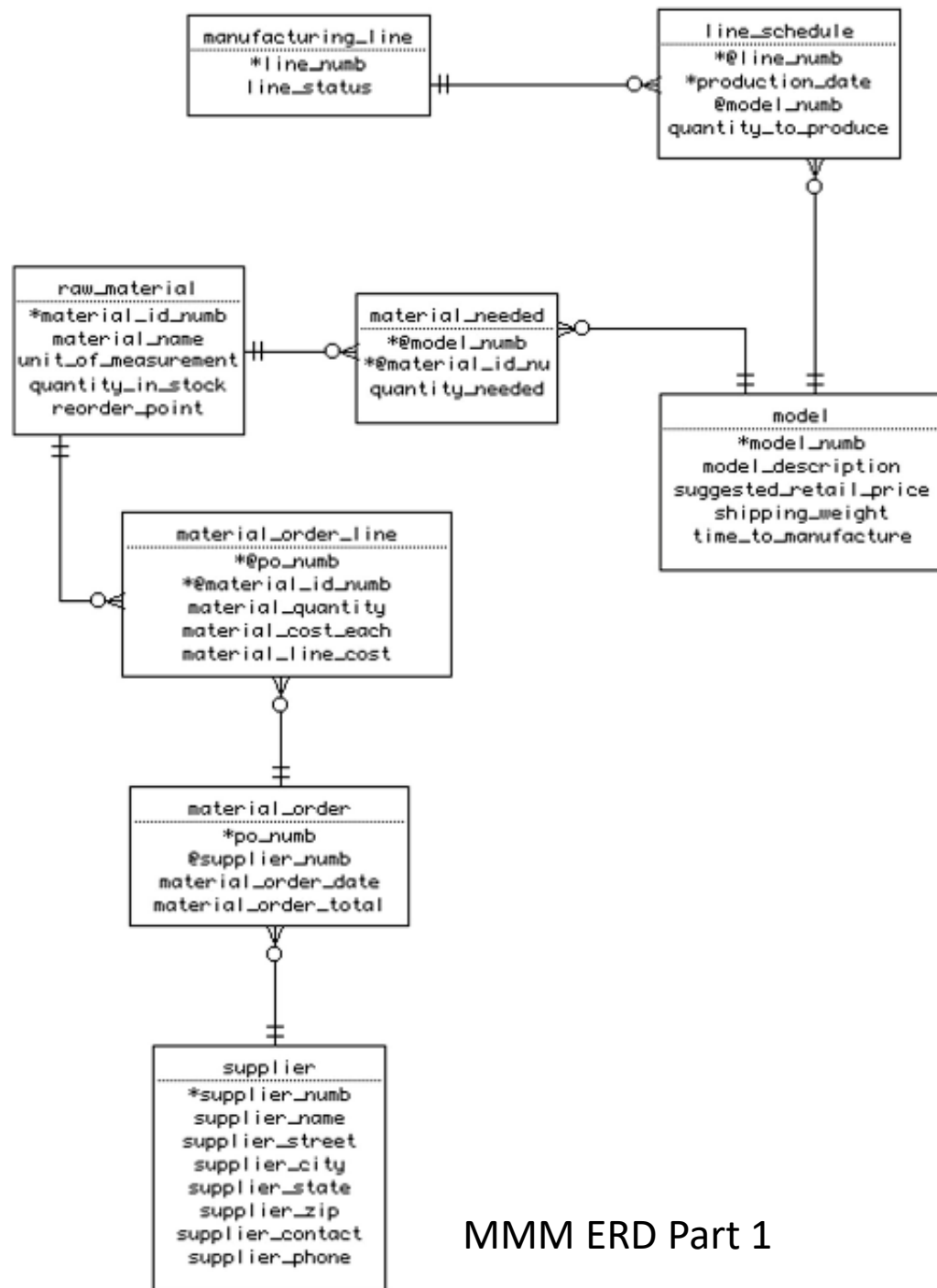
A) True
B) False

DFD for MMM

2) Why did the MMM database designer choose to consolidate the five operational databases into one central database?

A) To reduce operating cost
B) To achieve better performance
C) To facilitate data sharing
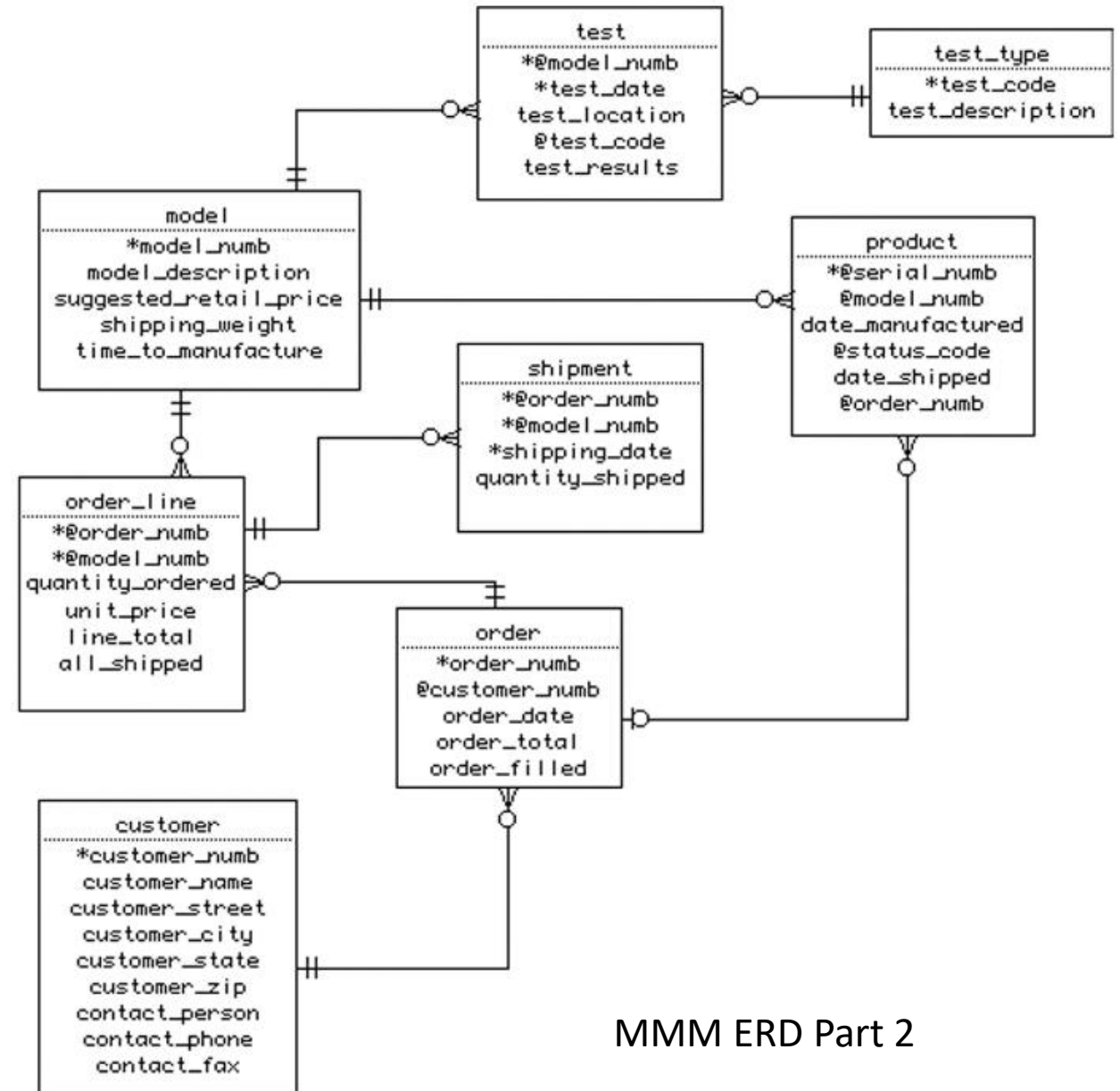D) The 5 databases were small
E) All of the above

3) How many m:n relationships are in this part of the ERD?

A) 1

B) 2

C) 3

D) 4

MMM ERD Part 1

4) Why is there a direct relationship between the **order** entity and **product** entity?

A) An order can have only one product in MMM.

B) A product can belong to only one order in MMM.

C) The ERD is incorrect since product and order should always have a m:n relationship.

test
- *@model_numb
- *test_date
- test_location
- @test_code
- test_results

test_type
- *test_code
- test_description

model
- *model_numb
- model_description
- suggested_retail_price
- shipping_weight
- time_to_manufacture

product
- *@serial_numb
- @model_numb
- date_manufactured
- @status_code
- date_shipped
- @order_numb

shipment
- *@order_numb
- *@model_numb
- *shipping_date
- quantity_shipped

order_line
- *@order_numb
- *@model_numb
- quantity_ordered
- unit_price
- line_total
- all_shipped

order
- *order_numb
- @customer_numb
- order_date
- order_total
- order_filled

customer
- *customer_numb
- customer_name
- customer_street
- customer_city
- customer_state
- customer_zip
- contact_person
- contact_phone
- contact_fax

MMM ERD Part 2

5) How can we be sure that every purchase record contains one and only one product to purchase?

A) Through the foreign key constraint, we know that purchase.serial_numb must be not null.

B) Through the foreign key constraint, we know that purchase.serial_numb = product.serial_numb. Through the primary key constraints we also know that serial_numb in both tables must be unique and not null.

C) There is no guarantee that a purchase record will have a single purchased product.

```
CREATE TABLE purchase
(
        serial_numb INTEGER,
        owner_numb INTEGER,
        age INTEGER,
        gender CHAR (1),
        purchase_date DATE,
        purchase_place VARCHAR (50),
        learn_code INTEGER,
        relationship CHAR (10),
        PRIMARY KEY (serial_numb),
        FOREIGN KEY (serial_numb) REFERENCES product,
        FOREIGN KEY (owner_numb) REFERENCES owner
        FOREIGN KEY (learn_code) REFERENCES learn_about
);
CREATE TABLE product
(
        serial_numb INTEGER,
        model_numb INTEGER,
        date_manufactured DATE,
        status_code INTEGER,
        date_shipped DATE,
        order_numb INTEGER,
        PRIMARY KEY (serial_numb),
        FOREIGN KEY (model_numb) REFERENCES model,
        FOREIGN KEY (status_code) REFERENCES product_status,
        FOREIGN KEY (order_numb) REFERENCES order
);
```

Lab 2

http://www.cs.utexas.edu/~scohen/projects/lab2.pdf