



UNSW

S Y D N E Y

SCHOOL OF COMPUTER SCIENCE & ENGINEERING

COMP9311 – DATABASE SYSTEMS (2018 SEMESTER 1)

ASSIGNMENT -1

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QUESTION 1: ER DIAGRAM FOR WOOLWORTHS ONLINE

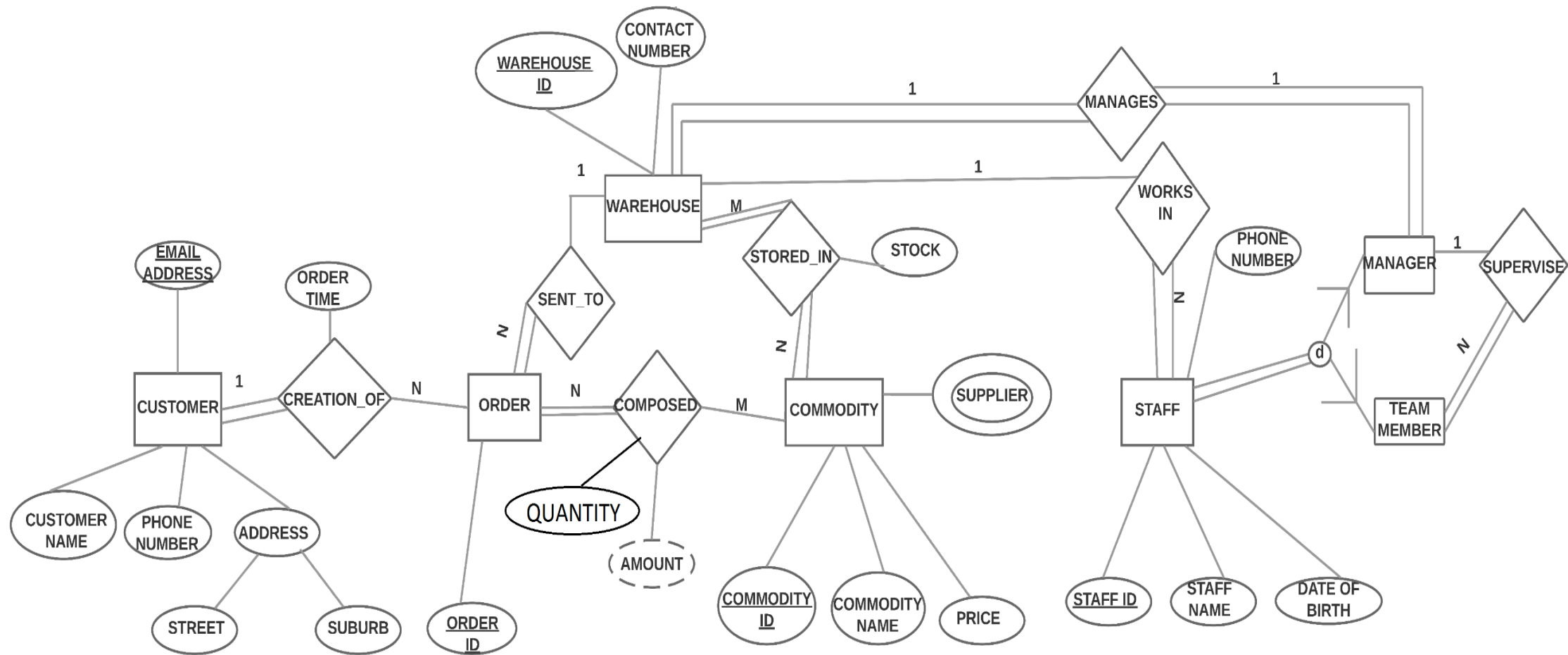


Figure 1: ENTITY RELATIONSHIP DIAGRAM FOR WOOLWORTHS ONLINE(QUESTION1)

ASSUMPTIONS IN ER DIAGRAM

- AMOUNT for each order is calculated by the formulae:

$$AMOUNT = \sum (QUANTITY\ OF\ EACH\ COMMODITY * PRICE\ OF\ EACH\ COMMODITY)$$

- Every Customer has a unique Email Address.
- Every Commodity has a Unique Commodity ID
- Every Order has a unique Order ID
- Every Staff has a Unique Staff ID
- Every Warehouse has a Unique Warehouse ID
- There is no upper limit to the number of customers, orders, commodity, warehouses and the staff members.

QUESTION 2: RELATIONAL MODEL OF WOOLWORTHS ONLINE

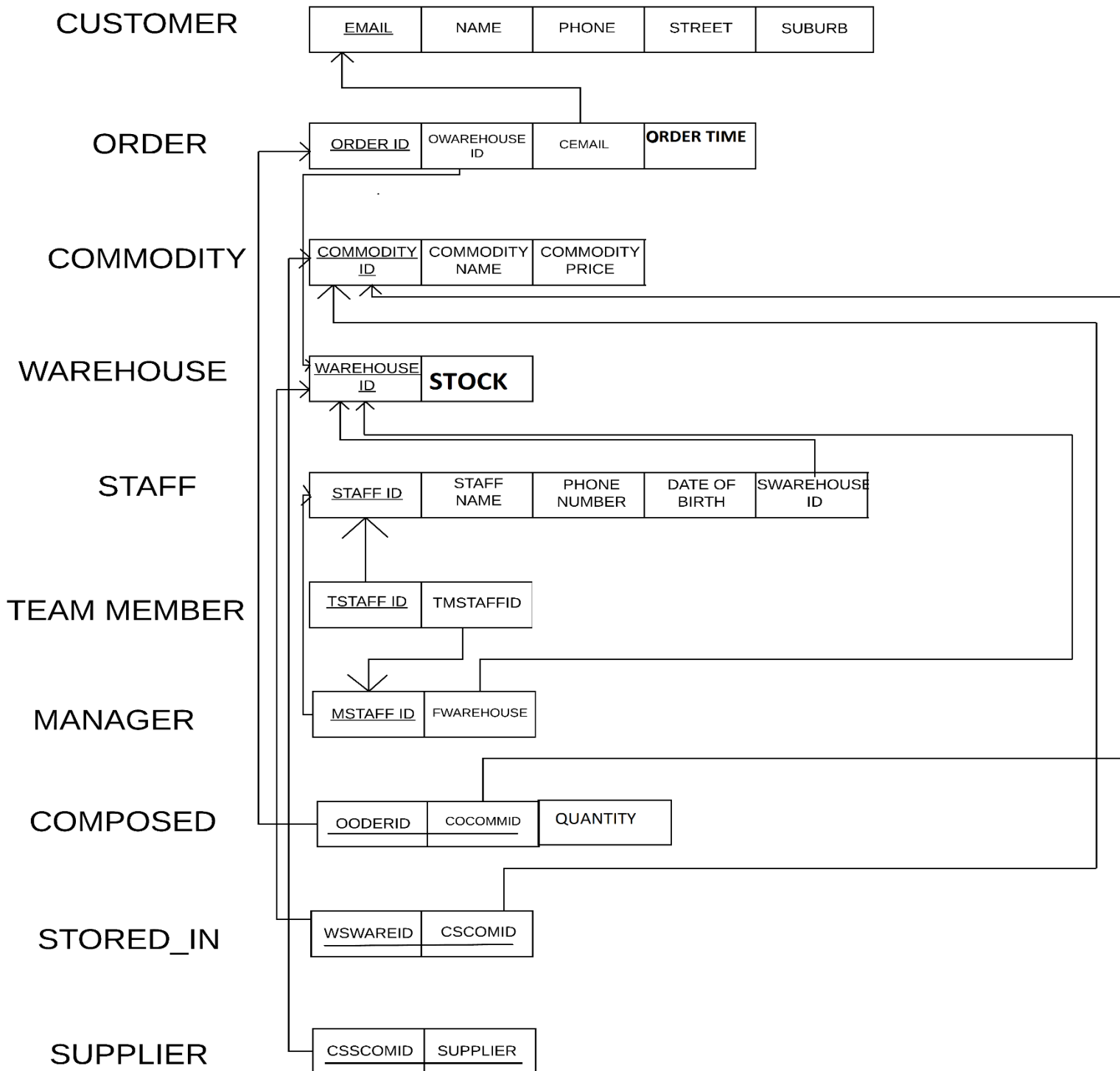


Figure 2: RELATIONAL MODEL(QUESTION2)

QUESTION 3: REALTIONAL ALGEBRA EXPRESSION

1)

$\pi_{\text{name}}(\sigma_{\text{gender}=\text{"female"} \text{ and } \text{Job}=\text{"designer"}}(\text{Student} \bowtie \text{Enrolment} \bowtie \text{Jobrequirements}))$

2)

$\pi(\sigma_{\text{faculty} \neq \text{"Law"}}(\text{Student} \bowtie \text{Course} \bowtie \text{Enrolment}))$

\div

$\pi_{\text{courseID}}(\sigma_{\text{job} = \text{"designer"}}(\text{Job}))$

3) $\pi_{\text{course name}}((\sigma_{\text{gender}=\text{"male"}}(\text{Student} \bowtie \text{Enrolment} \bowtie \text{Course})) \cup \sigma_{\text{gender}=\text{"female"}}(\text{Student} \bowtie \text{Enrolment} \bowtie \text{Course}))$

–

$(\sigma_{\text{gender}=\text{"male"}}(\text{Student} \bowtie \text{Enrolment} \bowtie \text{Course})) \cap \sigma_{\text{gender}=\text{"female"}}(\text{Student} \bowtie \text{Enrolment} \bowtie \text{Course}))$