

## **DB- Assessment 1- Activity 1- Data Modelling Test**

### **A. Provide written answers for the following questions:**

i. Write one example of a business rule that applies to this record-keeping system.

**Australian Government:** You are legally required to keep records of all transactions relating to your tax and superannuation affairs as you start, run, sell, change, or close your business.

ii. Explain why this data structure is a poor relational design. Specifically, explain how it violates the rules of Normalisation.

This data structure is a poor relational design because a poorly designed database may provide erroneous information which is difficult to use or may fail to work properly.

This data structure could also violate the rules of Normalisation when it ranges from excessive disk I/O and subsequent poor system performance to inaccurate data. An improper normalized condition can result in extensive data redundancy which puts a burden on all programs that modify the data. The expense of bad normalization is inadequate, weak, inaccurate, incorrect, or missing data. Applying normalization techniques to database design helps create efficient systems that produce accurate data and reliable information.

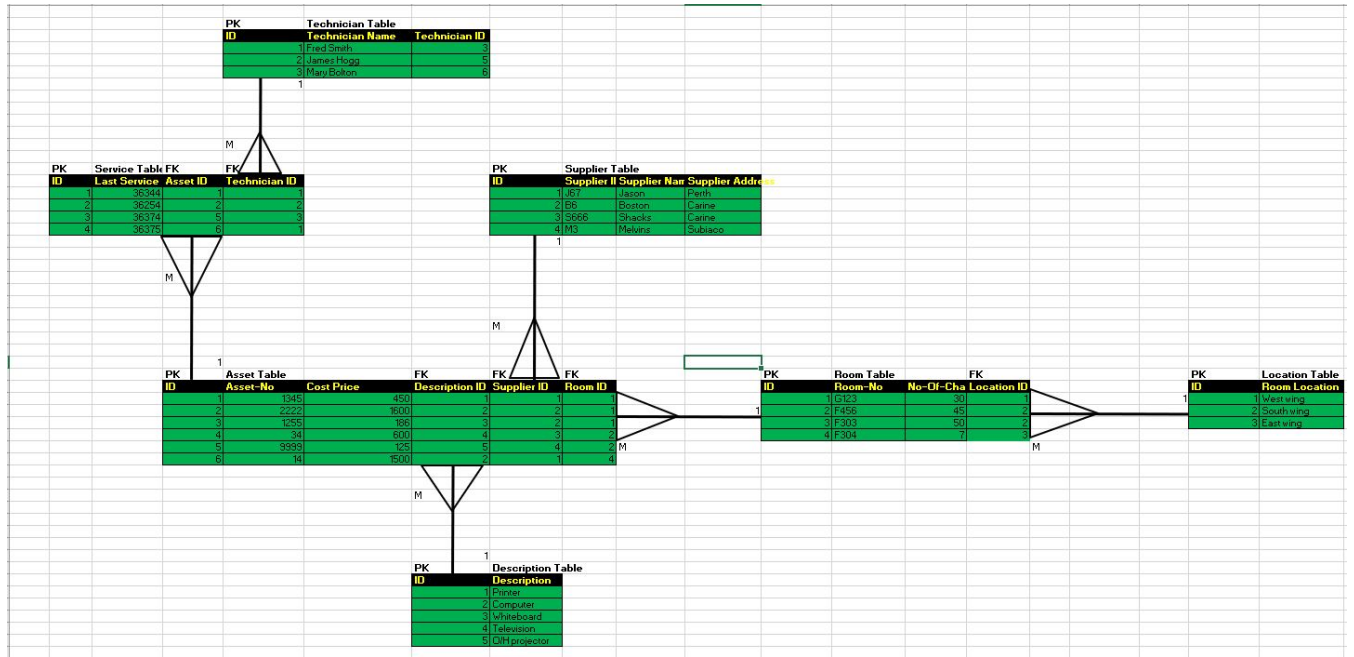
### **B. For the entity relationship diagram using Crows Foot notation:**

i. Transform the non-normalised data into Third Normal Form (3NF). Draw an entity relationship diagram of your normalised design.

ii. Add all the relevant Data Dictionary details to the model. Ensure that you show:

- Unique identifiers / Primary keys for each entity.
- Whether each attribute is Mandatory or Optional.
- Data types and sizes of each attribute.
- Cardinality (e.g. 1:M) of the relationships.

iii. Check that the Foreign key relationships between entities is correct on the Relational Model. Then save your diagram in PDF format for submission.



PK Technician Table

ID	Technician Name	Technician ID
1	Fred Smith	3
2	James Hogg	5
3	Mary Bolton	6

PK Service Table

ID	Last Service	Asset ID	Technician ID
1	36344	1	1
2	36254	2	2
3	36374	5	3
4	36375	6	1

PK Supplier Table

ID	Supplier ID	Supplier Name	Supplier Address
1	J67	Jason	Perth
2	B6	Boston	Carine
3	S666	Shacks	Carine
4	M3	Melvins	Subiaco

PK Asset Table

ID	Asset-No	Cost Price	Description ID	Supplier ID	Room ID
1	1345	450	1	1	1
2	2222	1600	2	2	1
3	1255	186	3	2	1
4	34	600	4	3	2
5	9999	125	5	4	2
6	14	1500	2	1	4

PK Room Table

ID	Room-No	No-Of-Chairs	Location ID
1	G123	30	1
2	F456	45	2
3	F303	50	2
4	F304	7	3

PK Location Table

ID	Room Location
1	West wing
2	South wing
3	East wing

PK Description Table

ID	Description
1	Printer
2	Computer
3	Whiteboard
4	Television
5	O/H projector