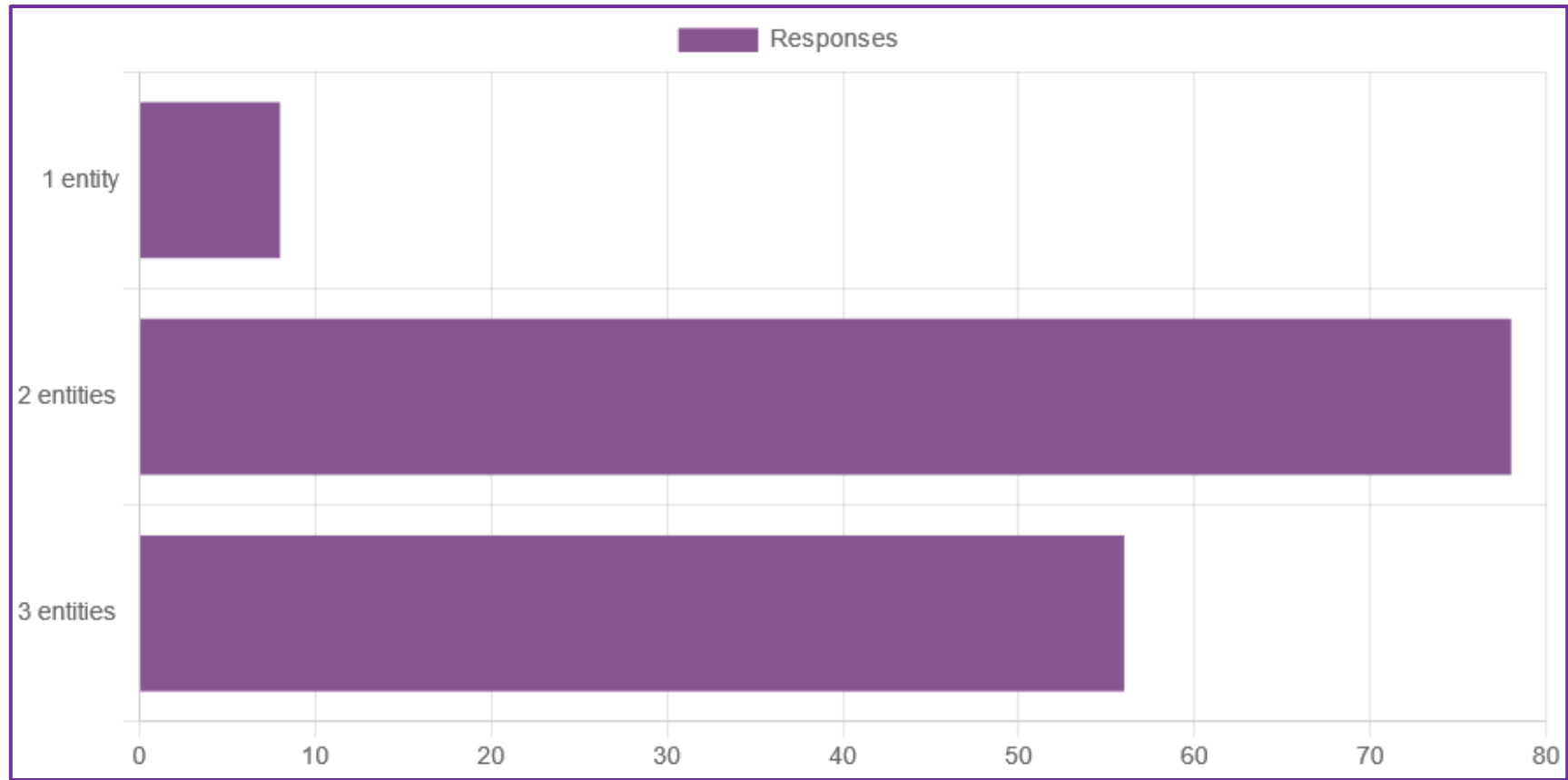


EBU5503 Lab 3 questions' responses analysis

Dr Na Yao

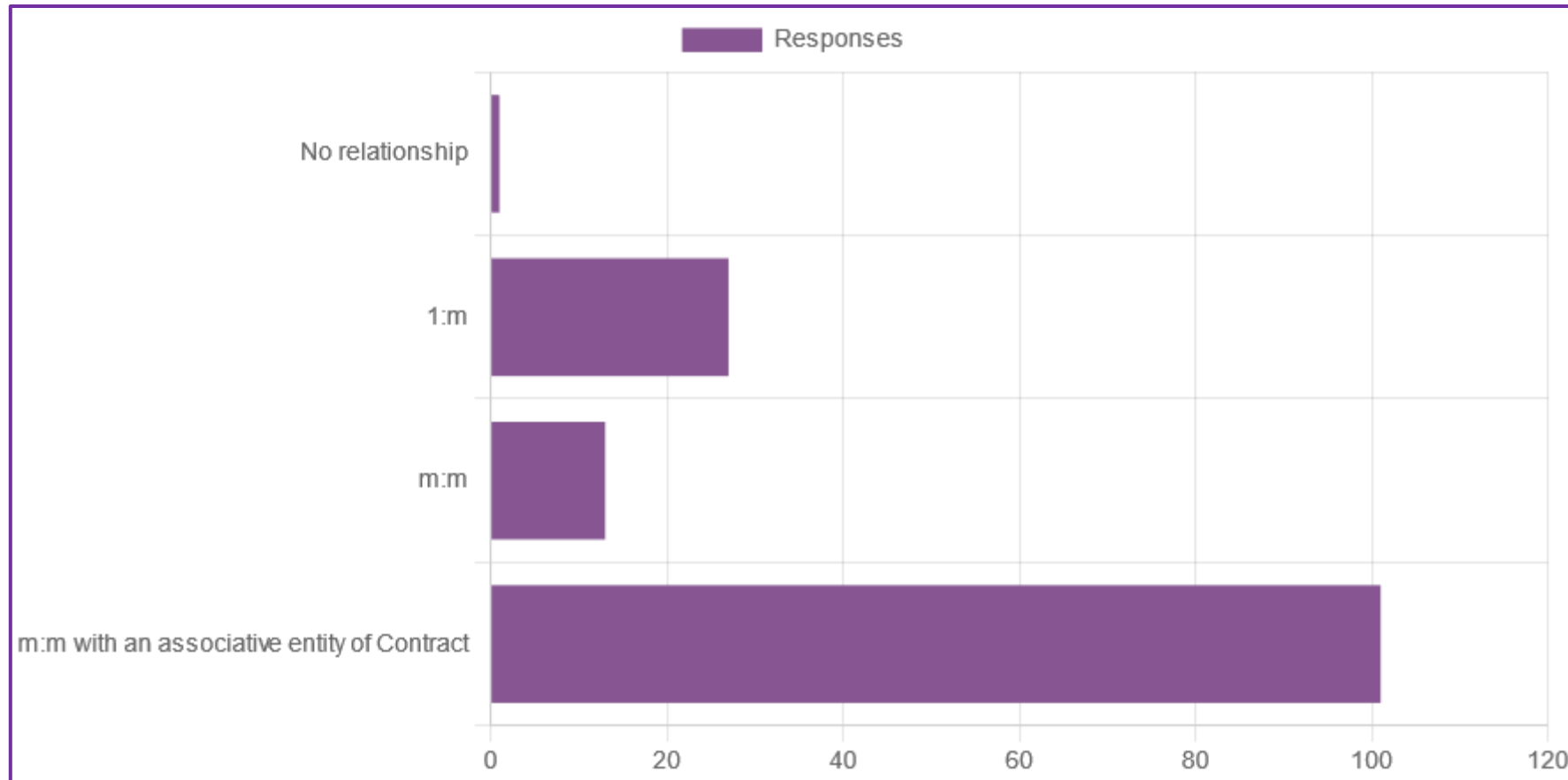
Note: The data here are the responses to Lab 3 questions. You can use it in your learning and reflection, though it doesn't mean the most selected answers are the best answers.

1. In your design, how many entities have you created for rooms, i.e. Hall rooms and Flat bedrooms?



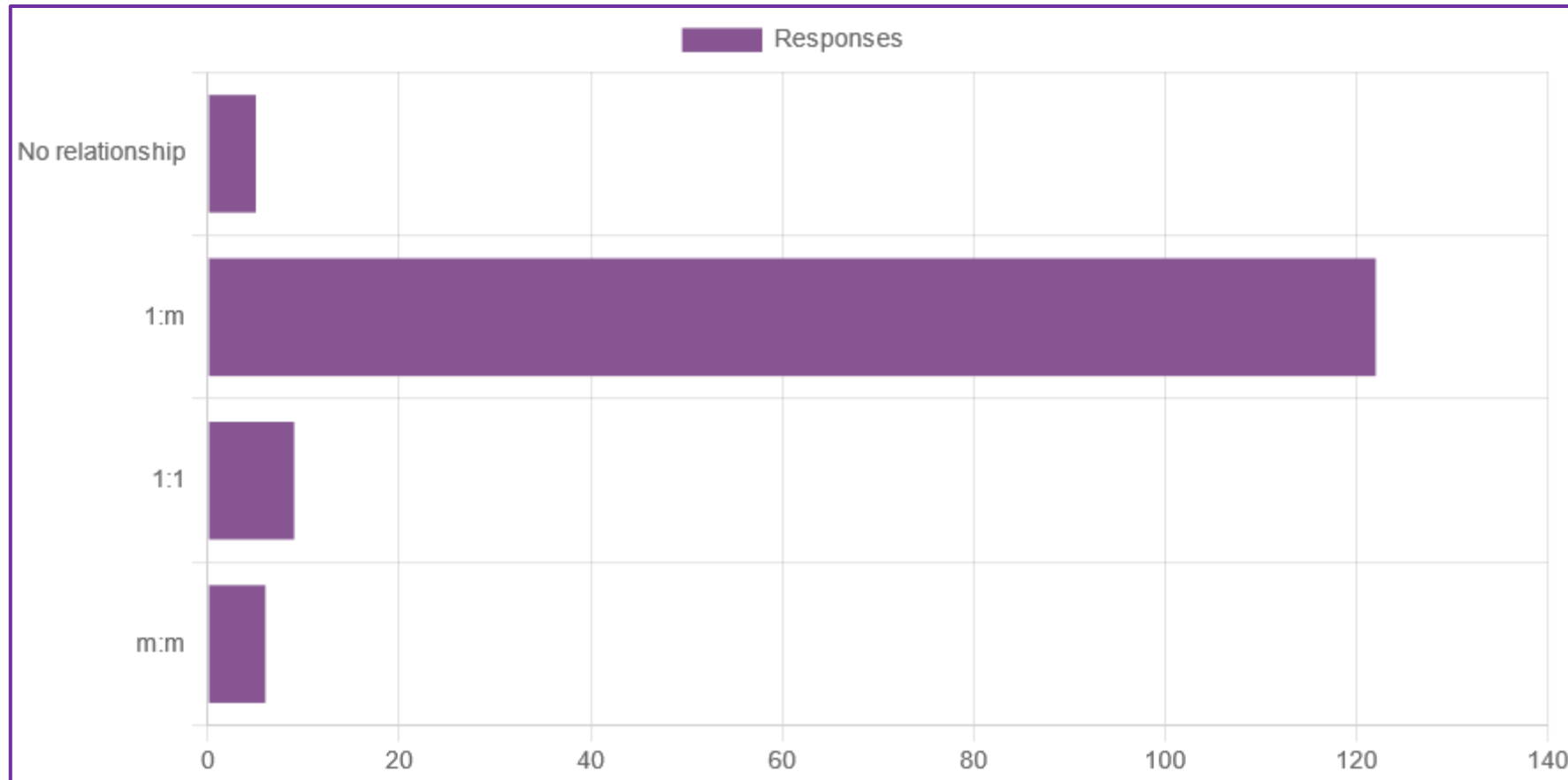
Feedback and Reflection: It may look natural at first to create two entities – one for Hall rooms and one for Flat bedrooms, but how about the relationship of Contract with Student entity? Would it be easier to combine Hall rooms and Flat bedrooms into one entity?

2. What is the relationship between Student entity and room entity (entities) in your design?



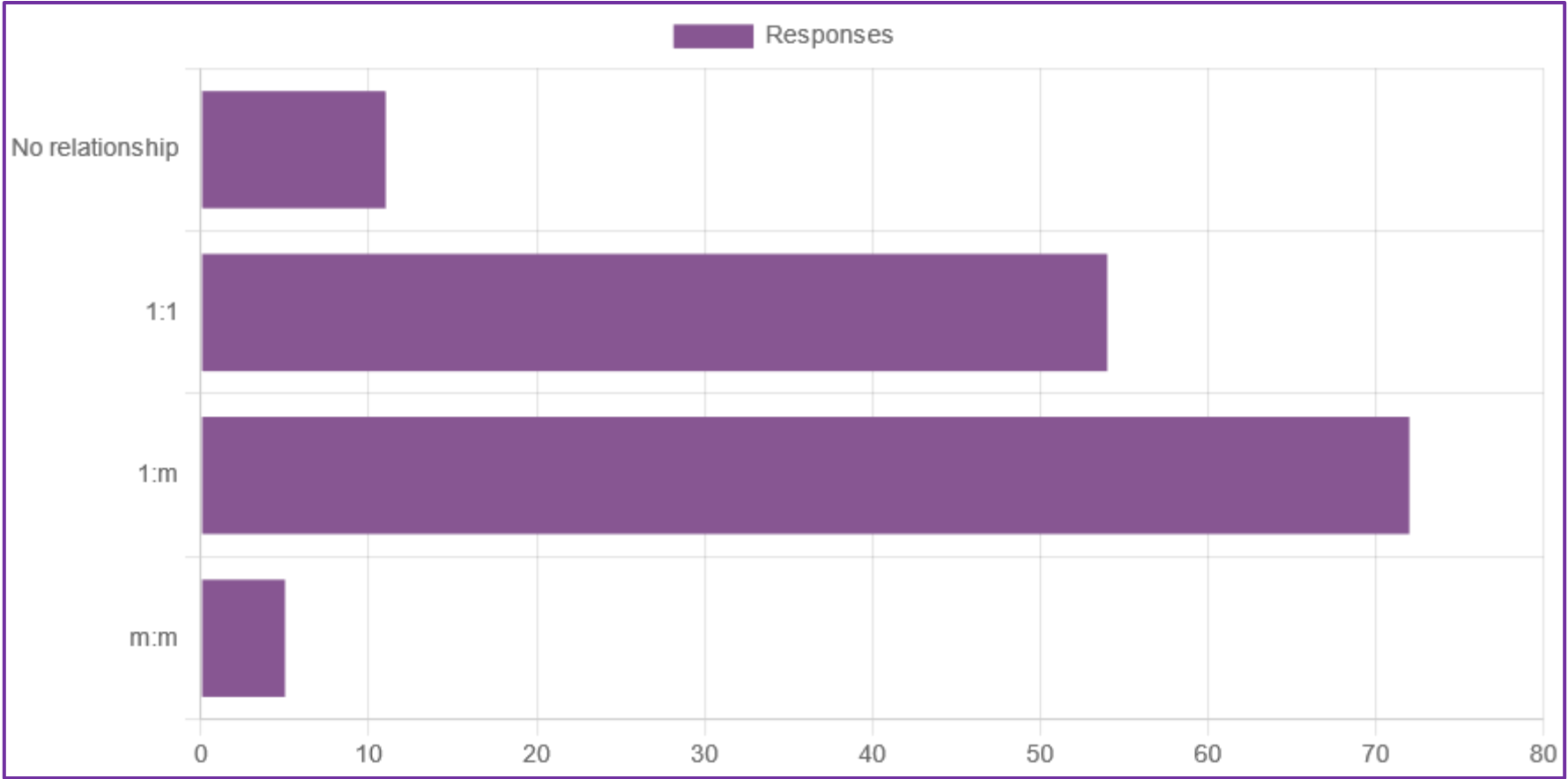
Feedback and Reflection: it does make sense to model the “Contract” as a m:m relationship between Student and Rooms. Think about examples we saw in the lecture notes earlier...

3. What is the relationship between Student entity and Invoice entity in your design?



Feedback and Reflection: The question to ask yourself is: “one student can pay for how many invoices? One invoice can be paid by how many students?”

4. What is the relationship between Invoice entity and Contract entity in your design?



Feedback and Reflection: The question to ask yourself is: “one contract can have how many invoices? One invoice can be associated to how many contracts?”

5. Explain how did you use the concepts you learned in Normalization in this lab? (e.g. relations design, attributes design etc)

Selected responses are listed below (only a few due to the space constraints):

- One column has only one value and those columns all related on the primary key
- In the design, I ensured that each table represents a single entity and that the attributes are properly defined to avoid redundancy and ensure data integrity.
- Contracts and Invoices contains tons of duplicated information. For example, functional dependency from student number to student name in contracts is a functional dependency on non-candidate key, since there is already a Student relation recording this, we just remove the student name attribute in Contract relation.
- When designing the relations, I carefully analyzed the sample data and identified the entities and their attributes. I avoided creating tables that directly mirrored the structure of the sample data, as this often leads to redundant and inefficient data structures.
- In normalization, I look through the attributes to avoid duplicate.

5. Explain how did you use the concepts you learned in Normalization in this lab? (e.g. relations design, attributes design etc)

Feedback and Reflection on Question 5:

In practice, normalization is generally used as a validation tool, once you have created your entities/relations using ER modelling techniques. Remember the main purpose of normalization is to minimise data redundancy, and bear in mind the concepts of “suitable set of relations”:

- the **minimal** number of attributes necessary to support the data requirements;
- attributes with a **close logical relationship** are found in the same relation;
- **minimal** redundancy with each attribute represented only once, with the important exception of attributes that form all or part of foreign keys.

In this particular lab, sample data tables cannot be used directly as relations in the database. You need to read the requirements and analyse the entities, attributes and relationships needed in your design. Sample data is used to provide data, and make it easier for you to understand the requirements.

Some responses submitted look like they are generated by GenAI tool (e.g. ChatGPT), and are not relevant to this lab. **It is highly recommended that you write the answers on your own as this process helps you think and learn better.**