1. Extract is-a relations from the following sentence, and derive all is-a relations using the transitivity of the is-a relation.

*We have rules for keeping animals, such as horses and other farm animals, especially cows and chickens.*

1. Compute the TF-IDF values of “knowledge”, “AI” and “Engineering” with the statistics in the following tables, and rank them (Computing IDF using lg).

|  |  |
| --- | --- |
| Doc1 | |
| Term | Count |
| Knowledge | 3 |
| AI | 6 |
| Engineering | 4 |

|  |  |
| --- | --- |
| Doc2 | |
| Term | Count |
| Knowledge | 0 |
| AI | 5 |
| Engineering | 1 |

|  |  |
| --- | --- |
| Doc3 | |
| Term | Count |
| Knowledge | 0 |
| AI | 0 |
| Engineering | 5 |