1. The purpose normalisation is to remove redundant data and to heighten the integrity of the data, it is used for online transactional databases.
2.
    a. This relational scheme is in 1NF, this is due to each non-primary-key not being fully functionally dependent on the primary key, if it was it would be 2NF, but it does have one value for each column, meaning it is 1NF.
    b. 2NF:
    A(a, b, c, f)
    Primary key a, b
    B(a, b, d)
    Primary key a, b
    Foreign key a references A(a)
    Foreign key b references A(b)
    C(a, c, e)
    Primary key a, c
    Foreign key a references A(a)
    Foreign key c references A(c)
    D(b, g, h)
    Primary key b
    Foreign key a references A(b)

    3NF:
    A(a, b, c, f)
    Primary key a, b
    B(a, b, d)
    Primary key a, b
    Foreign key a references A(a)
    Foreign key b references A(b)
    C(a, c, e)
    Primary key a, c
    Foreign key a references A(a)
    Foreign key c references A(c)
    D(b, g)
    Primary key b
    Foreign key b references A(b)
    Foreign key g references E(g)
    E(g, h)
    Primary key g
3. A transaction in databases is a logical work unit, which is an action, or many actions executed by a user or program which is used to interact with the database.
4. There could be a lost update, this occurs when a write is lost as a write could be overwritten during a transaction by a different transition (which would be running concurrently with the current transaction) and commits the overwritten write rather than the original write.
5. There are ANSI Isolation levels which are used to solve concurrency issues through isolation, and another way of preventing this problem is through locking which is when one

transaction is accessing the database, it is locked so another transaction on the same data item, an error will occur as they cannot access it.

6.

a.

I would recursively access each person's mother and father keys and then access the mother and father parents' keys until there is no entries in mother and father. The recursive nature of the algorithm would be difficult to overcome and implement.

b.

A different database could be Cypher, as you can specify the path length between two nodes, meaning how many levels deep you go into a databases relations to visit a parents parent.