# TMA 02, Question 1

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1a) Storing data for Open Sitters in a file-based system would have a number of disadvantages over a relational database approach, including:

1. A tight coupling between the Open Sitters application and its data, leading to poor maintainability

The application would have to contain the file / data definition, meaning that any changes in the data structure (such as new fields or constraints) would require a change in the Open Sitters application as well as any other application which relied on this data.

1. No support for concurrent users or transactions

As this system could be used by many users at the same time, proper concurrency and transaction support would be required. As file based data systems have no such support, the application would have to implement a mechanism to guard against updates interfering with each other (concurrency issues e.g. lost updates) and corruption of records and data due to partial updates (transaction support). This would be an additional development overhead compared to RDBMS systems which have such support built in. Further, this mechanism would have to be implemented separately in any other application which wanted to access this data.

1. Lack of access control leading to potential legal issues

File based data systems tend to be flat text files which are human readable. Without proper access control which grants the appropriate access level (read, write, delete) to authorized persons, implementing a file-based system is problematic from a legal point of view as it could fall foul of data protection legislation which puts responsibility on the data controller to protect personal data as far as possible.