



(a) \* Parity checks - data can be detected for errors using an additional bit called a parity bit. The parity bit is calculated by ~~adding~~<sup>counting</sup> the number of one's in each byte. If the byte is sent as odd parity, then the number of one's (including the parity bit) will need to be odd. Upon receiving the byte, the amount of one's is counted again and if it matches, it is assumed a successful transmission occurred.

\* Cyclic redundancy check (CRC) - the number of data bits in each packet is calculated, then divided by a fixed divisor. The remainder is then sent along with the packet. Upon receiving the packet, the remainder is recalculated, and if matching, the transmission was complete. Much faster and more accurate than parity bit.

(b) \* Data mining - this is the process of searching a database to look for trends. Many businesses use data mining to discover useful patterns in sales or customers. In the case of Madison, they could allow data mining as a way of discovering

useful patterns such as: products people buy in comparison to their income bracket, locations of stores in comparison to products bought, etc.' This would allow Madison to better position their products, or reassess their marketing strategies in order to further advance their business.

\* Querying - querying would reorganise some of the data in the database. ~~Special~~ Special queries could be constructed in order to discover useful information in their database, such as locations of customers, age of customers, etc. This information could be used by Madison to reassess their target market to further their business

(c) \* Power relationships - a lower level worker has the ability to directly consult a higher level worker to talk about another employee (such as John). Chain of command is lost.

\* Danger of misinterpretation - Sam could misinterpret Pat's meaning of the message as tone of voice and body language are not conveyed.

\* Privacy & Confidentiality - ~~Pat~~ John's privacy is being lost, as he does not have an email account but the others do - they can talk about him, spread ~~the~~ rumours, etc.

\* Social context - Pat and Sam's interpersonal skills may be hindered due to constantly talking via messaging systems, rather than traditional face-to-face social relationships.

\* Information overload - the internal messaging system is just another source of information for Pat and Sam, which increases the stress associated with work