Aquatic Bacteria Diagnosis

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Abstract

The Institute of Aquaculture seeks IT expertise and insight to oversee the automation of its bacteriological diagnosis technique using information collated by the Institute from samples supplied by clients of the Institute's diagnostic consultancy service. This will be packaged in a manner readily usable by the academics of the Institute.

The intention is to construct a product which will capture this diagnostic technique and allow academics of the Institute opportunity to swiftly conduct their diagnosis via a simple GUI. The package will be local to the final system, relying on no aspects beyond the user's system.

Diagnosis has the form of successively narrowing possibilities within a knowledge base to determine which bacteriological culture most closely resembles an input. Facility to gain insight from the data, such as determination of the minimum set of tests to fully best discriminate between remaining cultures, is desired. Embedding costs particular to each test and factoring these into further recommendations required to pinpoint/move-towards-a-singular diagnosis is sought.

Automation of the known techniques has been achieved, with significant progress made on determining, by brute force, the set of tests which are required or recommended to best distinguish or match the considered culture to one (or some) in the knowledge base. An effective, if unadorned, user interface has been implemented with avenues opened both in code and in discussion as to how functionality may be improved and extended. Finally, suggestions are made as to other vectors which may be considered in implementation.