Structured quizzes for knowledge assessment*

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Problem

Set of articles (A)
Set of all the possible related questions

Proposed solution

Automatise the process such that we obtain structured and transversal quiz.

Requirements of the quiz

Answer all the questions
Read all the articles

IF

IMPLY

Entity: concept or topic in the article.

Definition of an objective function which gathers the characteristics that the quiz should have:

★ Questions about entities△ which are globally and locally central respect the articles.
✦ Many entities should be covered by the selected questions.
✤ Questions evenly distributed across all the articles.

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Maximum coverage problem:

Find the set of questions K which maximises the tested concepts and topics.

NP-hard problem which can be approximated by a greedy algorithm.

Overall, the quiz should cover as much as possible information in the documents.

Lower bound (63.2%) for the accuracy of the results.

Application

Integrate the process in MOOC (self-assessment)
Based on Wikipedia’s articles for driven-learning and self-assessment purposes
Learning assessment in school (teacher usage)

*Ongoing project • Implementation stage