Instances of six cognitive levels in Bloom's Taxonomy

Support Document

An apple is a round, edible fruit … There are more than 7,500 known varieties of apples, such as Alice, Fuji, Granny Smith, Gala …

Document Retrieval — Chunk Re-rank

Test Objective

Apple Cultivars

Knowledge Point Extraction

Multi-level Instance Generation

Remember-level

Q1: Which count did Fuji apples originate?
A.China   *B.Japan* ✓
C. India   D. Canada

Q2: Which is the best-taste apple in the document? ✗
Question is un-answerable

Q3: Choose the apple combination to develop a new kind of dessert. ✗
Cognitive level is not matched

Understand-level

Q1: Which kind of apple is green with slightly tart? ✓
A. Granny Smith B. Fuji
C. Lobo   D. Gala

Q2: Who is the CEO of Apple? ✗
Question is irrelevant

Q3: Why are Granny Smith preferred for baking? ✗
A. Sweet   *B. Thick*
C. Small   D. Green
Wrong answer

Apply-level
…

Analyze-level
…

Evaluate-level
…

Create-level
…

Select and Optimize with RAG

Seed Instance

Which one is not a variety of apples?
A. Granny Smith   B. Fuji
C. Clementine   D. Lobo

Multi-level Instance Generation based on Bloom's Taxonomy

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Multi-nodal Instance Expansion based on Concept Mapping

Critical Concept Identification

Critical Concept

1.Apple   2.Granny Smith
3.Fuji   4. Clementine
5.Lobo

Knowledge Retrieval

Knowledge Graph

Orange
Color
Subclass
Clementine   Citrus

Knowledge Selection

Helpful Triples

Here are the knowledge helpful for understanding the seed instance:
1. <Clementine , Subclass of, Citrus>
2. …

Question Generation

Evaluate Instances

Question about the critical concept "Clementine":
What is Clementine a subclass of ___?
A. Apple   B. Banana
C. Citrus   D. Berry