

Hybrid Search: TC

Doc ID	Category	Document Title/Content Summary
Doc 1	Type A: Pure Semantic	<b>"The Health Benefits of Tropical Berries"</b> : Details on antioxidants, fiber, and nutritional value of açai, <b>goji berries</b> , and <b>cranberries</b> . <i>(Avoids words like "red" or "small fruit")</i>
Doc 2	Type B: Pure Keyword	<b>"Product SKU: A-643-CHERRY"</b> : A vendor inventory record for a specific lot of <b>"Bing Cherry"</b> with a precise SKU.
Doc 3	Type C: Ambiguity (Color)	<b>"The Color Orange in Fashion"</b> : An article discussing the use of the <b>color orange</b> in clothing and interior design. <i>(No mention of the fruit)</i>
Doc 4	Type C: Ambiguity (Fruit)	<b>"Citrus Fruits: Seasonal Varieties"</b> : A post about the different types of <b>oranges</b> available, including Valencia and Blood <b>Orange</b> .
Doc 5	Type B: Pure Keyword	<b>"The Science of Product ID: LME-901"</b> : Technical specs for the <b>"Meyer Lemon"</b> cultivar, identified by its unique ID.
Doc 6	Type A: Pure Semantic	<b>"Dessert Ingredients for Baking"</b> : A recipe that calls for <b>sweet, tart, red fruits</b> like strawberries and raspberries. <i>(No mention of "cherry")</i>

Doc 7	Type B: Pure Keyword	<b>"Product SKU: A-643-APPLE"</b> : A vendor inventory record for a specific lot of <b>"Honeycrisp Apple"</b> with a precise SKU.
Doc 8	Type C: Ambiguity (Tech Company)	<b>"The Latest News from Apple Inc."</b> : A corporate press release about the newest <b>Apple</b> product launch (the technology company).
Doc 9	Type A: Pure Semantic	<b>"Tips for Boosting Vitamin C Intake"</b> : Suggests eating <b>citrus</b> , <b>kiwi</b> , and other high <b>Vitamin C</b> sources. <i>(Synonyms for "orange" and "lemon")</i>
Doc 10	Type C: Ambiguity (Fruit)	<b>"Cooking with Apples"</b> : A recipe for a classic <b>Apple</b> pie using Granny Smith <b>Apples</b> .

# Hybrid Search: Query

Query ID	Query Type	Query Text	Relevant Documents (ID: Score)	Demonstration Goal
Q1	Pure Semantic	"Find products for baking a sweet red fruit dessert"	<b>6: 3, 1: 1</b> (Semantically similar to "red fruits").	<b>Keyword Fails:</b> Pure BM25 will rank Doc 6 low as it lacks the word "cherry." <b>kNN Excels.</b>
Q2	Pure Keyword	"Inventory check for <b>SKU A-643-CHERRY</b> "	<b>2: 3, 7: 1</b> (Must match the exact SKU).	<b>kNN Fails:</b> Semantic search may rank Doc 7 (similar SKU) high. <b>Keyword Excels</b> due to high BM25 weight on the exact ID.
Q3	Hybrid / Ambiguity	"What is the <b>orange</b> fruit product available today?"	<b>4: 3, 9: 2, 3: 0</b> (Prioritizes fruit over the color).	<b>Hybrid Excels:</b> Balances the exact term "orange" (Doc 4) with semantic synonyms (Doc 9) while down-ranking the irrelevant keyword match (Doc 3).
Q4	Hybrid / Ambiguity	"I need information on <b>Apple</b> for a recipe"	<b>10: 3, 7: 2, 8: 0</b> (Prioritizes recipe context).	<b>Hybrid Excels:</b> Must prioritize <i>fruit</i> content (Docs 10, 7) over the high-keyword-match <i>tech company</i> (Doc 8).

