

Hybrid Search: TC

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

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

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"	6: 3, 1: 1 (Semantically similar to "red fruits").	Keyword Fails: Pure BM25 will rank Doc 6 low as it lacks the word "cherry." kNN Excels.
Q2	Pure Keyword	"Inventory check for SKU A-643-CHER RY "	2: 3, 7: 1 (Must match the exact SKU).	kNN Fails: Semantic search may rank Doc 7 (similar SKU) high. Keyword Excels due to high BM25 weight on the exact ID.
Q3	Hybrid / Ambiguity	"What is the orange fruit product available today?"	4: 3, 9: 2, 3: 0 (Prioritizes fruit over the color).	Hybrid Excels: 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 Apple for a recipe"	10: 3, 7: 2, 8: 0 (Prioritizes recipe context).	Hybrid Excels: Must prioritize <i>fruit</i> content (Docs 10, 7) over the high-keyword-match <i>tech company</i> (Doc 8).

