Execute Task: 8. Implement intelligent mode detection system 8. Implement intelligent mode detection system

**Kiro**

I'll implement the intelligent mode detection system as specified in task 8. Let me start by updating the task status and then implementing the ModeDetector class.

Task: *8. Implement intelligent mode detection system* from tasks.md

Status: In Progress

Now let me examine the existing project structure to understand the current implementation:

Read file(s)

models.py

Now let me check the configuration manager to understand how required documents are configured:

Read file(s)

config\_manager.py

Now let me check the existing file scanner to understand how files are discovered:

Read file(s)

file\_scanner.py

Now I'll create the ModeDetector class in the core directory:

Accepted edits to

mode\_detector.py

Now I'll create comprehensive unit tests for the ModeDetector class:

Created

test\_mode\_detector.py

Now let's run the tests to verify our implementation works correctly:

Command

python -m pytest tests/test\_mode\_detector.py -v

(.venv) PS E:\Forschung\KIRO\PM Assistant> python -m pytest tests/test\_mode\_detector.py -v

========================================================= test session starts ==========================================================

platform win32 -- Python 3.10.11, pytest-8.4.1, pluggy-1.6.0 -- E:\Forschung\KIRO\PM Assistant\.venv\Scripts\python.exe

cachedir: .pytest\_cache

rootdir: E:\Forschung\KIRO\PM Assistant

configfile: pytest.ini

plugins: cov-6.2.1

collected 26 items

tests/test\_mode\_detector.py::TestModeDetector::test\_initialization\_with\_default\_config PASSED [ 3%]

tests/test\_mode\_detector.py::TestModeDetector::test\_initialization\_with\_custom\_config PASSED [ 7%]

tests/test\_mode\_detector.py::TestModeDetector::test\_analyze\_files\_empty\_list PASSED [ 11%]

tests/test\_mode\_detector.py::TestModeDetector::test\_analyze\_files\_complete\_project PASSED [ 15%]

tests/test\_mode\_detector.py::TestModeDetector::test\_analyze\_files\_partial\_project PASSED [ 19%]

tests/test\_mode\_detector.py::TestModeDetector::test\_analyze\_files\_minimal\_project PASSED [ 23%]

tests/test\_mode\_detector.py::TestModeDetector::test\_calculate\_completeness\_score\_complete PASSED [ 26%]

tests/test\_mode\_detector.py::TestModeDetector::test\_calculate\_completeness\_score\_partial PASSED [ 30%]

tests/test\_mode\_detector.py::TestModeDetector::test\_calculate\_completeness\_score\_empty PASSED [ 34%]

tests/test\_mode\_detector.py::TestModeDetector::test\_quality\_scoring\_high\_quality\_files PASSED [ 38%]

tests/test\_mode\_detector.py::TestModeDetector::test\_quality\_scoring\_poor\_quality\_files FAILED [ 42%]

tests/test\_mode\_detector.py::TestModeDetector::test\_single\_file\_quality\_calculation FAILED [ 46%]

tests/test\_mode\_detector.py::TestModeDetector::test\_format\_appropriateness\_scoring PASSED [ 50%]

tests/test\_mode\_detector.py::TestModeDetector::test\_document\_availability\_analysis PASSED [ 53%]

tests/test\_mode\_detector.py::TestModeDetector::test\_alternative\_modes\_generation PASSED [ 57%]

tests/test\_mode\_detector.py::TestModeDetector::test\_detailed\_reasoning\_generation PASSED [ 61%]

tests/test\_mode\_detector.py::TestModeDetector::test\_confidence\_scoring\_adjustments PASSED [ 65%]

tests/test\_mode\_detector.py::TestModeDetector::test\_validation\_error\_handling PASSED [ 69%]

tests/test\_mode\_detector.py::TestModeDetector::test\_edge\_case\_very\_old\_files PASSED [ 73%]

tests/test\_mode\_detector.py::TestModeDetector::test\_edge\_case\_very\_large\_files PASSED [ 76%]

tests/test\_mode\_detector.py::TestModeDetector::test\_unknown\_document\_types PASSED [ 80%]

tests/test\_mode\_detector.py::TestModeDetector::test\_mixed\_quality\_scenarios PASSED [ 84%]

tests/test\_mode\_detector.py::TestModeDetector::test\_recommendation\_consistency PASSED [ 88%]

tests/test\_mode\_detector.py::TestModeDetector::test\_mode\_thresholds[0.8-OperationMode.STATUS\_ANALYSIS] PASSED [ 92%]

tests/test\_mode\_detector.py::TestModeDetector::test\_mode\_thresholds[0.5-OperationMode.DOCUMENT\_CHECK] PASSED [ 96%]

tests/test\_mode\_detector.py::TestModeDetector::test\_mode\_thresholds[0.1-OperationMode.LEARNING\_MODULE] PASSED [100%]

=============================================================== FAILURES ===============================================================

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ TestModeDetector.test\_quality\_scoring\_poor\_quality\_files \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

self = <tests.test\_mode\_detector.TestModeDetector object at 0x00000199891492A0>

mode\_detector = <core.mode\_detector.ModeDetector object at 0x000001998914A620>

sample\_file\_info = {'charter': FileInfo(path=WindowsPath('project\_charter.md'), format=<FileFormat.MARKDOWN: 'md'>, document\_type=<Docume

...\_readable=True, processing\_status=<ProcessingStatus.NOT\_STARTED: 'not\_started'>, error\_message=None, metadata={}), ...}

def test\_quality\_scoring\_poor\_quality\_files(self, mode\_detector, sample\_file\_info):

"""Test quality scoring with poor-quality files."""

files = [sample\_file\_info['empty\_file'], sample\_file\_info['unreadable\_file']]

quality\_scores = mode\_detector.\_calculate\_quality\_scores(files)

# Empty and unreadable files should score lower

if DocumentType.CHARTER in quality\_scores:

> assert quality\_scores[DocumentType.CHARTER] < 0.5 # Empty file

E assert 0.7 < 0.5

tests\test\_mode\_detector.py:251: AssertionError

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ TestModeDetector.test\_single\_file\_quality\_calculation \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

self = <tests.test\_mode\_detector.TestModeDetector object at 0x0000019989149420>

mode\_detector = <core.mode\_detector.ModeDetector object at 0x0000019988E95960>

sample\_file\_info = {'charter': FileInfo(path=WindowsPath('project\_charter.md'), format=<FileFormat.MARKDOWN: 'md'>, document\_type=<Docume

...\_readable=True, processing\_status=<ProcessingStatus.NOT\_STARTED: 'not\_started'>, error\_message=None, metadata={}), ...}

def test\_single\_file\_quality\_calculation(self, mode\_detector, sample\_file\_info):

"""Test quality calculation for individual files."""

# High quality file

high\_quality\_score = mode\_detector.\_calculate\_single\_file\_quality(sample\_file\_info['charter'])

assert 0.6 <= high\_quality\_score <= 1.0

# Empty file

empty\_quality\_score = mode\_detector.\_calculate\_single\_file\_quality(sample\_file\_info['empty\_file'])

> assert empty\_quality\_score < 0.6

E assert 0.7 < 0.6

tests\test\_mode\_detector.py:263: AssertionError

======================================================= short test summary info ========================================================

FAILED tests/test\_mode\_detector.py::TestModeDetector::test\_quality\_scoring\_poor\_quality\_files - assert 0.7 < 0.5

FAILED tests/test\_mode\_detector.py::TestModeDetector::test\_single\_file\_quality\_calculation - assert 0.7 < 0.6

===================================================== 2 failed, 24 passed in 0.34s =====================================================

I need to fix the quality scoring algorithm. The issue is that empty files are still getting high scores due to other factors. Let me adjust the scoring logic:

Accepted edits to

mode\_detector.py

Now let's run the tests again to see if the quality scoring is fixed:

Command

python -m pytest tests/test\_mode\_detector.py::TestModeDetector::test\_quality\_scoring\_poor\_quality\_files tests/test\_mode\_detector.py::TestModeDetector::test\_single\_file\_quality\_calculation -v

ity\_files tests/test\_mode\_detector.py::TestModeDetector::test\_single\_file\_quality\_calculation -v ========================================================= test session starts ==========================================================

platform win32 -- Python 3.10.11, pytest-8.4.1, pluggy-1.6.0 -- E:\Forschung\KIRO\PM Assistant\.venv\Scripts\python.exe

cachedir: .pytest\_cache

rootdir: E:\Forschung\KIRO\PM Assistant

configfile: pytest.ini

plugins: cov-6.2.1

collected 2 items

tests/test\_mode\_detector.py::TestModeDetector::test\_quality\_scoring\_poor\_quality\_files PASSED [ 50%]

tests/test\_mode\_detector.py::TestModeDetector::test\_single\_file\_quality\_calculation PASSED [100%]

========================================================== 2 passed in 0.10s ===========================================================

Great! Now let's run all the tests to make sure everything is working:

Command

python -m pytest tests/test\_mode\_detector.py -v

(.venv) PS E:\Forschung\KIRO\PM Assistant> python -m pytest tests/test\_mode\_detector.py -v

========================================================= test session starts ==========================================================

platform win32 -- Python 3.10.11, pytest-8.4.1, pluggy-1.6.0 -- E:\Forschung\KIRO\PM Assistant\.venv\Scripts\python.exe

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tests/test\_mode\_detector.py::TestModeDetector::test\_mode\_thresholds[0.5-OperationMode.DOCUMENT\_CHECK] PASSED [ 96%]

tests/test\_mode\_detector.py::TestModeDetector::test\_mode\_thresholds[0.1-OperationMode.LEARNING\_MODULE] PASSED [100%]

========================================================== 26 passed in 0.15s ==========================================================

Perfect! All tests are passing. Now let's run a broader test to make sure we haven't broken anything else:

Command

python -m pytest tests/ -v --tb=short

(.venv) PS E:\Forschung\KIRO\PM Assistant> python -m pytest tests/ -v --tb=short

========================================================= test session starts ==========================================================

platform win32 -- Python 3.10.11, pytest-8.4.1, pluggy-1.6.0 -- E:\Forschung\KIRO\PM Assistant\.venv\Scripts\python.exe

cachedir: .pytest\_cache

rootdir: E:\Forschung\KIRO\PM Assistant

configfile: pytest.ini

plugins: cov-6.2.1

collected 389 items

tests/test\_base\_classes.py::TestBaseFileHandler::test\_cannot\_instantiate\_abstract\_class PASSED [ 0%]

tests/test\_base\_classes.py::TestBaseFileHandler::test\_concrete\_implementation\_works PASSED [ 0%]

tests/test\_base\_classes.py::TestBaseFileHandler::test\_get\_supported\_extensions PASSED [ 0%]

tests/test\_base\_classes.py::TestBaseFileHandler::test\_string\_representations PASSED [ 1%]

tests/test\_base\_classes.py::TestBaseProcessor::test\_cannot\_instantiate\_abstract\_class PASSED [ 1%]

tests/test\_base\_classes.py::TestBaseProcessor::test\_concrete\_implementation\_works PASSED [ 1%]

tests/test\_base\_classes.py::TestBaseProcessor::test\_missing\_required\_files PASSED [ 1%]

tests/test\_base\_classes.py::TestBaseProcessor::test\_pattern\_matching PASSED [ 2%]

tests/test\_base\_classes.py::TestBaseProcessor::test\_processor\_info PASSED [ 2%]

tests/test\_base\_classes.py::TestBaseReporter::test\_cannot\_instantiate\_abstract\_class PASSED [ 2%]

tests/test\_base\_classes.py::TestBaseReporter::test\_concrete\_implementation\_works PASSED [ 2%]

tests/test\_base\_classes.py::TestBaseReporter::test\_filename\_generation PASSED [ 3%]

tests/test\_base\_classes.py::TestBaseReporter::test\_report\_header\_creation PASSED [ 3%]

tests/test\_base\_classes.py::TestBaseReporter::test\_error\_handling\_formatting PASSED [ 3%]

tests/test\_base\_classes.py::TestBaseReporter::test\_supported\_config\_options PASSED [ 3%]

tests/test\_config\_manager.py::TestConfigManager::test\_init\_default\_config\_path PASSED [ 4%]

tests/test\_config\_manager.py::TestConfigManager::test\_init\_custom\_config\_path PASSED [ 4%]

tests/test\_config\_manager.py::TestConfigManager::test\_load\_config\_success PASSED [ 4%]

tests/test\_config\_manager.py::TestConfigManager::test\_load\_config\_file\_not\_found\_creates\_default PASSED [ 4%]

tests/test\_config\_manager.py::TestConfigManager::test\_load\_config\_invalid\_yaml PASSED [ 5%]

tests/test\_config\_manager.py::TestConfigManager::test\_validate\_config\_missing\_sections PASSED [ 5%]

tests/test\_config\_manager.py::TestConfigManager::test\_validate\_config\_missing\_project\_fields PASSED [ 5%]

tests/test\_config\_manager.py::TestConfigManager::test\_validate\_config\_missing\_mode\_fields PASSED [ 5%]

tests/test\_config\_manager.py::TestConfigManager::test\_validate\_required\_documents\_invalid\_structure PASSED [ 6%]

tests/test\_config\_manager.py::TestConfigManager::test\_validate\_required\_documents\_invalid\_types PASSED [ 6%]

tests/test\_config\_manager.py::TestConfigManager::test\_get\_project\_config PASSED [ 6%]

tests/test\_config\_manager.py::TestConfigManager::test\_get\_required\_documents PASSED [ 6%]

tests/test\_config\_manager.py::TestConfigManager::test\_get\_modes\_config PASSED [ 7%]

tests/test\_config\_manager.py::TestConfigManager::test\_get\_output\_config PASSED [ 7%]

tests/test\_config\_manager.py::TestConfigManager::test\_get\_logging\_config PASSED [ 7%]

tests/test\_config\_manager.py::TestConfigManager::test\_get\_project\_path PASSED [ 7%]

tests/test\_config\_manager.py::TestConfigManager::test\_get\_project\_path\_default PASSED [ 8%]

tests/test\_config\_manager.py::TestConfigManager::test\_is\_mode\_enabled\_true PASSED [ 8%]

tests/test\_config\_manager.py::TestConfigManager::test\_is\_mode\_enabled\_false PASSED [ 8%]

tests/test\_config\_manager.py::TestConfigManager::test\_is\_mode\_enabled\_missing\_mode PASSED [ 8%]

tests/test\_config\_manager.py::TestConfigManager::test\_create\_default\_config\_io\_error PASSED [ 9%]

tests/test\_config\_manager.py::TestConfigManager::test\_get\_default\_config\_data\_structure PASSED [ 9%]

tests/test\_deliverable\_extractor.py::TestDeliverableExtractor::test\_init PASSED [ 9%]

tests/test\_deliverable\_extractor.py::TestDeliverableExtractor::test\_extract\_deliverables\_file\_not\_found PASSED [ 10%]

tests/test\_deliverable\_extractor.py::TestDeliverableExtractor::test\_extract\_deliverables\_unsupported\_format PASSED [ 10%]

tests/test\_deliverable\_extractor.py::TestDeliverableExtractor::test\_extract\_deliverables\_markdown PASSED [ 10%]

tests/test\_deliverable\_extractor.py::TestDeliverableExtractor::test\_extract\_deliverables\_excel PASSED [ 10%]

tests/test\_deliverable\_extractor.py::TestDeliverableExtractionFromMarkdown::test\_extract\_from\_markdown\_with\_tables PASSED [ 11%]

tests/test\_deliverable\_extractor.py::TestDeliverableExtractionFromExcel::test\_extract\_from\_excel PASSED [ 11%]

tests/test\_deliverable\_extractor.py::TestDeliverableExtractionFromExcel::test\_is\_deliverable\_sheet\_by\_name PASSED [ 11%]

tests/test\_deliverable\_extractor.py::TestDeliverableExtractionFromExcel::test\_is\_deliverable\_sheet\_by\_headers PASSED [ 11%]

tests/test\_deliverable\_extractor.py::TestColumnMapping::test\_create\_column\_mapping PASSED [ 12%]

tests/test\_deliverable\_extractor.py::TestColumnMapping::test\_create\_column\_mapping\_variations PASSED [ 12%]

tests/test\_deliverable\_extractor.py::TestDeliverableCreation::test\_create\_deliverable\_from\_row\_complete PASSED [ 12%]

tests/test\_deliverable\_extractor.py::TestDeliverableCreation::test\_create\_deliverable\_from\_row\_minimal PASSED [ 12%]

tests/test\_deliverable\_extractor.py::TestValueParsing::test\_parse\_status PASSED [ 13%]

tests/test\_deliverable\_extractor.py::TestValueParsing::test\_parse\_completion\_percentage PASSED [ 13%]

tests/test\_deliverable\_extractor.py::TestValueParsing::test\_parse\_effort\_hours PASSED [ 13%]

tests/test\_deliverable\_extractor.py::TestValueParsing::test\_parse\_dependencies PASSED [ 13%]

tests/test\_deliverable\_extractor.py::TestValueParsing::test\_parse\_date\_formats PASSED [ 14%]

tests/test\_deliverable\_extractor.py::TestTextExtraction::test\_find\_deliverable\_entries\_in\_text PASSED [ 14%]

tests/test\_deliverable\_extractor.py::TestTextExtraction::test\_create\_deliverable\_from\_text\_entry PASSED [ 14%]

tests/test\_deliverable\_extractor.py::TestTextExtraction::test\_create\_deliverable\_from\_text\_entry\_minimal PASSED [ 14%]

tests/test\_domain.py::TestRisk::test\_risk\_creation PASSED [ 15%]

tests/test\_domain.py::TestRisk::test\_probability\_bounds PASSED [ 15%]

tests/test\_domain.py::TestRisk::test\_impact\_bounds PASSED [ 15%]

tests/test\_domain.py::TestRisk::test\_schedule\_impact\_bounds PASSED [ 15%]

tests/test\_domain.py::TestRisk::test\_risk\_score PASSED [ 16%]

tests/test\_domain.py::TestRisk::test\_probability\_percentage PASSED [ 16%]

tests/test\_domain.py::TestRisk::test\_impact\_percentage PASSED [ 16%]

tests/test\_domain.py::TestRisk::test\_is\_overdue PASSED [ 16%]

tests/test\_domain.py::TestRisk::test\_is\_resolved PASSED [ 17%]

tests/test\_domain.py::TestRisk::test\_days\_until\_target PASSED [ 17%]

tests/test\_domain.py::TestRisk::test\_add\_note PASSED [ 17%]

tests/test\_domain.py::TestRisk::test\_update\_status PASSED [ 17%]

tests/test\_domain.py::TestDeliverable::test\_deliverable\_creation PASSED [ 18%]

tests/test\_domain.py::TestDeliverable::test\_completion\_percentage\_bounds PASSED [ 18%]

tests/test\_domain.py::TestDeliverable::test\_effort\_hours\_bounds PASSED [ 18%]

tests/test\_domain.py::TestDeliverable::test\_is\_completed PASSED [ 19%]

tests/test\_domain.py::TestDeliverable::test\_is\_overdue PASSED [ 19%]

tests/test\_domain.py::TestDeliverable::test\_days\_until\_due PASSED [ 19%]

tests/test\_domain.py::TestDeliverable::test\_effort\_variance\_hours PASSED [ 19%]

tests/test\_domain.py::TestDeliverable::test\_budget\_variance PASSED [ 20%]

tests/test\_domain.py::TestDeliverable::test\_is\_on\_track PASSED [ 20%]

tests/test\_domain.py::TestDeliverable::test\_add\_dependency PASSED [ 20%]

tests/test\_domain.py::TestDeliverable::test\_update\_progress PASSED [ 20%]

tests/test\_domain.py::TestDeliverable::test\_add\_note PASSED [ 21%]

tests/test\_domain.py::TestMilestone::test\_milestone\_creation PASSED [ 21%]

tests/test\_domain.py::TestMilestone::test\_is\_completed PASSED [ 21%]

tests/test\_domain.py::TestMilestone::test\_is\_overdue PASSED [ 21%]

tests/test\_domain.py::TestMilestone::test\_days\_until\_target PASSED [ 22%]

tests/test\_domain.py::TestMilestone::test\_schedule\_variance\_days PASSED [ 22%]

tests/test\_domain.py::TestMilestone::test\_baseline\_variance\_days PASSED [ 22%]

tests/test\_domain.py::TestMilestone::test\_complete\_milestone PASSED [ 22%]

tests/test\_domain.py::TestMilestone::test\_add\_note PASSED [ 23%]

tests/test\_domain.py::TestStakeholder::test\_stakeholder\_creation PASSED [ 23%]

tests/test\_domain.py::TestStakeholder::test\_influence\_score PASSED [ 23%]

tests/test\_domain.py::TestStakeholder::test\_interest\_score PASSED [ 23%]

tests/test\_domain.py::TestStakeholder::test\_engagement\_priority PASSED [ 24%]

tests/test\_domain.py::TestStakeholder::test\_is\_high\_priority PASSED [ 24%]

tests/test\_domain.py::TestStakeholder::test\_contact\_overdue PASSED [ 24%]

tests/test\_domain.py::TestStakeholder::test\_days\_since\_last\_contact PASSED [ 24%]

tests/test\_domain.py::TestStakeholder::test\_add\_concern PASSED [ 25%]

tests/test\_domain.py::TestStakeholder::test\_add\_expectation PASSED [ 25%]

tests/test\_domain.py::TestStakeholder::test\_record\_contact PASSED [ 25%]

tests/test\_domain.py::TestStakeholder::test\_add\_note PASSED [ 25%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_initialization PASSED [ 26%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_can\_handle\_xlsx\_file PASSED [ 26%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_can\_handle\_xls\_file PASSED [ 26%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_can\_handle\_unsupported\_file PASSED [ 26%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_can\_handle\_invalid\_path PASSED [ 27%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_extract\_data\_stakeholder\_register PASSED [ 27%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_extract\_data\_multi\_sheet PASSED [ 27%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_extract\_data\_nonexistent\_file PASSED [ 28%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_extract\_data\_corrupted\_file PASSED [ 28%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_validate\_structure\_valid\_file PASSED [ 28%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_validate\_structure\_nonexistent\_file PASSED [ 28%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_validate\_structure\_unsupported\_format PASSED [ 29%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_validate\_structure\_empty\_file PASSED [ 29%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_validate\_structure\_password\_protected PASSED [ 29%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_validate\_structure\_permission\_denied PASSED [ 29%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_detect\_patterns\_stakeholder\_data PASSED [ 30%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_detect\_patterns\_risk\_data PASSED [ 30%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_detect\_patterns\_empty\_dataframe PASSED [ 30%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_detect\_document\_type\_stakeholder PASSED [ 30%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_detect\_document\_type\_risk PASSED [ 31%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_detect\_document\_type\_unknown PASSED [ 31%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_process\_sheet\_with\_data PASSED [ 31%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_process\_sheet\_empty PASSED [ 31%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_create\_field\_mappings\_stakeholder PASSED [ 32%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_create\_field\_mappings\_risk PASSED [ 32%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_extract\_metadata\_xlsx PASSED [ 32%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_extract\_metadata\_xls PASSED [ 32%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_get\_supported\_extensions PASSED [ 33%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_string\_representation PASSED [ 33%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_logging\_on\_success PASSED [ 33%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_logging\_on\_error PASSED [ 33%]

tests/test\_excel\_handler.py::TestExcelHandler::test\_large\_file\_warning PASSED [ 34%]

tests/test\_excel\_handler.py::TestExcelHandlerIntegration::test\_complex\_stakeholder\_extraction PASSED [ 34%]

tests/test\_excel\_handler.py::TestExcelHandlerIntegration::test\_complex\_risk\_extraction PASSED [ 34%]

tests/test\_file\_scanner.py::TestFileScanner::test\_init\_default\_configuration PASSED [ 34%]

tests/test\_file\_scanner.py::TestFileScanner::test\_init\_custom\_configuration PASSED [ 35%]

tests/test\_file\_scanner.py::TestFileScanner::test\_scan\_directory\_recursive PASSED [ 35%]

tests/test\_file\_scanner.py::TestFileScanner::test\_scan\_directory\_non\_recursive PASSED [ 35%]

tests/test\_file\_scanner.py::TestFileScanner::test\_scan\_directory\_include\_hidden PASSED [ 35%]

tests/test\_file\_scanner.py::TestFileScanner::test\_scan\_nonexistent\_directory PASSED [ 36%]

tests/test\_file\_scanner.py::TestFileScanner::test\_scan\_file\_instead\_of\_directory PASSED [ 36%]

tests/test\_file\_scanner.py::TestFileScanner::test\_match\_document\_patterns\_charter PASSED [ 36%]

tests/test\_file\_scanner.py::TestFileScanner::test\_match\_document\_patterns\_risk\_register PASSED [ 37%]

tests/test\_file\_scanner.py::TestFileScanner::test\_match\_document\_patterns\_multiple\_matches PASSED [ 37%]

tests/test\_file\_scanner.py::TestFileScanner::test\_match\_document\_patterns\_custom\_patterns PASSED [ 37%]

tests/test\_file\_scanner.py::TestFileScanner::test\_validate\_file\_formats\_all\_valid PASSED [ 37%]

tests/test\_file\_scanner.py::TestFileScanner::test\_validate\_file\_formats\_with\_invalid\_files PASSED [ 38%]

tests/test\_file\_scanner.py::TestFileScanner::test\_validate\_file\_formats\_empty\_list PASSED [ 38%]

tests/test\_file\_scanner.py::TestFileScanner::test\_get\_file\_statistics\_comprehensive PASSED [ 38%]

tests/test\_file\_scanner.py::TestFileScanner::test\_get\_file\_statistics\_empty\_list PASSED [ 38%]

tests/test\_file\_scanner.py::TestFileScanner::test\_determine\_file\_format PASSED [ 39%]

tests/test\_file\_scanner.py::TestFileScanner::test\_create\_file\_info\_valid\_file PASSED [ 39%]

tests/test\_file\_scanner.py::TestFileScanner::test\_create\_file\_info\_unsupported\_format PASSED [ 39%]

tests/test\_file\_scanner.py::TestFileScanner::test\_create\_file\_info\_large\_file PASSED [ 39%]

tests/test\_file\_scanner.py::TestFileScanner::test\_validate\_single\_file\_valid PASSED [ 40%]

tests/test\_file\_scanner.py::TestFileScanner::test\_validate\_single\_file\_nonexistent PASSED [ 40%]

tests/test\_file\_scanner.py::TestFileScanner::test\_validate\_single\_file\_empty\_file PASSED [ 40%]

tests/test\_file\_scanner.py::TestFileScanner::test\_validate\_single\_file\_permission\_denied PASSED [ 40%]

tests/test\_file\_scanner.py::TestFileScanner::test\_scan\_directory\_with\_permission\_error PASSED [ 41%]

tests/test\_file\_scanner.py::TestFileScanner::test\_file\_scanner\_integration PASSED [ 41%]

tests/test\_file\_scanner.py::TestFileScanner::test\_pattern\_matching\_case\_insensitive PASSED [ 41%]

tests/test\_file\_scanner.py::TestFileScanner::test\_format\_specific\_validation PASSED [ 41%]

tests/test\_file\_scanner.py::TestFileScannerEdgeCases::test\_scanner\_with\_no\_supported\_formats PASSED [ 42%]

tests/test\_file\_scanner.py::TestFileScannerEdgeCases::test\_scanner\_with\_very\_restrictive\_patterns PASSED [ 42%]

tests/test\_file\_scanner.py::TestFileScannerEdgeCases::test\_scanner\_with\_corrupted\_directory\_structure PASSED [ 42%]

tests/test\_file\_scanner.py::TestFileScannerEdgeCases::test\_file\_modification\_during\_scan PASSED [ 42%]

tests/test\_markdown\_handler.py::TestMarkdownHandler::test\_can\_handle\_markdown\_files PASSED [ 43%]

tests/test\_markdown\_handler.py::TestMarkdownHandler::test\_extract\_data\_basic PASSED [ 43%]

tests/test\_markdown\_handler.py::TestMarkdownHandler::test\_validate\_structure\_valid\_file PASSED [ 43%]

tests/test\_milestone\_extractor.py::TestMilestoneExtractor::test\_init PASSED [ 43%]

tests/test\_milestone\_extractor.py::TestMilestoneExtractor::test\_extract\_milestones\_file\_not\_found PASSED [ 44%]

tests/test\_milestone\_extractor.py::TestMilestoneExtractor::test\_extract\_milestones\_unsupported\_format PASSED [ 44%]

tests/test\_milestone\_extractor.py::TestMilestoneExtractor::test\_extract\_milestones\_markdown PASSED [ 44%]

tests/test\_milestone\_extractor.py::TestMilestoneExtractor::test\_extract\_milestones\_excel PASSED [ 44%]

tests/test\_milestone\_extractor.py::TestMilestoneExtractor::test\_extract\_milestones\_mpp PASSED [ 45%]

tests/test\_milestone\_extractor.py::TestMilestoneExtractionFromMPP::test\_is\_milestone\_task\_by\_flag PASSED [ 45%]

tests/test\_milestone\_extractor.py::TestMilestoneExtractionFromMPP::test\_is\_milestone\_task\_by\_duration PASSED [ 45%]

tests/test\_milestone\_extractor.py::TestMilestoneExtractionFromMPP::test\_is\_milestone\_task\_by\_name PASSED [ 46%]

tests/test\_milestone\_extractor.py::TestMilestoneExtractionFromMPP::test\_create\_milestone\_from\_mpp\_task PASSED [ 46%]

tests/test\_milestone\_extractor.py::TestMilestoneExtractionFromMarkdown::test\_extract\_from\_markdown\_with\_tables PASSED [ 46%]

tests/test\_milestone\_extractor.py::TestMilestoneExtractionFromExcel::test\_extract\_from\_excel PASSED [ 46%]

tests/test\_milestone\_extractor.py::TestMilestoneExtractionFromExcel::test\_is\_milestone\_sheet\_by\_name PASSED [ 47%]

tests/test\_milestone\_extractor.py::TestMilestoneExtractionFromExcel::test\_is\_milestone\_sheet\_by\_headers PASSED [ 47%]

tests/test\_milestone\_extractor.py::TestColumnMapping::test\_create\_column\_mapping PASSED [ 47%]

tests/test\_milestone\_extractor.py::TestColumnMapping::test\_create\_column\_mapping\_variations PASSED [ 47%]

tests/test\_milestone\_extractor.py::TestMilestoneCreation::test\_create\_milestone\_from\_row\_complete PASSED [ 48%]

tests/test\_milestone\_extractor.py::TestMilestoneCreation::test\_create\_milestone\_from\_row\_minimal PASSED [ 48%]

tests/test\_milestone\_extractor.py::TestValueParsing::test\_parse\_status PASSED [ 48%]

tests/test\_milestone\_extractor.py::TestValueParsing::test\_parse\_date\_formats PASSED [ 48%]

tests/test\_milestone\_extractor.py::TestValueParsing::test\_parse\_dependencies PASSED [ 49%]

tests/test\_milestone\_extractor.py::TestValueParsing::test\_determine\_status\_from\_task PASSED [ 49%]

tests/test\_milestone\_extractor.py::TestTextExtraction::test\_find\_milestone\_entries\_in\_text PASSED [ 49%]

tests/test\_milestone\_extractor.py::TestTextExtraction::test\_create\_milestone\_from\_text\_entry PASSED [ 49%]

tests/test\_milestone\_extractor.py::TestTextExtraction::test\_create\_milestone\_from\_text\_entry\_minimal PASSED [ 50%]

tests/test\_mode\_detector.py::TestModeDetector::test\_initialization\_with\_default\_config PASSED [ 50%]

tests/test\_mode\_detector.py::TestModeDetector::test\_initialization\_with\_custom\_config PASSED [ 50%]

tests/test\_mode\_detector.py::TestModeDetector::test\_analyze\_files\_empty\_list PASSED [ 50%]

tests/test\_mode\_detector.py::TestModeDetector::test\_analyze\_files\_complete\_project PASSED [ 51%]

tests/test\_mode\_detector.py::TestModeDetector::test\_analyze\_files\_partial\_project PASSED [ 51%]

tests/test\_mode\_detector.py::TestModeDetector::test\_analyze\_files\_minimal\_project PASSED [ 51%]

tests/test\_mode\_detector.py::TestModeDetector::test\_calculate\_completeness\_score\_complete PASSED [ 51%]

tests/test\_mode\_detector.py::TestModeDetector::test\_calculate\_completeness\_score\_partial PASSED [ 52%]

tests/test\_mode\_detector.py::TestModeDetector::test\_calculate\_completeness\_score\_empty PASSED [ 52%]

tests/test\_mode\_detector.py::TestModeDetector::test\_quality\_scoring\_high\_quality\_files PASSED [ 52%]

tests/test\_mode\_detector.py::TestModeDetector::test\_quality\_scoring\_poor\_quality\_files PASSED [ 52%]

tests/test\_mode\_detector.py::TestModeDetector::test\_single\_file\_quality\_calculation PASSED [ 53%]

tests/test\_mode\_detector.py::TestModeDetector::test\_format\_appropriateness\_scoring PASSED [ 53%]

tests/test\_mode\_detector.py::TestModeDetector::test\_document\_availability\_analysis PASSED [ 53%]

tests/test\_mode\_detector.py::TestModeDetector::test\_alternative\_modes\_generation PASSED [ 53%]

tests/test\_mode\_detector.py::TestModeDetector::test\_detailed\_reasoning\_generation PASSED [ 54%]

tests/test\_mode\_detector.py::TestModeDetector::test\_confidence\_scoring\_adjustments PASSED [ 54%]

tests/test\_mode\_detector.py::TestModeDetector::test\_validation\_error\_handling PASSED [ 54%]

tests/test\_mode\_detector.py::TestModeDetector::test\_edge\_case\_very\_old\_files PASSED [ 55%]

tests/test\_mode\_detector.py::TestModeDetector::test\_edge\_case\_very\_large\_files PASSED [ 55%]

tests/test\_mode\_detector.py::TestModeDetector::test\_unknown\_document\_types PASSED [ 55%]

tests/test\_mode\_detector.py::TestModeDetector::test\_mixed\_quality\_scenarios PASSED [ 55%]

tests/test\_mode\_detector.py::TestModeDetector::test\_recommendation\_consistency PASSED [ 56%]

tests/test\_mode\_detector.py::TestModeDetector::test\_mode\_thresholds[0.8-OperationMode.STATUS\_ANALYSIS] PASSED [ 56%]

tests/test\_mode\_detector.py::TestModeDetector::test\_mode\_thresholds[0.5-OperationMode.DOCUMENT\_CHECK] PASSED [ 56%]

tests/test\_mode\_detector.py::TestModeDetector::test\_mode\_thresholds[0.1-OperationMode.LEARNING\_MODULE] PASSED [ 56%]

tests/test\_models.py::TestFileInfo::test\_file\_info\_creation PASSED [ 57%]

tests/test\_models.py::TestFileInfo::test\_file\_info\_properties PASSED [ 57%]

tests/test\_models.py::TestFileInfo::test\_file\_info\_path\_conversion PASSED [ 57%]

tests/test\_models.py::TestFileInfo::test\_file\_info\_negative\_size\_correction PASSED [ 57%]

tests/test\_models.py::TestFileInfo::test\_mark\_as\_processed PASSED [ 58%]

tests/test\_models.py::TestFileInfo::test\_mark\_as\_failed PASSED [ 58%]

tests/test\_models.py::TestProcessingResult::test\_processing\_result\_creation PASSED [ 58%]

tests/test\_models.py::TestProcessingResult::test\_processing\_result\_negative\_time\_correction PASSED [ 58%]

tests/test\_models.py::TestProcessingResult::test\_add\_error PASSED [ 59%]

tests/test\_models.py::TestProcessingResult::test\_add\_warning PASSED [ 59%]

tests/test\_models.py::TestProcessingResult::test\_get\_summary\_success PASSED [ 59%]

tests/test\_models.py::TestProcessingResult::test\_get\_summary\_with\_errors\_and\_warnings PASSED [ 59%]

tests/test\_models.py::TestModeRecommendation::test\_mode\_recommendation\_creation PASSED [ 60%]

tests/test\_models.py::TestModeRecommendation::test\_confidence\_score\_bounds PASSED [ 60%]

tests/test\_models.py::TestModeRecommendation::test\_file\_quality\_scores\_bounds PASSED [ 60%]

tests/test\_models.py::TestModeRecommendation::test\_confidence\_percentage PASSED [ 60%]

tests/test\_models.py::TestModeRecommendation::test\_is\_high\_confidence PASSED [ 61%]

tests/test\_models.py::TestModeRecommendation::test\_get\_quality\_summary PASSED [ 61%]

tests/test\_models.py::TestProjectStatus::test\_project\_status\_creation PASSED [ 61%]

tests/test\_models.py::TestProjectStatus::test\_health\_score\_bounds PASSED [ 61%]

tests/test\_models.py::TestProjectStatus::test\_negative\_counts\_correction PASSED [ 62%]

tests/test\_models.py::TestProjectStatus::test\_health\_percentage PASSED [ 62%]

tests/test\_models.py::TestProjectStatus::test\_deliverable\_completion\_rate PASSED [ 62%]

tests/test\_models.py::TestProjectStatus::test\_milestone\_completion\_rate PASSED [ 62%]

tests/test\_models.py::TestProjectStatus::test\_risk\_severity\_ratio PASSED [ 63%]

tests/test\_models.py::TestProjectStatus::test\_is\_healthy PASSED [ 63%]

tests/test\_models.py::TestProjectStatus::test\_has\_critical\_issues PASSED [ 63%]

tests/test\_models.py::TestProjectStatus::test\_get\_status\_summary PASSED [ 64%]

tests/test\_models.py::TestProjectStatus::test\_add\_critical\_issue PASSED [ 64%]

tests/test\_models.py::TestProjectStatus::test\_add\_recommendation PASSED [ 64%]

tests/test\_models.py::TestProjectStatus::test\_zero\_division\_handling PASSED [ 64%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_can\_handle\_invalid\_file PASSED [ 65%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_can\_handle\_no\_processing\_methods PASSED [ 65%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_can\_handle\_valid\_mpp\_file PASSED [ 65%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_check\_mpxj\_availability\_failure PASSED [ 65%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_check\_mpxj\_availability\_success PASSED [ 66%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_check\_pywin32\_availability\_not\_windows PASSED [ 66%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_check\_pywin32\_availability\_windows\_failure PASSED [ 66%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_check\_pywin32\_availability\_windows\_success PASSED [ 66%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_check\_xml\_conversion\_availability PASSED [ 67%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_data\_all\_methods\_fail PASSED [ 67%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_data\_file\_not\_found PASSED [ 67%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_data\_mpxj\_success PASSED [ 67%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_data\_pywin32\_fallback PASSED [ 68%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_data\_xml\_fallback PASSED [ 68%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_milestones\_date\_parsing PASSED [ 68%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_milestones\_extraction\_failure PASSED [ 68%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_milestones\_success PASSED [ 69%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_timeline\_data\_failure PASSED [ 69%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_timeline\_data\_success PASSED [ 69%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_with\_mpxj PASSED [ 69%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_with\_mpxj\_failure PASSED [ 70%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_with\_pywin32 PASSED [ 70%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_with\_pywin32\_failure PASSED [ 70%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_extract\_with\_xml\_conversion PASSED [ 70%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_get\_file\_info PASSED [ 71%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_get\_processing\_capabilities PASSED [ 71%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_initialization PASSED [ 71%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_validate\_structure\_empty\_file PASSED [ 71%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_validate\_structure\_extraction\_failure PASSED [ 72%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_validate\_structure\_no\_processing\_methods PASSED [ 72%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_validate\_structure\_nonexistent\_file PASSED [ 72%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_validate\_structure\_small\_file\_warning PASSED [ 73%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_validate\_structure\_valid\_file PASSED [ 73%]

tests/test\_mpp\_handler.py::TestMPPHandler::test\_validate\_structure\_wrong\_extension PASSED [ 73%]

tests/test\_mpp\_handler.py::TestMPPHandlerIntegration::test\_full\_workflow\_with\_xml\_fallback PASSED [ 73%]

tests/test\_mpp\_handler.py::TestMPPHandlerIntegration::test\_method\_priority\_and\_fallback PASSED [ 74%]

tests/test\_risk\_extractor.py::TestRiskExtractor::test\_init PASSED [ 74%]

tests/test\_risk\_extractor.py::TestRiskExtractor::test\_extract\_risks\_file\_not\_found PASSED [ 74%]

tests/test\_risk\_extractor.py::TestRiskExtractor::test\_extract\_risks\_unsupported\_format PASSED [ 74%]

tests/test\_risk\_extractor.py::TestRiskExtractor::test\_extract\_risks\_markdown PASSED [ 75%]

tests/test\_risk\_extractor.py::TestRiskExtractor::test\_extract\_risks\_excel PASSED [ 75%]

tests/test\_risk\_extractor.py::TestRiskExtractionFromMarkdown::test\_extract\_from\_markdown\_with\_tables PASSED [ 75%]

tests/test\_risk\_extractor.py::TestRiskExtractionFromMarkdown::test\_extract\_from\_markdown\_with\_sections PASSED [ 75%]

tests/test\_risk\_extractor.py::TestRiskExtractionFromExcel::test\_extract\_from\_excel PASSED [ 76%]

tests/test\_risk\_extractor.py::TestRiskExtractionFromExcel::test\_is\_risk\_sheet\_by\_name PASSED [ 76%]

tests/test\_risk\_extractor.py::TestRiskExtractionFromExcel::test\_is\_risk\_sheet\_by\_headers PASSED [ 76%]

tests/test\_risk\_extractor.py::TestColumnMapping::test\_create\_column\_mapping PASSED [ 76%]

tests/test\_risk\_extractor.py::TestColumnMapping::test\_create\_column\_mapping\_variations PASSED [ 77%]

tests/test\_risk\_extractor.py::TestRiskCreation::test\_create\_risk\_from\_row\_complete PASSED [ 77%]

tests/test\_risk\_extractor.py::TestRiskCreation::test\_create\_risk\_from\_row\_minimal PASSED [ 77%]

tests/test\_risk\_extractor.py::TestValueParsing::test\_parse\_probability\_percentage PASSED [ 77%]

tests/test\_risk\_extractor.py::TestValueParsing::test\_parse\_probability\_decimal PASSED [ 78%]

tests/test\_risk\_extractor.py::TestValueParsing::test\_parse\_probability\_text PASSED [ 78%]

tests/test\_risk\_extractor.py::TestValueParsing::test\_parse\_impact\_percentage PASSED [ 78%]

tests/test\_risk\_extractor.py::TestValueParsing::test\_parse\_impact\_text PASSED [ 78%]

tests/test\_risk\_extractor.py::TestValueParsing::test\_parse\_priority\_text PASSED [ 79%]

tests/test\_risk\_extractor.py::TestValueParsing::test\_parse\_priority\_calculated PASSED [ 79%]

tests/test\_risk\_extractor.py::TestValueParsing::test\_parse\_status PASSED [ 79%]

tests/test\_risk\_extractor.py::TestValueParsing::test\_parse\_date\_formats PASSED [ 79%]

tests/test\_risk\_extractor.py::TestTextExtraction::test\_find\_risk\_entries\_in\_text PASSED [ 80%]

tests/test\_risk\_extractor.py::TestTextExtraction::test\_create\_risk\_from\_text\_entry PASSED [ 80%]

tests/test\_risk\_extractor.py::TestTextExtraction::test\_create\_risk\_from\_text\_entry\_minimal PASSED [ 80%]

tests/test\_stakeholder\_extractor.py::TestStakeholderExtractor::test\_init PASSED [ 80%]

tests/test\_stakeholder\_extractor.py::TestStakeholderExtractor::test\_extract\_stakeholders\_file\_not\_found PASSED [ 81%]

tests/test\_stakeholder\_extractor.py::TestStakeholderExtractor::test\_extract\_stakeholders\_unsupported\_format PASSED [ 81%]

tests/test\_stakeholder\_extractor.py::TestStakeholderExtractor::test\_extract\_stakeholders\_markdown PASSED [ 81%]

tests/test\_stakeholder\_extractor.py::TestStakeholderExtractor::test\_extract\_stakeholders\_excel PASSED [ 82%]

tests/test\_stakeholder\_extractor.py::TestStakeholderExtractionFromMarkdown::test\_extract\_from\_markdown\_with\_tables PASSED [ 82%]

tests/test\_stakeholder\_extractor.py::TestStakeholderExtractionFromExcel::test\_extract\_from\_excel PASSED [ 82%]

tests/test\_stakeholder\_extractor.py::TestStakeholderExtractionFromExcel::test\_is\_stakeholder\_sheet\_by\_name PASSED [ 82%]

tests/test\_stakeholder\_extractor.py::TestStakeholderExtractionFromExcel::test\_is\_stakeholder\_sheet\_by\_headers PASSED [ 83%]

tests/test\_stakeholder\_extractor.py::TestColumnMapping::test\_create\_column\_mapping PASSED [ 83%]

tests/test\_stakeholder\_extractor.py::TestColumnMapping::test\_create\_column\_mapping\_variations PASSED [ 83%]

tests/test\_stakeholder\_extractor.py::TestStakeholderCreation::test\_create\_stakeholder\_from\_row\_complete PASSED [ 83%]

tests/test\_stakeholder\_extractor.py::TestStakeholderCreation::test\_create\_stakeholder\_from\_row\_minimal PASSED [ 84%]

tests/test\_stakeholder\_extractor.py::TestStakeholderCreation::test\_create\_stakeholder\_invalid\_email PASSED [ 84%]

tests/test\_stakeholder\_extractor.py::TestValueParsing::test\_parse\_influence PASSED [ 84%]

tests/test\_stakeholder\_extractor.py::TestValueParsing::test\_parse\_interest PASSED [ 84%]

tests/test\_stakeholder\_extractor.py::TestValueParsing::test\_parse\_list\_field PASSED [ 85%]

tests/test\_stakeholder\_extractor.py::TestTextExtraction::test\_find\_stakeholder\_entries\_in\_text PASSED [ 85%]

tests/test\_stakeholder\_extractor.py::TestTextExtraction::test\_create\_stakeholder\_from\_text\_entry PASSED [ 85%]

tests/test\_stakeholder\_extractor.py::TestTextExtraction::test\_create\_stakeholder\_from\_text\_entry\_minimal PASSED [ 85%]

tests/test\_validators.py::TestFilePathValidation::test\_validate\_existing\_file PASSED [ 86%]

tests/test\_validators.py::TestFilePathValidation::test\_validate\_nonexistent\_file PASSED [ 86%]

tests/test\_validators.py::TestFilePathValidation::test\_validate\_empty\_path PASSED [ 86%]

tests/test\_validators.py::TestFilePathValidation::test\_validate\_directory\_as\_file PASSED [ 86%]

tests/test\_validators.py::TestFilePathValidation::test\_validate\_unreadable\_file PASSED [ 87%]

tests/test\_validators.py::TestDirectoryPathValidation::test\_validate\_existing\_directory PASSED [ 87%]

tests/test\_validators.py::TestDirectoryPathValidation::test\_validate\_nonexistent\_directory PASSED [ 87%]

tests/test\_validators.py::TestDirectoryPathValidation::test\_validate\_empty\_directory\_path PASSED [ 87%]

tests/test\_validators.py::TestDirectoryPathValidation::test\_validate\_file\_as\_directory PASSED [ 88%]

tests/test\_validators.py::TestOperationModeValidation::test\_validate\_valid\_modes PASSED [ 88%]

tests/test\_validators.py::TestOperationModeValidation::test\_validate\_case\_insensitive PASSED [ 88%]

tests/test\_validators.py::TestOperationModeValidation::test\_validate\_invalid\_mode PASSED [ 88%]

tests/test\_validators.py::TestOperationModeValidation::test\_validate\_empty\_mode PASSED [ 89%]

tests/test\_validators.py::TestFileFormatValidation::test\_validate\_valid\_formats PASSED [ 89%]

tests/test\_validators.py::TestFileFormatValidation::test\_validate\_invalid\_format PASSED [ 89%]

tests/test\_validators.py::TestFileFormatValidation::test\_validate\_no\_extension PASSED [ 89%]

tests/test\_validators.py::TestConfigStructureValidation::test\_validate\_valid\_config PASSED [ 90%]

tests/test\_validators.py::TestConfigStructureValidation::test\_validate\_missing\_keys PASSED [ 90%]

tests/test\_validators.py::TestConfigStructureValidation::test\_validate\_non\_dict\_config PASSED [ 90%]

tests/test\_validators.py::TestEmailValidation::test\_validate\_valid\_emails PASSED [ 91%]

tests/test\_validators.py::TestEmailValidation::test\_validate\_invalid\_emails PASSED [ 91%]

tests/test\_validators.py::TestEmailValidation::test\_validate\_empty\_email PASSED [ 91%]

tests/test\_validators.py::TestStringValidation::test\_validate\_non\_empty\_string PASSED [ 91%]

tests/test\_validators.py::TestStringValidation::test\_validate\_empty\_string PASSED [ 92%]

tests/test\_validators.py::TestStringValidation::test\_validate\_whitespace\_only\_string PASSED [ 92%]

tests/test\_validators.py::TestStringValidation::test\_validate\_non\_string\_input PASSED [ 92%]

tests/test\_validators.py::TestNumberValidation::test\_validate\_positive\_number PASSED [ 92%]

tests/test\_validators.py::TestNumberValidation::test\_validate\_zero\_or\_negative PASSED [ 93%]

tests/test\_validators.py::TestNumberValidation::test\_validate\_non\_number PASSED [ 93%]

tests/test\_validators.py::TestPercentageValidation::test\_validate\_valid\_percentages PASSED [ 93%]

tests/test\_validators.py::TestPercentageValidation::test\_validate\_invalid\_percentages PASSED [ 93%]

tests/test\_validators.py::TestProbabilityValidation::test\_validate\_valid\_probabilities PASSED [ 94%]

tests/test\_validators.py::TestProbabilityValidation::test\_validate\_invalid\_probabilities PASSED [ 94%]

tests/test\_validators.py::TestWBSCodeValidation::test\_validate\_valid\_wbs\_codes PASSED [ 94%]

tests/test\_validators.py::TestWBSCodeValidation::test\_validate\_invalid\_wbs\_codes PASSED [ 94%]

tests/test\_validators.py::TestRiskIdValidation::test\_validate\_valid\_risk\_ids PASSED [ 95%]

tests/test\_validators.py::TestRiskIdValidation::test\_validate\_invalid\_risk\_ids PASSED [ 95%]

tests/test\_validators.py::TestPhoneNumberValidation::test\_validate\_valid\_phone\_numbers PASSED [ 95%]

tests/test\_validators.py::TestPhoneNumberValidation::test\_validate\_empty\_phone PASSED [ 95%]

tests/test\_validators.py::TestPhoneNumberValidation::test\_validate\_invalid\_phone\_numbers PASSED [ 96%]

tests/test\_validators.py::TestEnumValidation::test\_validate\_valid\_enum\_value PASSED [ 96%]

tests/test\_validators.py::TestEnumValidation::test\_validate\_invalid\_enum\_value PASSED [ 96%]

tests/test\_validators.py::TestEnumValidation::test\_validate\_empty\_enum\_value PASSED [ 96%]

tests/test\_validators.py::TestListValidation::test\_validate\_valid\_string\_list PASSED [ 97%]

tests/test\_validators.py::TestListValidation::test\_validate\_empty\_list PASSED [ 97%]

tests/test\_validators.py::TestListValidation::test\_validate\_non\_list\_input PASSED [ 97%]

tests/test\_validators.py::TestListValidation::test\_validate\_list\_with\_non\_string\_items PASSED [ 97%]

tests/test\_validators.py::TestDateStringValidation::test\_validate\_valid\_date\_strings PASSED [ 98%]

tests/test\_validators.py::TestDateStringValidation::test\_validate\_invalid\_date\_format PASSED [ 98%]

tests/test\_validators.py::TestDateStringValidation::test\_validate\_invalid\_date\_values PASSED [ 98%]

tests/test\_validators.py::TestDateStringValidation::test\_validate\_empty\_date\_string PASSED [ 98%]

tests/test\_validators.py::TestCurrencyAmountValidation::test\_validate\_valid\_currency\_amounts PASSED [ 99%]

tests/test\_validators.py::TestCurrencyAmountValidation::test\_validate\_negative\_currency PASSED [ 99%]

tests/test\_validators.py::TestCurrencyAmountValidation::test\_validate\_empty\_currency PASSED [ 99%]

tests/test\_validators.py::TestCurrencyAmountValidation::test\_validate\_invalid\_currency\_format PASSED [100%]

========================================================= 389 passed in 3.26s ==========================================================

Excellent! All tests are passing. Now let me update the task status to completed:

Task: *8. Implement intelligent mode detection system* from tasks.md

Status: Completed

Perfect! I have successfully implemented the intelligent mode detection system as specified in task 8. Here's a summary of what was accomplished:

**Implementation Summary**

**1. ModeDetector Class (PM Assistant/core/mode\_detector.py)**

* Created a comprehensive ModeDetector class with intelligent file analysis capabilities
* Implemented completeness scoring algorithm based on available documents with weighted scoring
* Added logic to recommend optimal operation mode with confidence scoring
* Created detailed reasoning generation for mode recommendations
* Supports configurable document requirements and quality assessment

**2. Key Features Implemented**

* **Completeness Scoring**: Calculates project completeness based on weighted document availability (0.0-1.0 scale)
* **Quality Assessment**: Multi-factor quality scoring considering file size, modification date, format appropriateness, and readability
* **Mode Recommendation Logic**:
  + Status Analysis (≥60% completeness)
  + Document Check (20-60% completeness)
  + Learning Module (<20% completeness)
* **Confidence Scoring**: Dynamic confidence calculation with quality-based adjustments
* **Detailed Reasoning**: Human-readable explanations for recommendations
* **Alternative Modes**: Suggests alternative operation modes based on context

**3. Comprehensive Testing (PM Assistant/tests/test\_mode\_detector.py)**

* Created 26 comprehensive unit tests covering various file availability scenarios
* Tests include edge cases, quality scoring, validation, and consistency checks
* All tests pass successfully (26/26)
* Covers initialization, analysis logic, scoring algorithms, and error handling

**4. Requirements Compliance**

The implementation addresses all specified requirements:

* **9.1**: Automatic mode analysis and suggestion ✅
* **9.2**: Defaults to Status Analysis when all documents present ✅
* **9.3**: Defaults to Document Check when some documents missing ✅
* **9.4**: Defaults to Learning Module when no/few documents found ✅
* **9.6**: Provides clear reasoning for recommendations ✅

**5. Quality Features**

* **Robust Error Handling**: Graceful handling of invalid inputs and edge cases
* **Extensible Design**: Easy to add new document types and scoring factors
* **Performance Optimized**: Efficient algorithms for file analysis
* **Well Documented**: Comprehensive docstrings and code comments
* **Type Safety**: Full type hints throughout the implementation

The intelligent mode detection system is now ready for integration with the main PM Analysis Tool engine and provides sophisticated analysis capabilities to automatically determine the most appropriate operation mode based on available project files.