

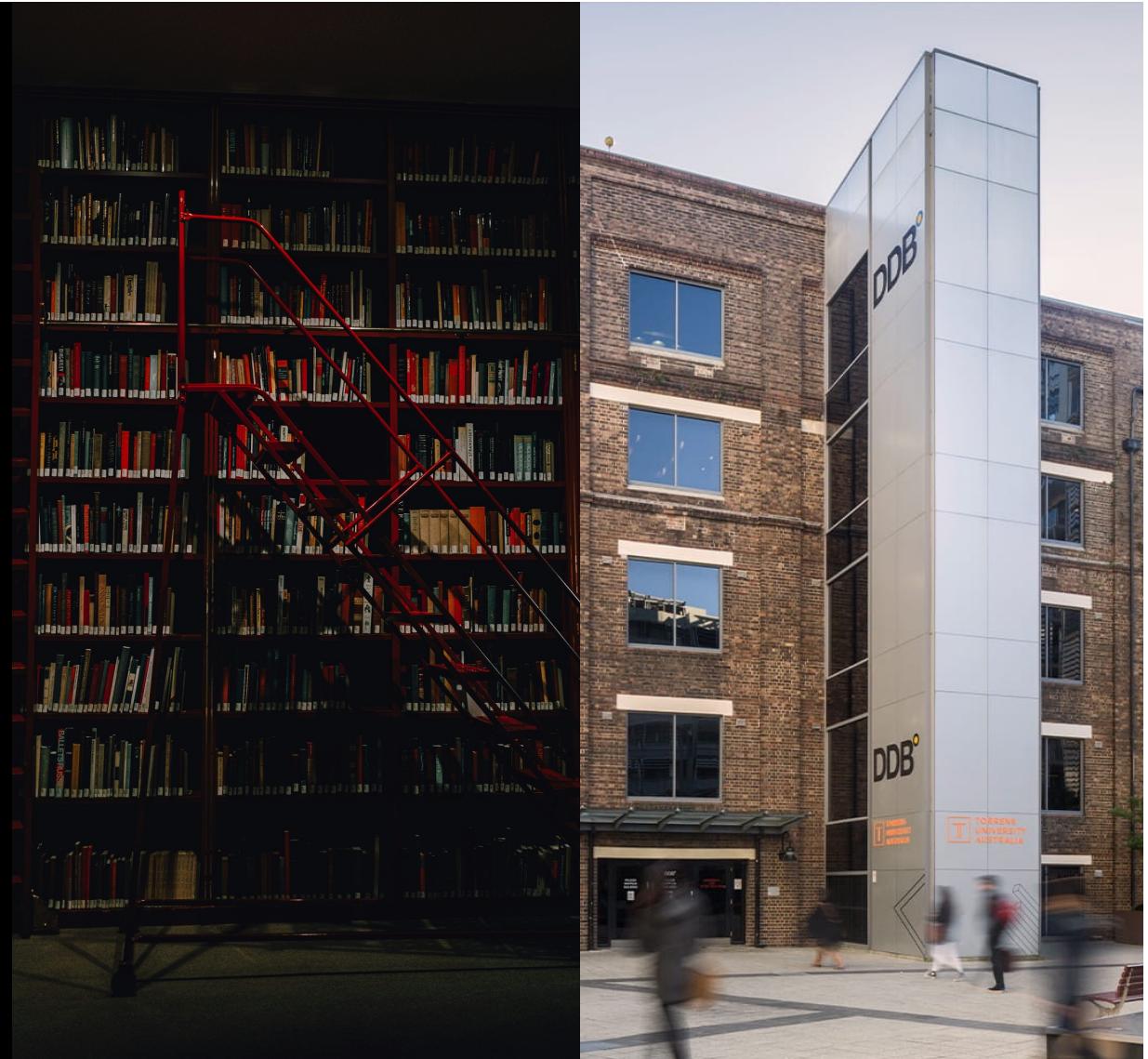
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# TTRACK

## ACADEMIC PROGRESS

### TRACKER

Smartly matcher between  
Student Curriculums **X** Course Requirements

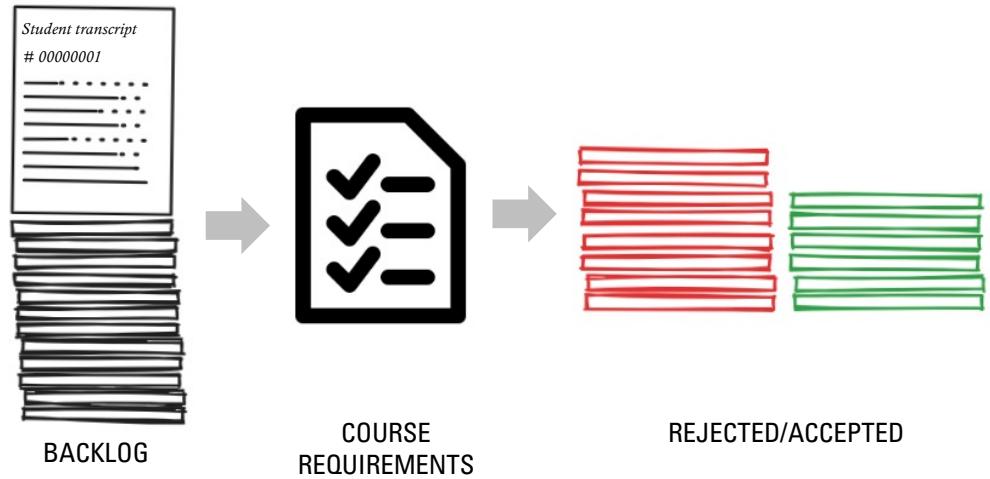




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# PROBLEM STATEMENT

Advisors and Students lack real-time clarity on degree progress.



**Transcript checks are manual, slow, error-prone  
and lead to academic uncertainty.**

# PROPOSED SOLUTION

The screenshot shows the TTrack - Torrens Degree Tracker application. At the top, there is a navigation bar with tabs: Login, Input (which is selected), Results, and Student Records. Below the navigation bar, the title "TTrack – Torrens Degree Tracker" is displayed, followed by a graduation cap icon and a yellow circular progress bar.

The main content area has two sections: "Transcript" and "Curriculum". Under "Transcript", there are three buttons: "Upload Transcript", "Try with Sample Data", and "Download the Template". Under "Curriculum", there are also three buttons: "Upload Curriculum", "Try with Sample Data", and "Download the Template". A "Process Data" button is located below these sections.

At the bottom, there are two tables: "Transcript Table" and "Curriculum Table". The Transcript Table shows student records for years 2023-2025. The Curriculum Table shows course details for years 2023-2025.

	Year	Semester	Subject Code	Subject Name	Credit Points	Type
1	2023	1	CAO107	Computer ...	10	Distin
2	2023	2	ITP122	Introduction to ...	10	Credi
3	2024	1	MIS100	Foundations of ...	10	Distin
4	2024	2	MIS102	Data and ...	10	Credi
5	2025	1	ISE102	Introduction to ...	10	Distin
6	2025	2	MKT102A	Understanding ...	10	Credi

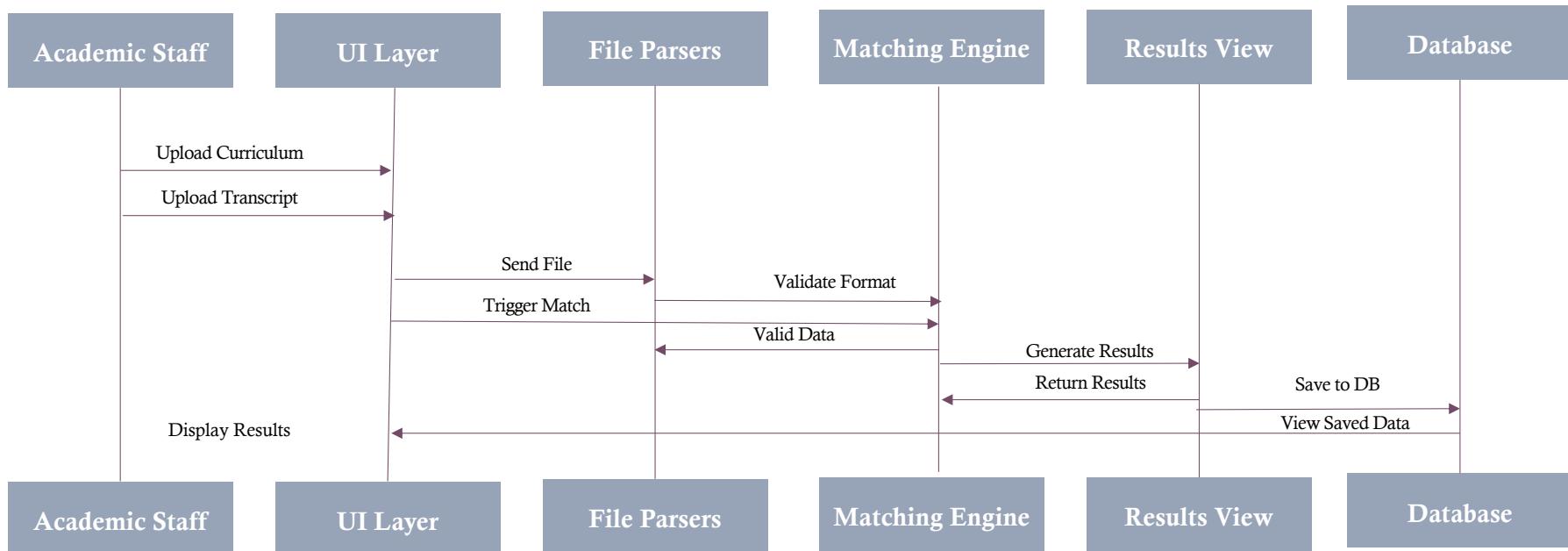
	Subject Code	Subject Name	Type	Credit Points	Prerequisites
1	CAO107	Computer ...	Core	10	
2	ITP122	Introduction to ...	Core	10	
3	MIS100	Foundations of ...	Core	10	
4	MIS102	Data and ...	Core	10	
5	DIG103A	Interaction ...	Core	10	
6	IPP221	IT Professional ...	Core	10	
7	IDS201	Introduction to ...	Core	10	

## FROM +30 MINUTES TO A FEW SECONDS!

We automated academic tracking by matching student transcripts to curriculums with precision & clarity, powered by **intelligent data processing**.

# SYSTEM ARCHITECTURE

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Our modular, event-driven architecture follows SOLID principles:

- UI, logic and data isolated for testability, scalability and future cloud integrations.
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# KEY FEATURES

Upload.  
Match.  
Visualize.  
Export.

From matching engine to  
elective suggestions...

**TTrack** delivers actionable  
academic insights.

The screenshot displays the TTrack - Degree Tracker application window. At the top, there are tabs for Login, Input, Results (which is selected), and Student Records. Below the tabs, the title "Student: Student A" is shown, along with the university and course information: University: Torrens • Course: ADIT. A progress bar indicates "Degree Progress" at 37%. Two buttons are visible: "Save This Data to Database" and "Download Processed Data to CSV".

**Subject Matching Results:**

	Subject Code	Subject Name	Type	Credit Points	Prerequisites	Status	Filled By	PrereqMet
3	MIS102	Data and Networking	Core	10		<input checked="" type="checkbox"/> Done		True
4	DIG103A	Interaction Design	Core	10		<input type="checkbox"/> Missing		True
5	IPP221	IT Professional Practice	Core	10		<input type="checkbox"/> Missing		True

**Progress Summary:**

	Type	<input checked="" type="checkbox"/> Done	<input type="checkbox"/> Missing	Total	Completion %
0	Core	5	9	14	0.36
1	Elective	1	1	2	0.5

**Suggested Electives:**

	Subject Code	Subject Name	Credit Points	Prerequisites
1	MKT103A	Integrated Marketing Communications	10	
2	PCD101	Place, Culture and Destination Management	10	
3	IDO107	Introduction to DevOps	10	

```

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platform darwin -- Python 3.10.12, pytest-8.2.0, pluggy-1.5.0 -- /Users/luisfaria/.pyenv/versions/3.10.12/bin/python3.10
cachedir: .pytest_cache
PyQt5 5.15.11 -- Qt runtime 5.15.17 -- Qt compiled 5.15.14
django: version: 5.1.2
rootdir: /Users/luisfaria/Desktop/sEngineer/masters_SWAEAI/T1-Software-Development-Management/projects/TTrack_v1
configfile: pytest.ini
testpaths: tests
plugins: asyncio-0.24.0, qt-4.4.0, docker-tools-3.1.3, celery-1.1.3, cov-4.1.0, django-4.9.0, anyio-3.7.1, Faker-30.8.2, mock-3.14
asyncio: strict, default_loop_scope=None
collected 17 items

tests/test_curriculum_matching.py::TestCurriculumMatching::test_normalize_subject_codes PASSED [ 5%]
tests/test_curriculum_matching.py::TestCurriculumMatching::test_match_transcript_complete PASSED [ 11%]
tests/test_curriculum_matching.py::TestCurriculumMatching::test_generate_progress_summary PASSED [ 17%]
tests/test_curriculum_matching.py::TestCurriculumMatching::test_suggest_electives PASSED [ 23%]
tests/test_curriculum_matching.py::TestCurriculumMatching::test_empty_transcript PASSED [ 29%]
tests/test_file_handling.py::TestExcelLoading::test_load_valid_excel PASSED [ 35%]
tests/test_file_handling.py::TestExcelLoading::test_load_nonexistent_file PASSED [ 41%]
tests/test_file_handling.py::TestExcelLoading::test_load_invalid_excel PASSED [ 47%]
tests/test_file_handling.py::TestThemeDetection::test_is_dark_mode PASSED [ 52%]
tests/test_integration.py::TestApplicationIntegration::test_application_startup PASSED [ 58%]
tests/test_integration.py::TestApplicationIntegration::test_end_to_end_workflow PASSED [ 64%]
tests/test_main_window.py::TestMainWindow::test_window_initialization PASSED [ 70%]
tests/test_main_window.py::TestMainWindow::test_theme_switch PASSED [ 76%]
tests/test_main_window.py::TestApplicationStartup PASSED [ 82%]
tests/test_ui_tabs.py::TestInputTab::test_input_tab_initialization PASSED [ 88%]
tests/test_ui_tabs.py::TestFileLoading PASSED [ 94%]
tests/test_ui_tabs.py::TestResultsTabs::test_results_tab_initialization PASSED [100%]

===== coverage: platform darwin, python 3.10.12-final-0 =====
Name           Stmts   Miss  Cover   Missing
gui/main_window.py      53      5  91%  53, 58, 109-113
gui/utils.py        17      0  100%
main.py            15      8  47%  9-11, 14-18
resolvers/engine.py    27      3  89%  44, 48, 56
tests/_init_.py       1      0  100%
tests/confest.py      19      1  95%  41
tests/test_curriculum_matching.py    50      2  96%  183, 108
tests/test_file_handling.py     50      9  82%  85-99
tests/test_integration.py     63      6  90%  44, 96-102
tests/test_main_window.py     44      8  82%  17, 49-52, 56, 80, 84
tests/test_ui_tabs.py       51      0  100%
ui/helpers.py         53     33  38%  9, 17, 22-26, 32-71
ui/tab_input.py        155     40  74%  220-253, 266-297
ui/tab_results.py      58      0  100%
utils/data_processor.py   59     34  42%  39, 44, 46, 51, 53, 56-59, 68-112
utils/tab_controller.py   28      3  89%  52-54
utils/theme_manager.py    29      3  90%  40, 209-210

TOTAL              772   155  80%

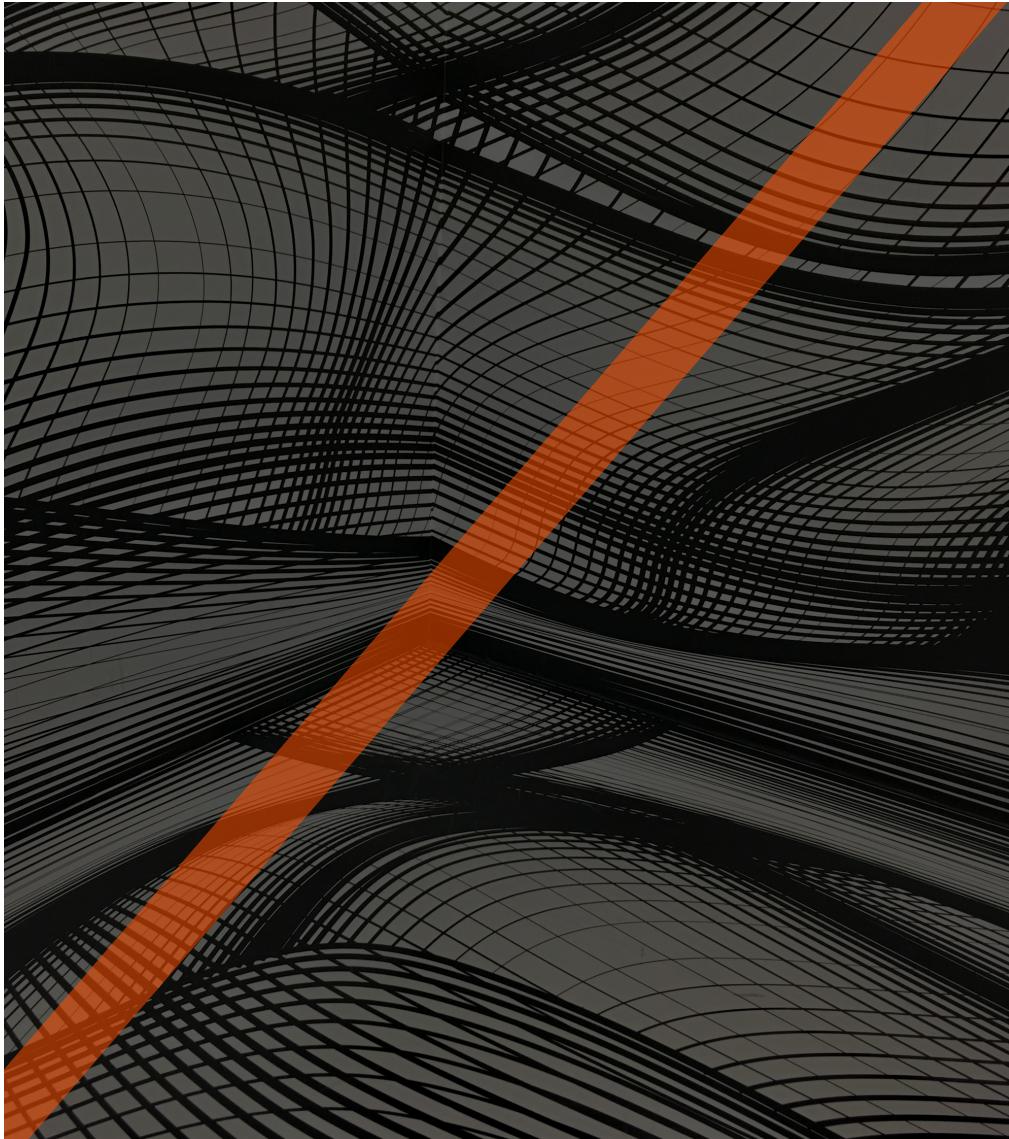
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# TESTING AND VALIDATION

*Pytest-covered modules, edge case validation and live usability testing were used to ensure quality across transcript structures and curriculum formats.*

# OUTCOMES... FUTURE WORK

V1.0.0	PyQt5 + pandas integration	v2.0.0	Supabase BaaS Integration	v3.0.0	Distribution & Engine 2.0	v4.0.0	AI Enhancement	v5.0.0	Enterprise Scale
 	<ul style="list-style-type: none"><li>• PyQt5 + pandas integration</li><li>• Light/dark mode support</li><li>• File upload and preview with pandas</li><li>• Matching engine: transcript x curriculum</li><li>• Build scripts for Windows and macOS</li><li>• Pytest setup</li></ul>		<ul style="list-style-type: none"><li>• Electron version for testing</li><li>• Database backend using PostgreSQL</li><li>• User Authentication: Login/Register</li><li>• Layered Architecture</li><li>• Cloud Sync: Fallback and encryption</li><li>• Pytest 2.0</li></ul>		<ul style="list-style-type: none"><li>• Layered Architecture</li><li>• Cloud Sync: Fallback and encryption</li><li>• Matching Engine 2.0</li><li>• Pytest 2.0</li></ul>		<ul style="list-style-type: none"><li>• API integration: uni ecosystem</li><li>• Semantic matching: NLP based</li><li>• Predictive analytics: forecasting</li><li>• Recommendation engine</li><li>• Machine Learning</li></ul>		<ul style="list-style-type: none"><li>• Multi-tenant architecture institution-wide</li><li>• Advanced analytics with BI dashboards</li><li>• Integration APIs</li><li>• Web application</li><li>• Mobile application</li></ul>



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# DEMO INSTRUCTIONS

In this live demo, we will:

1. Create an account and login
  2. Upload a transcript
  3. Match it to a curriculum
  4. Explore results
  5. Export insights
  6. Save in database and locally
  6. Retrieve saved data
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# THANK YOU!

Shout Out to the Open-Source Community!

TTrack is built on top of these awesome libraries:



SCAN TO SHARE YOUR THOUGHTS!

