

Who Will Drop Out?

Student Retention Analytics for Online Learning

Turning engagement data into early-warning insights

“I used to drop out of online courses myself.”



The Problem in Online Learning

- High enrollment → low completion
- Institutions see outcomes, not behavior
- Support is reactive, not preventive



The Data — OULAD

- 30k+ online students
- Demographics, assessments, VLE clicks
- Full journey, not only outcomes



Solution Overview

1. Feature engineering
2. Engagement funnel & cohort retention
3. Behavioral segmentation
4. Executive dashboard



Key Metrics Overview (KPIs)

33K

Total Students

0.31

Dropout Rate

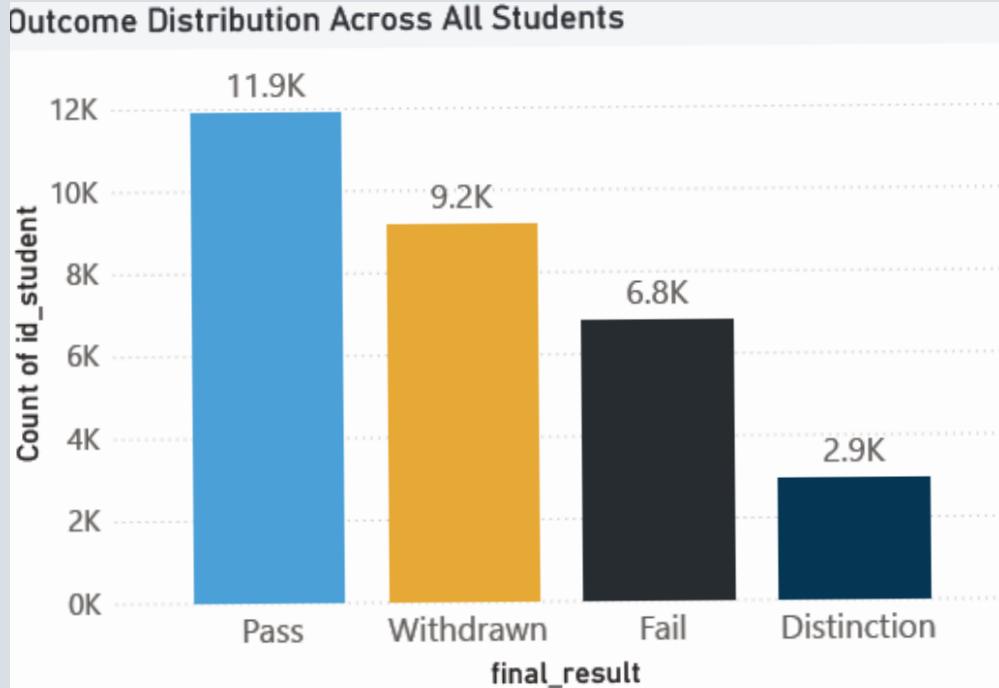
0.20

Early Disengagement

72.77

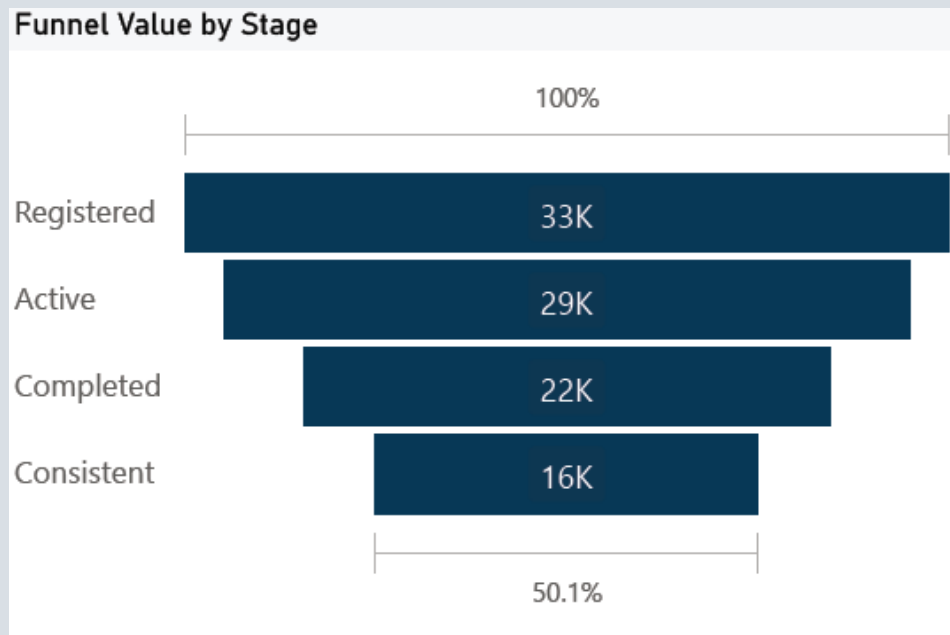
Average Score

Final Result Distribution



- Early withdrawals are substantial.
 - More students withdraw than fail.
 - Pass is the largest group.
 - Dropout remains a core pattern.
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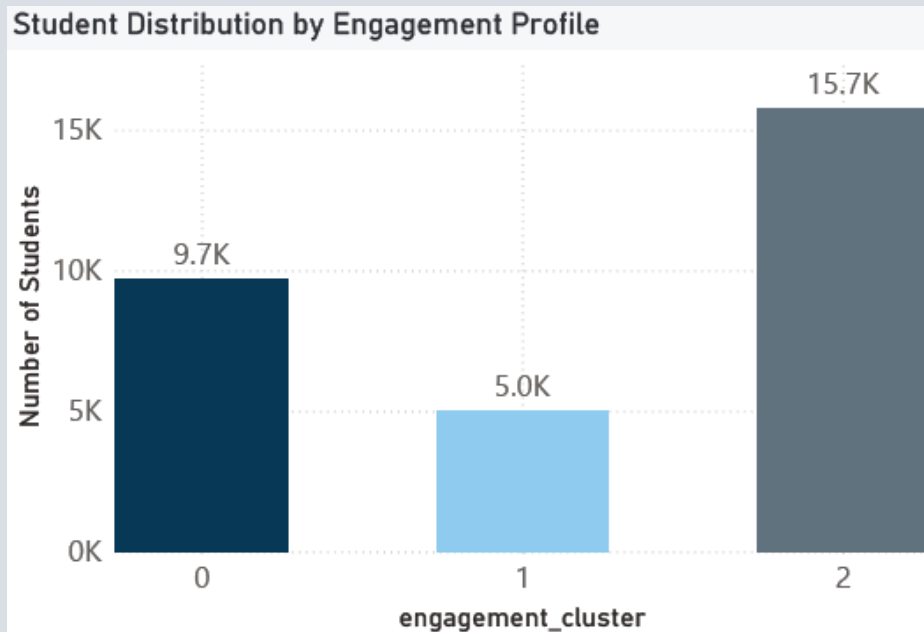
Engagement Funnel



- Everyone starts
- few stay consistent
- Biggest drop: Active
- Consistent
- Dropout begins early

Three Engagement Profiles

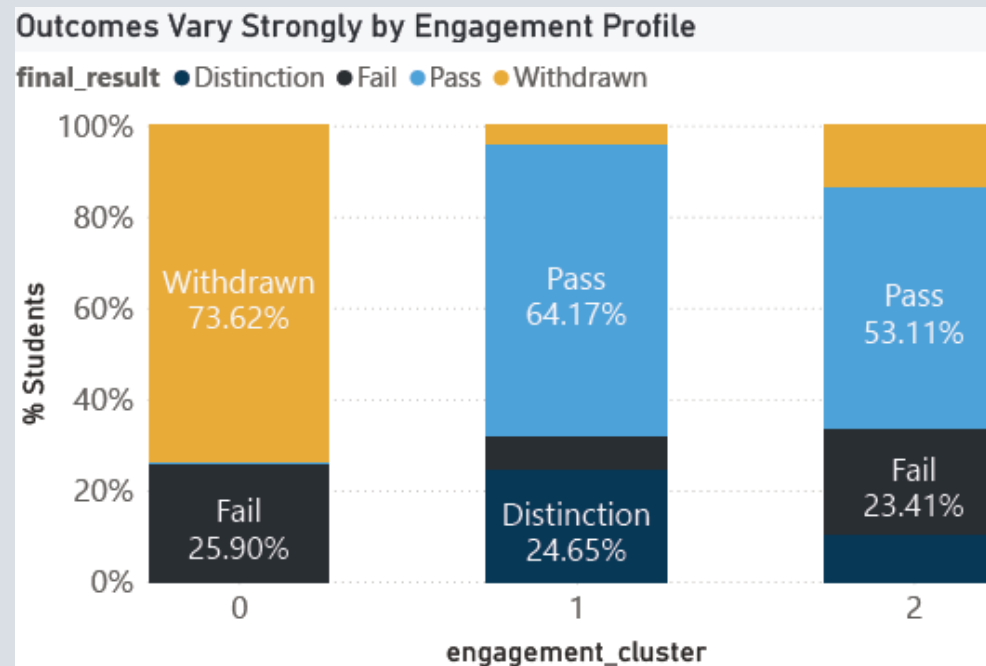
- Cluster 0: Low engagement, early dropout
- Cluster 1: Moderate & consistent
- Cluster 2: High but irregular



Cluster	Total clicks	Active days	Longest inactive gap	Last click day
0	low	few	short (drops early)	early in module
1	medium	consistent	short	until the end
2	high	many	long	until the end

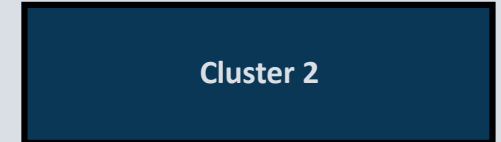
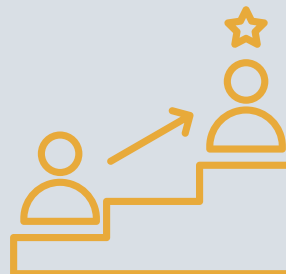
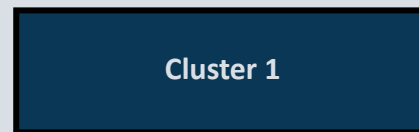
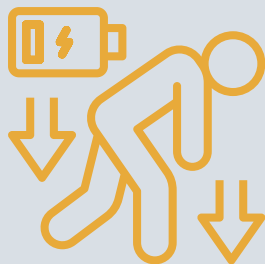
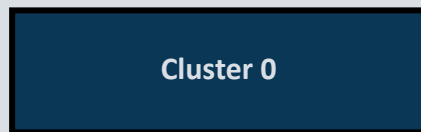
Outcomes by Cluster

- Cluster 0: Mostly Withdrawn
- Cluster 1: Mostly Pass/Distinction
- Cluster 2: Mixed outcomes



Targeted Interventions

- Universal Early action (for all students)
- Cluster 0: Intensive support, nudges, check-ins
- Cluster 1: Light support, motivation, enrichment
- Cluster 2: Gap alerts, workload guidance, progress tracking



Power BI dashboard



Better Decisions.

Better Support.

Better Outcomes.

