

## AI-Powered Personalized Learning Assistant - Top Recommended Modules

### 1. Define Scoring Formula

The recommendation scores for each employee-module pair have been calculated based on the following factors/key variables (**preferred\_learning\_style**, **time\_spent\_minutes**, and **score**)

- **Time spent** on modules (higher weight for engaged learners)
- **Score** received on modules (higher weight for high scorers)
- **Learning style match** (binary match to "Kinesthetic" as an example)

### 2. Normalize Inputs

- Time spent and score were normalized to a scale of 0 to 100
- Learning style match was simplified to binary (match = 1, no match = 0)

### 3. Apply the Score to the Dataset

A recommendation score was calculated for each employee-module pair using the formula:

- Time weight = 0.3
- Score weight = 0.4
- Learning style match weight = 0.3

Top recommendations were generated for different personas based on this scoring system.

### 4. Validate and Reflect

Validation was done using personas, and here are the top recommended modules for each persona:

#### 1. Fast Finisher:

- E0063: Module 16, Score = 51.09
- E0165: Module 16, Score = 50.54
- E0044: Module 22, Score = 49.39

#### 2. Deep Diver:

- E0196: Module 5, Score = 69.65
- E0171: Module 14, Score = 68.70
- E0151: Module 14, Score = 68.70

#### 3. Passive Explorer:

No recommendations were made due to missing data for this persona (likely due to absence of scores).

	employee_id	training_module_id	module_name	recommendation_score
0	E0040	M4	Module 4	5.846218
1	E0012	M18	Module 18	9.123529
2	E0148	M2	Module 2	28.487395
3	E0098	M21	Module 21	7.863025
4	E0156	M18	Module 18	51.028571
...	...	...	...	...
2995	E0078	M3	Module 3	8.067227
2996	E0037	M12	Module 12	12.652941
2997	E0090	M17	Module 17	11.092437
2998	E0141	M11	Module 11	10.588235
2999	E0142	M12	Module 12	12.100840

[3000 rows x 4 columns]

```
{'Fast Finisher': employee_id training_module_id module_name recommendation_score
1366 E0063 M16 Module 16 51.092437
416 E0165 M16 Module 16 50.544538
2605 E0044 M22 Module 22 49.392437, 'Deep Diver': employee_id training_module_id module_name recommendation_score
1312 E0196 M5 Module 5 69.647899
1430 E0171 M14 Module 14 68.700000
2344 E0151 M14 Module 14 68.695798, 'Passive Explorer': Empty DataFrame
Columns: [employee_id, training_module_id, module_name, recommendation_score]
Index: []}
```

```
{'Fast Finisher': employee_id training_module_id module_name recommendation_score
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Figure 1

