

# Smart Discount Allocation Engine – Red Health

## Objective

To develop a fair, data-driven, and modular Smart Discount Allocation Engine that distributes a fixed 'discount kitty' among agents based on performance and other metrics.

## Key Agent Metrics

- performanceScore (0–100)
- seniorityMonths
- targetAchievedPercent (0–100)
- activeClients

## Weighting Strategy

Weights are assigned to reflect both performance-driven culture and operational fairness:

- Target Achieved Percent – 40%
- Performance Score – 30%
- Active Clients – 20%
- Seniority – 10%

This prioritizes results and customer impact while acknowledging experience modestly.

## Normalization and Scoring Logic

All attributes are normalized between 0 and 1. Weighted scores are computed by multiplying normalized values with their respective weights, and final scores are scaled proportionally to allocate the kitty.

## Bonus Factor Considerations

Agents excelling in multiple areas receive a slight bonus multiplier (e.g., +5–10%) to reward consistent top-tier performance.

## Configurable Limits

Min/Max discount per agent (e.g., ■500 to ■2000) can be defined in the input JSON. If final allocations violate these limits, adjustments are applied proportionally.

## Modular and Extensible Design

Each component (normalization, weighting, allocation) is separated into functions to allow easy updates.

Future metrics can be added with minimal refactoring.

## Sample Input & Output

Input JSON includes:

- totalKitty
- list of agents with all 4 attributes
- optional config (min/max)

Output JSON includes:

- id
- assignedDiscount
- justification

## Testing

Three unit tests:

1. Normal case (varying attributes)
2. All-same attributes
3. Rounding edge case (ensures total stays within kitty)

## Configuration Options

Weights and bonus rules can be stored in a JSON config file or .env for easy tuning. This allows HR/ops teams to update rules without changing code.

## Conclusion

The Smart Discount Engine balances fairness, transparency, and meritocracy. It rewards outcomes while being adaptable to business needs.