# **Pre-Coding Essentials (Component: label.rs, Version/FormulaID: VM-ENGINE v0)**

## **1) Goal & Success**

Assign the final **DecisivenessLabel** (Decisive|Marginal|Invalid) with a concise reason, using gates outcome, national margin vs threshold, and frontier flags.

Success: identical label/reason for identical inputs across OS/arch; rules match Doc 4C.

## **2) Scope**

In: consume **LegitimacyReport**, national margin (pp), optional **FrontierMap** flags; use **VM-VAR-062**.

Out: ephemeral **DecisivenessLabel {label, reason}** to BuildResult.

## **3) Inputs → Outputs (with schemas/IDs)**

Inputs (ephemeral/artifacts): LegitimacyReport (gate pass/fail), AggregateResults.national\_margin\_pp, FrontierMap.flags{mediation,enclave,protected\_override}.

Outputs: DecisivenessLabel {label, reason}. Used by BUILD\_RESULT.

## **4) Entities/Tables (minimal)**

## **5) Variables (only ones used here)**

## **6) Functions (signatures only)**

pub fn label\_decisiveness(legit: &LegitimacyReport, national\_margin\_pp: i32, frontier\_flags: Option<FrontierFlags>) -> DecisivenessLabel — Applies rules below; deterministic.

## **7) Algorithm Outline (bullet steps)**

If any gate failed **or** validation failed earlier ⇒ Invalid with reason from gates.

Else, if national\_margin\_pp < VM-VAR-062 **or** any mediation|enclave|protected\_override flag present ⇒ Marginal with specific reason.

Else ⇒ Decisive with margin reason.

Emit {label, reason}; ready for report.

## **8) State Flow (very short)**

Stage: LABEL\_DECISIVENESS after (optional) RESOLVE\_TIES, before BUILD\_RESULT.

Never halts pipeline; always produces a label.

## **9) Determinism & Numeric Rules**

Ordering keys: N/A (single decision).

Numbers: use integer **pp** for margin; no float presentation here. Report handles one-decimal formatting.

Tie policy: N/A at this stage (ties resolved earlier).

## **10) Edge Cases & Failure Policy**

Exact threshold hit counts as **Pass** upstream; if margin == VM-VAR-062 ⇒ Decisive (since only < triggers Marginal).

If FrontierMap absent (because gates failed) ⇒ step 1 applies (Invalid).

If frontier is on and any mediation/enclave/protected override flag exists ⇒ Marginal.

## **11) Test Checklist (must pass)**

Doc 6 note: labels follow Doc 4C (Invalid if any gate fails; Marginal if margin < VM-VAR-062 or frontier flags).

Frontier mediation forces Marginal (e.g., VM-TST-014).

Result carries label & reason; report displays it verbatim.