TEMPERAMENTS

1. Involved Biochemicals

- **Cortisol (C):** Directs energy from non-essential functions to **alertness** during stress.
- **Dopamine (D)** Motivates a person to **anticipate** for reward.
- **Estrogen (E):** Drives a female towards **primally healthy** tendencies.
- **Oxytocin (O):** Fuels emotions that rise through any form of **connection** with others.
- **Serotonin (S): Regulates** moods, emotions, and reaction speeds.
- **Testosterone (T):** Drives a male towards **primally healthy** tendencies.

> **NOTE:**
>
> - Androgenecity (A) is testosterone (T) in males, and estrogen (E) in females.

2. Metric System

2.1 Score Representation:

- 1: Extreme deficiency
- 2: Mild deficiency
- 3: Balanced
- 4: Slight excessiveness
- 5: High excessiveness

2.2 Scoring Method:

- All the dominant temperament types are scored with a default expectation.
- Blends are just average of the two involved temperaments.
- Fractional values are resolved by rounding-off the value towards the primary temperament.

3. Temperamental Scores

Temperament	Cortisol (C)	Dopamine (D)	Oxytocin (O)	Serotonin (S)	Androgenicity (A)
Choleric	3	5	1	2	5
Melancholic	5	1	3	4	1
Phlegmatic	1	2	5	5	1
Sanguine	1	5	3	3	3

4. Procedure (v3.0.0)

1. Read the primary work of each basic biochemical from **section 1**.
2. As per the visible intensity of behavior expected from each of the 5 biochemicals, rate their presence on scale of $[1, 5]$.
3. Write down the differences between biochemical points separated by commas, for each temperament on different line.
4. Now apply ***variance*** formulae on difference points with each temperament using:

$$Var(X) = \frac{1}{N}\sum_{i=1}^{N}(x_i - \bar{x})^2$$

- $N = 5\ (\text{each chemical})$
- $x = \text{A particular chemical's score for a given temperament}$
- $\bar{x} = \text{Mean of all } x \text{ scores}$

5. Now for each variance point, choose the lowest one as primary temperament type.
6. If the second lowest variance type has a difference < 0.5 (1.0 being unit to move through types), then its a blend with secondary temperament. Else just dominant primary.
7. If at any point the variance are same, the preference for Jungian introverts (***I***) is in order (opposite for extroverts):

$$\text{Melancholic} > \text{Phlegmatic} > \text{Choleric} > \text{Sanguine}$$

5. Application Example

Let's say we have a test subject with following score on biochemicals:

$$\text{Cortisol}(C) = 3$$

$$\text{Dopamine}(D) = 2$$

$$\text{Oxytocin}(O) = 2$$

$$\text{Serotonin}(S) = 2$$

$$\text{Testosterone}(T) = 2$$

We will take the same $CDOST$ order of chemicals for differences:

$$\text{Choleric}(Chol) = [0, -3, 1, 0, -3]$$

$$\text{Melancholic}(Mel) = [-2, 1, -1, -2, 1]$$

$$\text{Phlegmatic}(Phleg) = [2, 0, -3, -3, 1]$$

$$\text{Sanguine}(Sang) = [2, -3, -1, -1, -1]$$

After applying variance $Var(X)$ on these, where X is the temperament:

$$Var(Chol) = 2.8$$

$$Var(Mel) = 1.84$$

$$Var(Phleg) = 4.24$$

$$Var(Sang) = 2.56$$

Type with least variance is Mel (**melancholic**) with second lowest as $Sang$ (**sanguine**). But the difference between both is ≥ 0.5, so its a **melancholic [dominant]** type.

> **NOTE**:
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> - We use population variance (divide by $N = 5$).
> - If you prefer sample variance, document it explicitly.

6. Recent Improvements

- Separation of estrogen & testosterone as **androgenicity (A)**.
- Introducing more reliable scores for blends.
- Fixing equal deviations with a preference order & not subjective bias.
- Using standard statistical formulae with proof of work.
