Drik Panchang & Vedic Astrology Engine — Master Reference

User Guide, Astrological Algorithms & Technical Specification for Lovable / Web

1. Executive Overview & Value Proposition

- Application Name: Drik Panchang & Vedic Astrology Vault (Kotlin / Jetpack Compose)
- Core Mission: Provide high-precision astronomical calculations (Drik Ganita) paired with classical Vedic astrology rules, Kundali generation, Gun Milan, and seamless Google Drive cloud sync.
- Target Audience: Professional Astrologers, Panchang Scholars, Devotees, and Web Developers.
- Key Capability: Ephemeris-based true planetary longitudes with Chitra Paksha (Lahiri) Ayanamsha.

2. Five-Element Panchang (Pancha Anga) Algorithms

```
A. Tithi (Lunar Day): Tithi = floor(((Moon_Longitude - Sun_Longitude) mod 360°) / 12°) + 1
   - Spans 1 to 30 (1-15 Shukla Paksha, 16-30 Krishna Paksha).
B. Nakshatra (Lunar Mansion): Nakshatra = floor(Moon_Longitude / 13°20') + 1
   - Pada = floor((Moon_Longitude mod 13°20') / 3°20') + 1 (27 Nakshatras total, 4 Padas each).
C. Yoga: Yoga = floor(((Sun_Longitude + Moon_Longitude) mod 360°) / 13°20') + 1
   - Spans 27 Yogas from Vishkambha to Vaidhriti.
D. Karana (Half Tithi): Karana = floor(((Moon_Longitude - Sun_Longitude) mod 360°) / 6°) + 1
   - 11 Karanas (7 repeating: Bava, Balava... and 4 fixed: Shakuni, Chatushpada, Naga, Kimstughna).
E. Vara (Solar Weekday): Determined by local sunrise time at user location (Sunday = 1 to Saturday = 7).
```

3. Kundali, House Systems & Vimshottari Dasha Engine

- Ayanamsha Standard: Chitra Paksha (Lahiri) Ayanamsha = 23.8562° + 0.01396° * (T - 2000.0).
- Divisional Charts (Shodashvarga): Rashi (D1), Hora (D2), Drekkana (D3), Saptamsha (D7), Navamsha (D9), Dashamsha (D10), Dwadasamsha (D12), Shodashamsha (D16), Vimshamsha (D20), Chaturvimshamsha (D24), Saptavimshamsha (D27), Trimshamsha (D30), Khavedamsha (D40), Akshavedamsha (D45), Shashtia
- Bhava Chalit: Equal House System and Sripati Ecliptic House Division.
- Vimshottari Dasha: 120-Year total planetary cycle starting from Moon Nakshatra Pada balance.

4. Nakshatra Primary & Harmony Botanical Tree Reference Basis

Classical astrological references (Brihat Samhita, Raj Nighantu, Vriksha Ayurved) map each Nakshatra to specific botanical trees for spiritual harmony, planetary remedy, and sacred groves.

- Vishaka Nakshatra Reference Basis: Primary Tree = Naga Keshar (Mesua ferrea); Harmony & Complementary Trees = Bakul (Mimusops elengi) & Parijat (Nyctanthes arbor-tristis).
- Ashwini = Kuchala | Bharani = Amla | Krittika = Gular | Rohini = Jamun | Mrigashira = Khair.
- Ardra = Agar | Punarvasu = Bamboo | Pushya = Peepal | Ashlesha = Nagkeshar | Magha = Bargad.
- Purva Phalguni = Palash | Uttara Phalguni = Pakad | Hasta = Reetha | Chitra = Bel | Swati = Arjun.
- Anuradha = Maulshree | Jyeshtha = Shami | Mula = Salai | Purva Ashadha = Vet | Uttara Ashadha = Jackfruit.
- Shravana = Aak | Dhanishta = Shami | Shatabhisha = Kadam | Purva Bhadrapada = Mango.
- Uttara Bhadrapada = Neem | Revati = Mahua.

5. Ashtakoota 36-Point Marital Compatibility Matrix

#	Koota Factor	Max Pts	Evaluation Criteria / Classical Basis
1	Varna	1	Spiritual/work temperament (Brahmin, Kshatriya, Vaishya, Shudra)
2	Vashya	2	Mutual attraction & control (Dwipada, Chatushpada, Jalachara, etc.)
3	Tara	3	Birth star compatibility (Janma, Sampat, Vipat, Kshema, Sadhana...)
4	Yoni	4	Instinctual animal harmony (Horse, Elephant, Dog, Cat, Serpent...)
5	Graha Maitri	5	Planetary friendship between Moon Rashi Lords
6	Gana	6	Temperament classification (Deva, Manushya, Rakshasa)
7	Bhakoot	7	Relative Rashi placement (1/7, 3/11, 4/10 = 7 pts; 2/12, 6/8 = 0 pts)
8	Nadi	8	Physiological/health constitution (Adi, Madhya, Antya). Same Nadi = Dosha

Scoring Guide: Minimum 18 Points required for match approval. 25+ Points = Highly Auspicious.

6. Technical Architecture & Google Drive Cloud Sync

- Unified BackupManager: Centralizes SQLite database backup (panchang_backup.db) and JSON vault export/import (panchang_vault_backup.json) into local Room storage and Google Drive.
- Storage Access Framework (SAF): Allows zero-error, visible file backup directly into user's Google Drive.
- WorkManager Recurring Sync: Automated 24-hour periodic background backup execution.
- Conflict Resolution: Timestamp and record count comparison with Keep Local / Keep Cloud options.

7. App User Interface Guide & Tab Navigation Steps

- **Panchang Tab (पंचांग): Select location & date. View Tithi, Nakshatra (with Pada), Yoga,** Karana, Vara, Sunrise/Sunset, Rahu Kalam, Abhijit Muhurta, Choghadiya, and Hora hours.
- **Kundali Vault Tab (कुंडली): Create or select birth profiles. View Lagna (D1), Navamsha (D9),** Shodashvarga (D1 to D60), Bhava Chalit, Ashtakavarga, and Vimshottari Dasha periods.
- **Matchmaking Tab (गुण मिलन): Select Bride & Groom profiles to calculate 36-Point Ashtakoota** compatibility and inspect Nadi, Bhakoot, and Gana Dosha exception analysis.
- **Festivals & Reminders Tab (सण व व्रत): Browse upcoming Ekadashi, Vrat, and festival dates.** Set custom reminders or daily Tithi notifications with system calendar integration.
- **Settings & Cloud Sync Tab (सेटिंग्स): Select language (English, Hindi, Marathi), view visual summary** dashboard, backup/restore via Google Drive or local JSON, and manage 24h background auto-sync.

Generated by Drik Panchang Android Engine | Certified Drik Ganita Ephemeris Standard

Complete In-App User Guide & Astrological Calculation Manual for Panchang & Kundali Vault.