

BillBuddy – WindSurf-AI Task Prompts

Generated: May 29, 2025

Month 1 – Planning & Design

1.1 Initialize Git Repository & Workspace Rules

- ```
WindSurf-AI Flow: init_repo
```
1. Create a new **private** GitHub repo called ``billbuddy``.
  2. Add a ``.gitignore`` suitable for Flutter (Dart) and Node/TypeScript.
  3. Add a `README.md` that includes a **project overview**, tech stack, and development workflow summary.
  4. Create a ``.windsurfrules`` file that sets:
    - Flutter project structure and naming conventions.
    - NestJS backend structure conventions.
    - Coding standards (lint rules, comments required).
    - Secure coding rules (no **hard-coded** secrets; use ENV vars).
    - Testing requirement: every feature must ship with unit + integration tests.
  5. Commit and push to ``main``; set branch protection to require PR + CI pass.

### 1.2 Create Figma Wireframes & Style Guide

- ```
# WindSurf-AI Flow: design_wireframes
```
1. Create a new Figma project named **BillBuddy v1**.
 2. Generate **low-fidelity** wireframes for:
 - Onboarding wizard (4–5 screens).
 - Main dashboard (mobile + web).
 - Bill detail & payment screens.
 - Admin dashboard overview.
 3. Produce a **style guide** frame with:
 - Primary/secondary colors (professional fintech blue/green palette), HEX values.
 - Typography: headings, body, caption.
 - UI components: buttons, **text** fields, cards, icons.
 4. Export a share link and write it to a file `DESIGN_LINK.md`.

1.3 Define Database Schema

- ```
WindSurf-AI Flow: db_schema
```
1. Using the ERD description, generate SQL migration scripts for PostgreSQL that create tables: ``users``, ``accounts``, ``bills``, ``payments``, ``documents``, ``subscriptions``, ``offers``, ``user_offers``, ``negotiations``, ``admins``, ``audit_logs``.
  2. Place scripts in ``backend/migrations/2025_01_initial.sql``.
  3. Generate ORM entities (TypeORM) under ``backend/src/entities/``.
  4. Add unit tests that spin up a dockerized Postgres in CI and run migrations.

### 1.4 Bootstrap CI/CD Pipeline

- ```
# WindSurf-AI Flow: setup_ci
```
1. Add GitHub Actions workflow ``.github/workflows/ci.yml``.
 2. Steps:
 - Setup Node and install backend deps.
 - Setup Flutter (`flutter-action``) and run ``flutter pub get``.
 - Run ``npm run test`` for backend.
 - Run ``flutter test`` and ``flutter analyze``.
 - Cache dependencies.
 3. On success of ``main`` branch, deploy backend to staging (use AWS EB CLI placeholder) and deploy Flutter web to staging bucket.

Month 2 – Core Development

2.1 Generate Flutter App Skeleton

- ```
WindSurf-AI Flow: flutter_skeleton
```
1. Use ``flutter create billbuddy`` with `flutter create --platforms ios,android,web``.
  2. Add Riverpod package for state management.
  3. Scaffold navigation: `SplashScreen`` → `Onboarding`` → `Dashboard``.
  4. Implement adaptive layout breakpoints for web vs mobile.

## 2.2 Build Onboarding Wizard with OCR

# WindSurf-AI Flow: onboarding\_wizard

1. Create `OnboardingStepController` (Riverpod) driving 5 pages:
  - a) Welcome screen
  - b) Sign Up / Login
  - c) Bill Scan (camera)
  - d) Confirm extracted bill info
  - e) Link Bank or Skip
2. Integrate `google\_ml\_kit` or `tesseract\_ocr` plugin:
  - Capture image, run OCR, parse Name/Biller/Amount/Due.
3. Write widget tests simulating image pick and parse.

## 2.3 Backend API Skeleton

# WindSurf-AI Flow: backend\_api

1. Use NestJS CLI to create project in `backend`.
2. Implement modules: Auth, Users, Bills, Payments.
3. Auth: email/password + Google OAuth (passport.js strategies).
4. BillsController CRUD endpoints with DTO validation.
5. Auto-generate OpenAPI (Swagger) docs at `/api/docs`.

## 2.4 Authentication & Session

# WindSurf-AI Flow: auth\_sessions

1. Add JWT auth (access + refresh tokens) with 15m/30d expiry.
2. Secure cookies for web; secure storage (flutter\_secure\_storage) for mobile.
3. Enable MFA toggle in user table, placeholder field.
4. Tests: verify login, token refresh, protected route.

# Month 3 – Integrations & Payments

## 3.1 Plaid Integration

# WindSurf-AI Flow: plaid\_link

1. Add Plaid Link SDK to Flutter (mobile + web).
2. On success, send `public\_token` to backend `/plaid/exchange`.
3. Backend exchanges token, saves `access\_token` encrypted.
4. Fetch accounts; return list to client for user selection.

## 3.2 ACH Payments via Stripe

# WindSurf-AI Flow: stripe\_ach

1. Backend: integrate Stripe SDK; create Customer per user.
2. Attach bank account using Plaid processor token.
3. Implement `/payments/schedule` that creates `PaymentIntent` with ACH debit (amount, description).
4. Webhook `/stripe/webhook` to update payment status in DB.

## 3.3 Headless Scraping Service

# WindSurf-AI Flow: bill\_scraper

1. Create `scraper` service (Node) using Playwright.
2. Accept job (biller\_login, url, creds) from Redis queue.
3. Launch headless chromium, login, navigate to bill page, extract amount & due date, push update via gRPC to backend.
4. Add fallback/error handling; retry 3 times; log to audit.

## 3.4 OCR Provider Switch

# WindSurf-AI Flow: ocr\_switch

1. Abstract OCR service interface `OCRProvider`.
2. Implement `TesseractProvider` (default) and `GoogleVisionProvider`.
3. Admin API `/admin/ocr/provider` to toggle.
4. When premium user, call premium provider automatically.

# Month 4 – Premium Features & Refinement

## 4.1 Negotiation Tool MVP

# WindSurf-AI Flow: negotiate\_tool

1. Create `NegotiationRequest` model/table.
2. Add UI: user selects bill and clicks 'Negotiate'.
3. Generate support email template with LLM (OpenAI) summarizing request.
4. Store status; allow admin to mark completed and input new amount.

## 4.2 Analytics Dashboard

# WindSurf-AI Flow: analytics\_dash

1. Backend: aggregate spend per category and month.
2. Flutter: implement `charts\_flutter` line & pie charts under `Insights` tab.
3. Add endpoint `/analytics/summary` returning JSON for charts.
4. Unit tests validate aggregation correctness.

## 4.3 Affiliate Offers Engine

# WindSurf-AI Flow: offers\_engine

1. Create `Offer` entity and admin CRUD UI.
2. Dashboard: context card shows top 3 offers relevant by bill category.
3. Track clicks via `/offers/{id}/click`; store in `user\_offers`.
4. Include UTM params for affiliate tracking.

## 4.4 Premium Subscription IAP

# WindSurf-AI Flow: premium\_iap

1. Flutter: integrate `in\_app\_purchase` (Apple/Google).
2. Define product id `billbuddy\_premium\_monthly`.
3. On purchase success, verify receipt with backend `/iap/verify`.
4. Backend sets `premium\_status=true`, returns JWT with claim.

# Month 5 – Testing, Compliance & Launch

## 5.1 Comprehensive Test Suite

# WindSurf-AI Flow: test\_suite

1. Achieve  $\geq 80\%$  code coverage:
  - Flutter: widget & integration tests.
  - Backend: jest unit + supertest API integration tests.
2. Add `coverage-badge` action to README.

## 5.2 Security Hardening

# WindSurf-AI Flow: security\_hardening

1. Run Snyk and OWASP dependency check in CI.
2. Implement rate limiting middleware (e.g., 100 req/min).
3. Enforce HTTPS redirects, HSTS headers.
4. Perform script to rotate all API keys in staging.

## 5.3 Compliance Automation

# WindSurf-AI Flow: compliance\_check

1. Add GDPR export/delete endpoints under `/privacy`.
2. Integrate Stripe Radar or similar fraud detection.
3. Automatic sanctions screening via ComplyAdvantage API at user signup.
4. Generate SOC2 readiness checklist markdown.

## 5.4 App Store Submission

# WindSurf-AI Flow: store\_release

1. Generate production iOS (IPA) & Android (AAB) builds via fastlane.
2. Upload screenshots from Figma export.
3. Populate app metadata JSON (`metadata/en-US.json`) from marketing copy file.
4. Submit for review; wait status webhook to Slack.

# AI Enhancements (Post-MVP)

## A1 Intelligent Bill Categorization

# WindSurf-AI Flow: ml\_categorize

1. Export anonymized bill dataset CSV.
2. Train Scikit-Learn TF-IDF + SVM model to classify biller into categories (utilities, loans, etc.).
3. Serialize model as `bill\_classifier.pkl`; deploy behind `/ml/categorize`.
4. Add inference microservice; fallback to rule-based if confidence  $< 0.75$ .

## **A2 Personalized Insights Generator**

# WindSurf-AI Flow: insights\_nlg

1. Define Jinja template prompts for spending insight generation.
2. Use OpenAI GPT-4 API; feed aggregated spend metrics as system context.
3. Return 3 actionable insights JSON; surface in 'Insights' tab weekly.
4. Schedule Cloud Task weekly per user.

## **A3 Chatbot Assistant**

# WindSurf-AI Flow: chatbot

1. Integrate OpenAI Assistants API with function calling to backend for data.
2. Define commands: 'next\_bill', 'total\_spend', 'enable\_autopay'.
3. Chat UI widget added to dashboard; context limited to user data.
4. Add moderation check for user queries.

## **A4 Fraud Detection Rules**

# WindSurf-AI Flow: ml\_fraud

1. Build a light gradient-boosted tree model on payment features (amount, frequency, device fingerprint).
2. Trigger 'review\_required' flag if risk score > 0.9.
3. Admin dashboard shows flagged payments for manual action.
4. Log model predictions for future retraining.