# Agentic Job Application Assistant - Requirements & Feature Plan

## 1. Core Objective

Build an AI-powered assistant that:  
- Finds relevant jobs across multiple portals.  
- Auto-tailors résumé and cover letter to each job.  
- Fills in application forms with human-in-the-loop review.  
- Learns from past mistakes and optimizes over time.  
- Sends notifications on errors, approvals, or follow-ups.  
- Allows save & resume if stuck mid-application.

## 2. Functional Requirements

### A. Job Discovery

- Search multiple sources: LinkedIn, Indeed, Glassdoor, Greenhouse, Lever, Workday, company sites.  
- Configurable search parameters: job titles, locations, salary range, employment type, keywords.  
- Daily or on-demand searches.

### B. Filtering & Ranking

- Keyword matching and semantic relevance scoring.  
- Adjustable minimum relevance threshold.  
- Duplicate detection across portals.

### C. Resume Tailoring

- Parse JD for skills, experience, keywords.  
- Match with bullet library and rewrite for JD alignment.  
- Swap sections in master résumé template.  
- Export ATS-friendly PDF/DOCX.

### D. Cover Letter Generation

- Concise (150–220 words), personalized.  
- Highlight quantifiable achievements relevant to JD.  
- Support multiple tone styles.

### E. Application Form Filling

- Autofill personal info, education, work history, custom Q&A.  
- Upload tailored résumé and cover letter.  
- Pause for review before submission.

### F. Save & Resume Feature

- Checkpoint system capturing page URL, form data, cookies, uploads.  
- Restore session and inputs to resume from last step.  
- Notify user with resume link.

### G. Application Tracking

- Log applications with company, role, date, status.  
- Track stages: applied, interview, rejected, offer.  
- Calendar integration for follow-ups.

### H. Learning & Feedback

- Track which tailoring and portals yield better results.  
- Improve ranking and tailoring from approvals/rejections.  
- Self-heal automation selectors when forms change.

### I. Notifications

- Alerts on errors, approvals needed, interview reminders.  
- Email/Slack/WhatsApp integration.

## 3. Advanced Differentiators

- Cross-source smart search (niche communities, social media posts).  
- Outcome-based optimization using multi-armed bandit.  
- Interview prep (company insights, likely questions, calendar reminders).  
- Real-time gap analysis of skills vs JD.  
- Multi-profile support for different roles.  
- Competitor insight from public résumés.  
- Recruiter outreach automation.  
- Risk alerts for high-turnover or stale postings.  
- Deep analytics dashboard for strategy optimization.  
- Voice/chat control for status and approvals.

## 4. Build Phases & Timeline

MVP (~4–7 weeks):  
- Discovery, ranking, tailoring, form fill, save/resume, notifications.  
  
Tier 2 (+3–4 weeks):  
- Outcome learning, multiple profiles, competitor insight.  
  
Tier 3 (+3–4 weeks):  
- Interview prep, recruiter outreach, voice/chat control, deep analytics.

Planning

**1. Project Scope**

**Goal:**  
Build an AI-powered job-application assistant that:

* Searches multiple portals by keyword/role.
* Auto-tailors résumé & cover letter to each JD.
* Auto-fills applications (human-in-the-loop).
* Saves progress if stuck (resume later).
* Learns from past mistakes & successes.
* Sends notifications & analytics.
* Includes advanced differentiators (market advantage).

**2. Deliverables**

**MVP (4–7 weeks)**

* Job discovery across initial portals (Greenhouse, Lever, company sites).
* JD parsing, filtering, ranking.
* Résumé tailoring & ATS-friendly export.
* Cover letter generator.
* Autofill bot with review pause.
* Save & resume functionality.
* Application tracker dashboard.
* Basic notifications.

**Tier 2 (3–4 weeks)**

* Outcome learning loop (success-based optimization).
* Multi-profile (role/persona) support.
* Competitor résumé insights.

**Tier 3 (3–4 weeks)**

* Interview prep automation.
* Recruiter outreach automation.
* Voice/chat control.
* Deep analytics dashboard.

**3. Milestones & Timeline**

| **Week** | **Milestone** |
| --- | --- |
| 1 | Finalize requirements, profiles, and bullet library |
| 2 | Multi-portal job discovery module |
| 3 | Filtering, ranking engine |
| 4 | Résumé tailoring engine & cover letter generator |
| 5 | Autofill bot (draft mode) |
| 6 | Save & resume + basic tracker |
| 7 | MVP QA & deployment |
| 8–10 | Tier 2 features |
| 11–13 | Tier 3 features |
| 14 | Final QA, documentation, and launch |

Execution  
  
**1. Module Breakdown**

**Module 1 — Project Setup & Data Collection**

**Scope:**

* Finalize all user-provided assets and configs.
* Set up project repo, environments, and security measures.

**Deliverables:**

* Master résumé (multiple versions), bullet library with metrics.
* Cover letter templates or raw material.
* Target role list + keywords + locations.
* Portal account credentials.
* Secure environment (encrypted storage, API keys in vault).

**Dependencies:** None  
**Estimated Duration:** 2–3 days

**Module 2 — Job Discovery Connectors**

**Scope:**

* Build connectors to fetch job postings from prioritized portals.
* Support keyword, role, and location filters.

**Deliverables:**

* Connectors for Greenhouse, Lever, Workday (Phase 1).
* Config-driven search parameters.
* De-duplication across portals.

**Dependencies:** Module 1  
**Estimated Duration:** 5–7 days

**Module 3 — Filtering & Ranking Engine**

**Scope:**

* Parse JDs, match to profile, assign relevance score.
* Discard duplicates and irrelevant postings.

**Deliverables:**

* Keyword matching logic.
* Embedding-based semantic similarity scoring.
* Adjustable relevance threshold.

**Dependencies:** Module 2  
**Estimated Duration:** 2–3 days

**Module 4 — Tailoring Engine**

**Scope:**

* Generate customized résumé and cover letter per JD.
* Maintain ATS compliance.

**Deliverables:**

* JD parsing for must-have skills.
* Bullet selection & rewrite logic (fact-based).
* ATS-friendly DOCX/PDF export.
* Cover letter generator (150–220 words).

**Dependencies:** Modules 1, 3  
**Estimated Duration:** 4–6 days

**Module 5 — Application Autofill Bot**

**Scope:**

* Fill forms on portals with tailored docs and stored profile info.
* Pause for manual approval.

**Deliverables:**

* Playwright automation scripts for each portal.
* Form field mapping & file uploads.
* Review-before-submit flow.

**Dependencies:** Modules 1, 4  
**Estimated Duration:** 7–10 days

**Module 6 — Save & Resume System**

**Scope:**

* Capture checkpoint state if stuck mid-application.
* Allow user to resume exactly where left off.

**Deliverables:**

* Checkpoint schema (URL, cookies, form data, uploads, DOM snapshot).
* Resume routine restoring session + fields.
* Notification trigger with resume link.

**Dependencies:** Module 5  
**Estimated Duration:** 3–5 days

**Module 7 — Application Tracker & Notifications**

**Scope:**

* Track applications, statuses, and outcomes.
* Send alerts for approvals, errors, interviews.

**Deliverables:**

* Tracker DB & dashboard.
* Email/Slack/WhatsApp integration.
* Daily/weekly summary.

**Dependencies:** Modules 5, 6  
**Estimated Duration:** 2–3 days

**Module 8 — Learning & Optimization Engine**

**Scope:**

* Improve job matching and tailoring based on feedback & outcomes.
* Self-heal automation selectors.

**Deliverables:**

* Outcome tracking (interview vs rejection).
* Adjust ranking/tailoring rules automatically.
* Error log analysis for selector updates.

**Dependencies:** Modules 3, 4, 7  
**Estimated Duration:** 3–5 days

**Module 9 — Advanced Differentiators (Tier 2 & 3)**

**Scope:**

* Add market-leading features.

**Deliverables:**

* Cross-source smart search (social, niche boards).
* Multi-profile support.
* Competitor résumé insights.
* Interview prep automation.
* Recruiter outreach automation.
* Deep analytics dashboard.

**Dependencies:** MVP complete (Modules 1–8)  
**Estimated Duration:** 6–8 weeks (parallelizable)

**2. Execution Flow**

1. **Phase 1 (Weeks 1–7):** Modules 1–7 → MVP launch.
2. **Phase 2 (Weeks 8–10):** Module 8 (Learning).
3. **Phase 3 (Weeks 11+):** Module 9 (Advanced features).

**3. Professional Practices**

* **Code management:** Git + feature branching + code reviews.
* **Issue tracking:** Jira/Trello board with sprint planning.
* **Testing:** Unit tests for logic modules; integration tests for portal flows.
* **Security:** Encrypted storage for credentials; access logging.
* **Documentation:** README + module wiki pages.
* **Deployment:** Staging environment for QA, then production.