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McMaster-Mohawk Bachelor of Technology Partnership

# Project Milestone #1- Proposal

**Course Code:** SFWRTECH 4SA3

**Course Name:** Software Architecture

**Professor:** Kevin Browne

**Written By**: Tyler Thong Nguyen - nguyeb65 - 400610270

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## Proposed Software Name

JobTrust Inc.

## Description

JobTrust is an AI-powered platform offered both as a browser widget and a fully-featured dashboard web app. It helps job seekers detect fake job postings, match jobs to their unique profiles and resume, and get actionable resume or skill improvement advice. All the features are delivered through modular, secure interfaces that stay synchronized. Users have a credit system to manage feature usage, with Stripe integration for easy top-ups.

## Target Audience

- Students, new grads, and active job seekers
- Professionals looking to switch careers or upskill
- Anyone searching for jobs online and concerned about scams and fake postings

## Core Functionalities

- **Fake Job Detection:** Automated, NLP-based fraud scanning, available from both widget and dashboard.
- **Job Matching Score:** Personalized scoring of jobs based on resume, profile, and user preferences, visible on both interfaces.
- **Resume and Skill Recommendation:** Real-time, contextual suggestions for resume building and skills improvement.
- **Dashboard & Widget Integration:** Data and functionality are fully linked; users can interact via the widget while browsing jobs or use the dashboard for deeper analytics, credit management, job history, and profile/resume editing.
- **Credit System:** Every user gets 50 free credits; credits are consumed per usage of detection, matching, and improvements.
- **Stripe Payment Integration:** Users can securely purchase more credits via Stripe, with receipts and billing managed on the dashboard.
- **Job Tracking:** Users can bookmark jobs, save feedback, and monitor their application history.
- **Security:** OAuth2 login, encrypted data storage, and user privacy tools.

## Opportunities for Design Patterns

| Pattern | Application |
|---|---|
| Chain of Responsibility | Modular job analysis pipelines for running detection, scoring, suggestions in order |
| Strategy | Switch job matching algorithms based on user-selected priorities/goals |
| Observer | Live updates to widget/dashboard when scores or credits change |
| Singleton | Manages shared DB/API/Stripe session for user accounts |

## Technology Stack & Role

- **Frontend:** React.js (widget/dashboard), Browser extension packaged via Manifest V3
- **Backend:** Python (FastAPI) to handle scoring, API calls, notification triggers
- **Database:** PostgreSQL or MongoDB Atlas for resumes, user profiles, job tracking data to deliver secure, scalable cloud solution
- **Third-party APIs:**
    - Ruvia Trust API (job fraud analysis)
    - Stripe API for secure payments and credit management
    - LinkedIn/Indeed feeds for job aggregation
- **AI/NLP:** spaCy, HuggingFace (resume and job parsing, feedback)
- **Authentication:** OAuth2 (Google, LinkedIn)
- **Hosting:** AWS or Vercel (backend/frontend deployment)
- **Roles:**
    - React serves UI for dashboard/widget, showing scores, credit balance, resume feedback
    - Backend powers credit check, API calls, scoring, Stripe transactions
    - MongoDB/PostgreSQL tracks user, job, credit, and transaction history
    - Stripe handles payments, receipts, and credit top-ups