Job-Applicator Plan

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1   General

1.1   Project Overview

The base level premise of this project was to implement an autonomous one-stop shop for the entire recruitment cycle. The actual process personally for me took it into 3 major chunks all equally irritating and anxiety-inducing to every graduating college student looking for a job.

1. **Profile Manager:** A fully updated PR manager for you but one that is hyperactive in keeping all your information up to date across all platforms and aggregating information for individual experiences on resume. So it has an overall current updated understanding of each of your project/skills etc. and in case one of your platforms say a new resume version mentions some new details for an experience then update full knowledge base as well as update all platforms linkedin, indeed etc. everything with this new notch in your belt eliminating manual pain.

2. **Personalized Job Finder:** Just the very process of finding the applicable jobs to apply to like across various platforms but the caveat comes where there is a backed heuristic and whole lot of mambo jumbo optimizing each listing and ranking it hyperspecific to individual context.

3. **Applicator Slave:** No better name is accurate, this module is for the whole bruhaha. First creating the relevant account for whatever is the required job portal, personable to the company. Then retrieving the application questions. Another brings the company's basic information on values etc. Further check to answer application questions and optimize resume/CV or whatever as per the info of the job, the application questions, specific subset of my entire cohesive profile stored in Profile Manager finetuned keywords and documents as well as answers to fit the JD and company as much as possible. Then actually going through with applying

Dream: That applying for jobs is a thing of the past and as long as you are putting in the work for your field to become the best in your work then it won't be your job to reach people, network selling yourself, be subject to the 1000 rejections not optimized to understand you before getting that one sliver of hope somewhere. If you do your work with earnestness with the best possible effort the best job will automatically be found, applied for using your best representable skillset, and done without your knowledge. I mean you can see whats happening if you intend to and intervene but the idea is that one day you won't have to

2 Profile Manager

The Profile Manager is a key component of the job-applicator system responsible for unified management of the user's professional profile across multiple platforms.

NOTE: This is the section you are hand-waving the most like clearly layout the most base requirements of whatever you can think of in this section. Start with the actual information points you have to extract from the various sources

2.1 Information Points

These are diverse points of data from various professional sources and documents listed out below, that highlight very specific information about the user that is required for their professional profile. There will be a lot of overlap in the information coming in from various sources about same descriptor and the challenge is keeping this up to date.

Each subsubsection represents a key area currently planned to become an individual part necessary to form a cohesive user profile. For each subsubsection, the specific extractable data fields are presented in the table format shown below. In these tables, required fields are indicated by an asterisk (*) after the `Variable Name`, and the entire row for that variable is displayed in bold.

Variable Name	Datatype	Description	Example

2.1.1 Education

Education encompasses the formal academic background of the user.

`ed_lvl*`	enum	Ed. Lvl: HS, Assoc, UG, PG, PhD, PD	UG
`ed_org*`	str	Name of educational institution	Drexel University
`ed_degree*`	str	Degree name	Bachelor of Science
`ed_startdate*`	date	MM/YY started	08/20
`ed_enddate*`	date	MM/YY ending	05/25
`ed_status*`	enum	Status: Complete, Ongoing, Drop	Complete
`ed_majors*`	list	List of majors, 1 required	Computer Science
`ed_minors`	str	List of minors	Artificial Intelligence
`ed_location`	str	Parsable location	Philadelphia, PA
`ed_gpa`	float	Grade Point Average listed	3.85

Resumé usually has this with all the above requirements in it as required, different templates can obviously make this harder to distinguish and extract

Linkedin on the other hand might store this section in more detail making it so that we have to corroborate across sources

CV will store the bare minimum representation of the same

2.1.2 Work Experience

Work experience encompasses professional roles that contribute to a user's career progression.

`exp_org*`	str	Company Name	Google Inc
`exp_role*`	str	Job role	CTO and Founder
`exp_startdate*`	date	MM/YY started	06/22
`exp_enddate*`	date	MM/YY ending or "Present"	08/23
`exp_location*`	str	Parsable location	New Delhi, India
`exp_type*`	enum	Type: full-time, intern, research, free-lance	intern
`exp_desc*`	str	Full description typed for experience	Led ERP product development
`exp_skills*`	2.1.4 Skill	Skills associated with the experience	Skill object in 2.1.4
`exp_tech`	list	Technologies used	Laravel, Angular, MySQL, AWS
`exp_action_words`	list	Cross-checked with available list to judge resume	Implemented, Enhanced
`exp_modality`	enum	Remote, IRL, Hybrid	Remote
`exp_industry`	str	Industry sector	SaaS, ERP Software

2.1.3 Key Projects

Key projects encompass significant technical or research endeavors that demonstrate the user's capabilities and expertise.

proj_name*	str	Project title	Spreadsheet 2D Context Model
proj_startdate*	date	MM/YY started	08/24
proj_enddate*	date	MM/YY ending or "Present"	Present
proj_desc*	str	Full description of the project	Developed a Transformer-based model optimized for spreadsheet data analysis
proj_skills*	2.1.4 Skill	Skills associated with the project	Skill object in 2.1.4
proj_tech	list	Technologies/tools used	PyTorch, Hugging Face, Pandas
proj_metrics	list	Quantifiable or qualatative achievements	F1 score: 0.99, Produced accurate summary
proj_url	str	Link to project repository or demo	github.com/username/project
proj_team	list	Team members involved	Nakul, Self
proj_role	str	Role in the project	Lead Researcher
proj_type	enum	Type: research, coursework, personal	research

2.1.4 Skills and Knowledge Areas

Skills and knowledge areas represent the user's technical abilities, domain expertise, and specialized knowledge. Also contain soft skills

`skill_category*`	**str**	**General skill category**	**Artificial Intelligence & Machine Learning**
`skill_items*`	**list**	**Specific skills within the category**	**Supervised learning, Deep learning, Transformers**
`skill_type*`	**enum**	**Soft, Hard/Technical**	**Hard**
`skill_lvl`	enum	Internal algo	Some score
`skill_exp`	int	Ceiling yrs	4
`skill_spread`	Dict	Projects/roles demonstrating skill	Spreadsheet 2D Context Model

2.1.5 Professional Certifications

Professional certifications represent formal credentials and qualifications earned by the user.

`cert_name*`	**str**	**Full certification name**	**AWS Certified AI Practitioner**
`cert_issuer*`	**str**	**Issuing organization**	**Amazon Web Services**
`cert_date*`	**date**	**MM/YY issued**	**03/24**
`cert_id`	str	Certification ID or reference number	AIF-C01-12345
`cert_expiry`	date	MM/YY expires (if applicable)	03/27
`cert_url`	str	Verification link	verify.aws.amazon.com/12345
`cert_skills`	2.1.4 Skills	Skills type object validated by certification	AWS, AI, Machine Learning
`cert_lvl`	str	Level of certification (if applicable)	Associate

2.1.6 Related Coursework

Related coursework encompasses academic courses relevant to the user's professional field and expertise.

`course_name*`	**str**	**Course title**	**Natural Language Processing**
`course_org*`	**str**	**Institution offering the course**	**Drexel University**
`course_category*`	**str**	**The general category it falls under we use to classify skills etc.**	**NLP**
`course_code`	str	Course code or identifier	CS-584
`course_date`	date	MM/YY completed	12/23
`course_grade`	str	Grade received	A
`course_desc`	str	Brief description of course content	Advanced techniques in natural language understanding and generation
`course_skills`	2.1.4 Skills	Skills/knowledge acquired	Transformers, Tokenization, Embeddings
`course_projects`	2.1.3 Key Projects	Projects completed during course	Abstractive Summarizer with BART

2.1.7 Publications

Publications represent scholarly articles, research papers, or other formal written works authored by the user.

pub_title*	str	Publication title	Adversarial Abstractive Summarization with BART
pub_date*	date	MM/YY published	06/24
pub_authors*	list	List of authors	Mirza, F., Williams, J.
pub_venue	str	Journal/conference/publisher	International Conference on NLP
pub_doi	str	Digital Object Identifier	10.1109/ICNLP.2024.12345
pub_url	str	Link to publication	icnlp.org/proceedings/2024/12345
pub_citations	int	Number of citations	7
pub_abstract	str	Brief abstract of publication	Novel approach to abstractive summarization using adversarial learning
pub_keywords	list	Publication keywords	NLP, Summarization, GAN, BART
pub_type	enum	Type: Journal, Conference, Workshop, Preprint	Conference
pub_status	enum	Status: Published, In Press, Under Review, In Preparation	Published

2.2 Functionality

2.2.1 Information Corroboration

The main challenge as mentioned before is that the same piece of information distinguishable to a human can be represented differently across the various data sources. For example a certain education entry can have its GPA missing from the Resume but listed on Linkedin therefore it is important that one comprehensive and correct description of the same information point is created from the multiple **2.1 Info Points**.

2.3 Data Sources

2.3.1 Resumé

The resume self-explanatory however the somewhat mass occuring template can be broken down as to what each section looks like in it

2.3.1.1 Education

Typically, resumes highlight the most recent or highest levels of education achieved (e.g., a graduate student might list their Master's and Bachelor's degrees). In contrast, platforms like LinkedIn often provide space for a more complete educational history.

2.3.2 Cover Letter

2.3.3 Linkedin Profile

2.3.4 Github

3 Job Finder

The Job Finder component is the core job discovery engine of the job-applicator system, responsible for identifying relevant job opportunities across various platforms and filtering them according to user preferences.

4 Job Applicator

The Job Applicator component is responsible for evaluating job opportunities and automating the application process, functioning as the execution arm of the system that interacts with job application interfaces.

5 Failed Approaches

Throughout the development of the job-applicator system, several approaches were explored, implemented, and ultimately abandoned or significantly refactored. An analysis of the repository dynamics and commit history provides clear insights into these evolutionary paths and architectural pivots.

6 Linear Progress

The job-applicator project has evolved through several clearly defined development phases, as evidenced by the repository's commit history, issue tracking, and branch management. This section outlines the chronological progression of the project from concept to current implementation, informed by actual development activities tracked in the GitHub repository.

7 Rough

7.1 Inkling of Requirement

7.1.1 General Storage Pool / Categories

This can be anytype of architecture, the idea is something like encountering skills and constantly updating overall system keywords there needs to be a general pool of where the application has access to all this learned data.

Now we are seeing categories like 'AI and ML' emerge for clubbing skills together as per 2.1.4 but also clubbing 2.1.6 coursework and 2.1.5 also same can be used

7.2 Haywire Functionalities

7.2.1 Auto-Linkedin Skill bolster (2.1.4)

From the listed skills check what projects/tools verify it 100% to maintain our cohesive profile but also we can bolster it by perhaps having an advance bot that gets this **Linkedin verified**? Or some other way to passively bolster them on profile

7.2.2 Advanced Analytics on Required 'Skills' scorer (2.1.4)

Related to search more than profile right now, keep comprehensive info of the most popular skills we are hitting on the job profiles we search. On the flip side start aggregating a general set of skills we are encountering the most and an advanced analysis of what we sorely lack. This might be also that we might have that skill to show but just not on our profile and this will streamline that.

7.2.3 Skill Proficiency Algorithm

We can design based on heurstic on how much user has used here and there and what the level of complexity it is we are seeing of usage, plus maybe some fun quiz a smart agent auto generates to calculate proficiency for skill_lvl

8 Appendices

8.1 Professional Documents

8.1.1 Resumes