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LITERATURE SUIVEY

TITLE : SKILL AND JOB RECOMMENDER APPLICATION

DOMAIN NAME : CLOUD APPLICATION DEVELOPMENT

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ABSTRACT :

Students who are graduated from Informatics Engineering have wide employment opportunities in the information technology work field, such as database administrator, data scientist, UI designer, IT project manager, network engineer, system analyst, software engineer and UX designer. Each job in Information Technology field has different skill requirement for the interest of work field. Therefore, IT skill classification is needed to find out the suitable career recommendation for Informatics Engineering students. Data from IT professionals which are obtained from LinkedIn account of IT professionals will be processed as reference for students. Data are processed using K-Means Clustering algorithm to find out how IT professional data are used as a reference. Then, Collaborative Filtering method by the K-NN algorithm is used to determine classifications based on the proximity between student skills and information technology job field. The output is the recommendation of information technology job field which are generated from calculation of IT student skills. Result has been tested by testing one of user that has been labelled software engineer produce a recommendation output as a software engineer.

INTRODUCTION :

Having lots of skills but wondering which job will best suit you? Don't need to worry! We have come up with a skill recommender solution through which a fresher or a skilled person can log in and find jobs by using the search option or they can directly interact with the chat-bot and get their dream job. To develop an end-to-end web application capable of displaying the current job openings based on the user skill set. The user and their information are stored in the database. An alert is sent when there is an opening based on the user skill-set. Users will interact with the chat-bot and can get recommendations based on their skills. We can use a job search API to get the current job openings in the market which will fetch the data directly from the web-page.

LITERATURE SURVEY :

They described a CV recommender system with a focus on two properties. The first property is the ability to classify candidates into roles based on automatic processing of their CV documents. The second property is the ability to recommend skills to a candidate that are not listed in their CV, but the candidate is likely to have them. Both features are based on skills extraction from a textual CV document. A spectral skill clustering is precomputed for the purpose of candidate classification, while skill recommendation is based on various similarity-based strategies. Experimental results include both automatic experiments and an empirical study, both of which demonstrate the effectiveness of the presented methods [1].

The development of new technologies at an unprecedented rate is rapidly changing the landscape of the labour market. Therefore, for workers who want to build a successful career, acquiring the new skills required by new jobs through lifelong learning is crucial. They proposed a novel and interpretable monotonic nonlinear state-space model to analyse online users' professional profiles and provide actionable feedback and recommendations to users on how they can achieve their career goals. Specifically, they used a series of binary-valued and non-decreasing latent states to represent the expanding skill set of each user throughout their career and proposed an efficient inference method under our model. Using a series of experiments on two large real-world datasets, they showed that their model (sometimes significantly) outperforms existing methods on the tasks of company, job title, and skill prediction. More importantly, their model is interpretable and can be

used for other important tasks, including skill gap identification and career path planning. Using a series of case studies, they showed that their model can provide i) actionable feedback to users and guide them through their upskilling and reskilling processes and ii) recommendations of feasible paths for users to achieve their career goals.[2]

Nowadays, as organizations operate in very fast-paced and competitive environments, workforce has to be agile and adaptable to regularly learning new job skills. However, it is nontrivial for talents to know which skills to develop at each working stage. They developed a cost-effective recommendation system based on a deep reinforcement learning, which can provide personalized and interpretable job skill recommendation for each talent. Specifically, they first designed an environment to estimate the utilities of skill learning by mining the massive job advertisement data, which includes a skill-matching-based salary estimator and a frequent itemset-based learning difficulty estimator. Based on the environment, they designed a Skill Recommendation Deep Q-Network (SRDQN) with multi-task structure to estimate the long-term skill learning utilities. In particular, SRDQN recommends job skills in a personalized and cost-effective manner; that is, the talents will only learn the recommended necessary skills for achieving their career goals. Finally, extensive experiments on a real-world dataset clearly validate the effectiveness and interpretability of our approach.[3]

[1] Kurdija, A. S., Afric, P., Sikic, L., Plejic, B., Silic, M., Delac, G., ... & Srblic, S. (2020, September). Candidate Classification and Skill Recommendation in a CV Recommender System. In *International Conference on AI and Mobile Services* (pp. 30-44). Springer, Cham.

[2] Ghosh, A., Woolf, B., Zilberstein, S., & Lan, A. (2020, December). Skill-based Career Path Modelling and Recommendation. In *2020 IEEE International Conference on Big Data (Big Data)* (pp. 1156-1165). IEEE.

[3] Sun, Y., Zhuang, F., Zhu, H., He, Q., & Xiong, H. (2021, April). Cost-effective and interpretable job skill recommendation with deep reinforcement learning. In *Proceedings of the Web Conference 2021* (pp. 3827-3838).