1. Employment Recommendation System using Matching, Collaborative Filtering and Content Based Recommendation

Author(s): Roshan G. Belsare, Dr. V. M. Deshmukh

Year: 2018

Case:

The tremendous growth of both information and usage has led to a so-called information overload problem in which users are finding it increasingly difficult to locate the right information at the right time Thus huge amount of information and easy access to it make recommender systems unavoidable. We use recommender system every day without realizing it and without knowing what exactly happens. Recommender systems have changed the way people find products, information, and even other people. They study patterns of behavior to know what someone will prefer from among a collection of things he/she has never experienced. Benefits of recommender systems to the businesses using them include: The ability to offer unique personalized service for the customer, Increase trust and customer loyalty, Increase sales, click-through rates, conversions, etc., Opportunities for promotion

2. Job Recommendation System Using Machine Learning And Natural Language Processing

Author(s): Jeevankrishna

Year: 2020

Case:

The rise of digital communication and the spread of the internet has made an enormous impact in every industry. One such domain is the Hiring process, where a job seeker applies to a job by creating a profile on a job portal by providing all his/her work preferences. These work preferences of each user can be collected from each user and provide job recommendations based on their preference. There had been work done in this field, where researchers have implemented Recsys using the Hybrid filtering method as user data had previous interaction with item (Rafter et al., 2000).In this dissertation, we have approached the problem with the three-tier approach design. Data acquired for our study has no previous interaction between the user data and Job listing data. With such a dataset, we have addressed the issue of cold start from both User and Job perspective. Also, recommend the top-n job to the user by analyzing and measuring similarity between the user preference and explicit features of job listing using Content-based filtering, which is devised in support of natural language processing and cosine similarity. The Recommender System is then evaluated using precision, recall, and F1 score(Barrón-Cedeno et al., 2009). The top-n recommendation made to the user is presented in the third tier of the design, a web app deployed in the local server. The presentation layer web-app is developed using Plotly's dash web framework.

3. A survey of job recommender systems

Author(s): Shaha T. Al-Otaibi, Mourad Ykhlef

Year: 2012

Case:

The Internet-based recruiting platforms become a primary recruitment channel in most companies. While such platforms decrease the recruitment time and advertisement cost, they suffer from an inappropriateness of traditional information retrieval techniques like the Boolean search methods. Consequently, a vast amount of candidates missed the opportunity of recruiting. The recommender system technology aims to help users in finding items that match their personnel interests; it has successful usage in e-commerce applications to deal with problems related to information overload efficiently. In order to improve the e-recruiting functionality, many recommender system approaches have been proposed. This article will present a survey of e-recruiting process and existing recommendation approaches for building personalized recommender systems for candidates/job matching.

4. Prediction of recommendations for employment utilizing machine learning procedures and geo-area based recommender framework

Author(s): BinnyParida, PrashantaKumarPatra, SthitapragyanMohanty

Year: 2022

Case:

With increment in the utilization of Internet, the pace of increment of social networks is getting ubiquitous in recent years. This paper focuses on the job portal websites. The research objective of this paper is that the recommender framework takes the abilities from the website and makes suggestion to the candidates with the jobs whose descriptions are coordinating with their profiles the most. This paper additionally presents a short presentation on recommender framework and talks about different categories of this framework. From the start, information is cleaned by expelling the filthy information as extra space and duplicates. Then the job recommendations are made to the target applicants on the basis of their preferences. It utilizes different Machine Learning procedures which results show that Random Forest Classifier (RFC) gives the most noteworthy expectation accuracy when contrasted with different procedures. Finally, the optimization technique is utilized to get the most exact outcome. The advantage of recommender framework in career orientation is expressed. Geo-area based recommendation framework is utilized to find the organization's position which can assist the ideal applicants with reaching their destination. This examination shows that the utilization of job recommender system can assist with improving the recommendation of appropriate employment for work searchers.

5. Job Recommendation from Semantic Similarity of LinkedIn Users' Skills

Author(s): Giacomo Domeniconi, Gianluca Moro, Andrea Pagliarani, Karin Pasini and Roberto Pasolini

Year: 2016

Case:

Until recently job seeking has been a tricky, tedious and time consuming process, because people looking for a new position had to collect information from many different sources. Job recommendation systems have been proposed in order to automate and simplify this task, also increasing its effectiveness. However, current approaches rely on scarce manually collected data that often do not completely reveal people skills. Our work aims to find out relationships between jobs and people skills making use of data from LinkedIn users' public profiles. Semantic associations arise by applying Latent Semantic Analysis (LSA). We use the mined semantics to obtain a hierarchical clustering of job positions and to build a job recommendation system. The outcome proves the effectiveness of our method in recommending job positions. Anyway, we argue that our approach is definitely general, because the extracted semantics could be worthy not only for job recommendation systems but also for recruiting systems. Furthermore, we point out that both the hierarchical clustering and the recommendation system do not require parameters to be tuned.

6. Job Recommender Systems: A Review

Author(s): Cor né de Ruijt, Sandjai Bhulai

Year: 2021

Case:

This paper provides a review of the job recommender system (JRS) literature published in the past decade (2011-2021). Compared to previous literature reviews, we put more emphasis on contributions that incorporate the temporal and reciprocal nature of job recommendations. Previous studies on JRS suggest that taking such views into account in the design of the JRS can lead to improved model performance. Also, it may lead to a more uniform distribution of candidates over a set of similar jobs. We also consider the literature from the perspective of algorithm fairness. Here we find that this is rarely discussed in the literature, and if it is discussed, many authors wrongly assume that removing the discriminatory feature would be sufficient. With respect to the type of models used in JRS, authors frequently label their method as ‘hybrid’. Unfortunately, they thereby obscure what these methods entail. Using existing recommender taxonomies, we split this large class of hybrids into subcategories that are easier to analyse. We further find that data availability, and in particular the availability of click data, has a large impact on the choice of method and validation. Last, although the generalizability of JRS across different datasets is infrequently considered, results suggest that error scores may vary across these datasets.

7. Research Paper Recommendation System

Author(s): Subodh Gholve

Year: 2020

Case:

Whilst there are ample of studies being conducted to end this global pandemic; this project offers an opportunity to help Covid-19 researchers for their extremely helpful contributions towards making things “normal”. Covid-Aware, the paper recommendation tool is developed to help the researchers in finding the research papers most relevant to their paper of interest. This does not use user’s evaluation and the recommendations are calculated using the information within the dataset of the chosen paper. The recommender is developed using principles of content-based filtering, one of the most common approaches to recommender systems. To achieve this, I have used Cosine similarity function from Scikit-learn machine learning libraries in Python, Flask as backend and a simple HTML frontend to display the results. The dataset being used is a cleaned version of the CORD-19 Open Research Dataset provided by Semantic Scholar for use by global researchers. This dataset contains Abstract IDs and Paper Abstracts for the research papers. The recommendation tool takes an Abstract ID as input to compare the respective Paper Abstract with the rest of the dataset to find the Top 10 most relevant documents.

8. Generating Unified Candidate Skill Graph for Career Path Recommendation

Author(s): Akshay Gugnani , Vinay Kumar Reddy Kasireddy , Karthikeyan Ponnalagu.

Year: 2018

Case:

”How should I progress in my career?” is an important question that every working professional seeks answer multiple times during her career. Given the amount of career position data of individuals available online, personalized career path recommendation systems that could mine and recommend the most relevant career paths for a user are on the rise. However, such recommendation systems typically are only effective within a single organization where there are standardized job roles. At an industry sector level such as Information Technology or across such different industry sectors (such as retail, insurance, health care), mining and recommending the most relevant career paths for a user is still an unsolved research challenge. Towards addressing this problem, we propose a system that leverages the notion of skills to construct skill graphs that can form the basis for career path recommendations. We perceive skills are more amenable for career path standardizations across the organizations. Our proposed system ingests a users profile (in a pdf, word format or other public and shared data sources) and leverages an Open IE pipeline to extract education and experiences. Subsequently, the extracted entities are mapped as specific skills that are expressed in the form of a novel unified skill graph.

9. Skill-driven recommendations for job transition pathways

Author(s): Nikolas Dawson,Mary-Anne Williams,Marian-Andrei Rizoiu

Year: 2021

Case:

Job security can never be taken for granted, especially in times of rapid, widespread and unexpected social and economic change. These changes can force workers to transition to new jobs. This may be because new technologies emerge or production is moved abroad. Perhaps it is a global crisis, such as COVID-19, which shutters industries and displaces labor *en masse*. Regardless of the impetus, people are faced with the challenge of moving between jobs to find new work. Successful transitions typically occur when workers leverage their existing skills in the new occupation. Here, we propose a novel method to measure the similarity between occupations using their underlying skills. We then build a recommender system for identifying optimal transition pathways between occupations using job advertisements (ads) data and a longitudinal household survey. Our results show that not only can we accurately predict occupational transitions (Accuracy = 76%), but we account for the asymmetric difficulties of moving between jobs (it is easier to move in one direction than the other). We also build an early warning indicator for new technology adoption (showcasing Artificial Intelligence), a major driver of rising job transitions. By using real-time data, our systems can respond to labor demand shifts as they occur (such as those caused by COVID-19). They can be leveraged by policy-makers, educators, and job seekers who are forced to confront the often distressing challenges of finding new jobs.

10. Career Recommendation Systems using Content based Filtering

Author(s): Tanya V.Yadalam, Vaishnavi M.Gowda, Vanditha Shiva Kumar, Disha Girish, Namratha M.

Year: 2020

Case:

Machine learning is a sub-field of data science that concentrates on designing algorithms which can learn from and make predictions on the data. Presently recommendation frameworks are utilized to take care of the issue of the overwhelming amount of information in every domain and enables the clients to concentrate on information that is significant to their area of interest. One domain where such recommender systems can play a significantrole to help college graduates to fulfil their dreams by recommending a job based on their interest and skillset. Simultaneously, existing job recommendation systems only take into consideration the domain in which the user is interested while ignoring their profile and skillset, which can help recommend jobs which are tailor made for the user. This paper examines existing career recommendation system and highlights the drawbacks of these systems, such as cold start, scalability and sparsely. Furthermore, proposed implementations of career recommendation system using machine learning have been researched in order to identify how the recommender systems introduce features of security, reliability and transparency in the process of career recommendation. In addition, possibilities for improvements in these systems have been explored, in order to design a career recommendation system using the content based filtering approach.