Machine Learning
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Job Recommendation System

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Contents

Pitch: https://youtu.be/PihnUDwdvoU

Assignment 3: Plan for Solving a Domain Problem

AIMS, OBJECTIVES and OUTCOMES

Aim

The overall goal of the project is to develop a system that can reduce the risk of college students' employment by analysing and predicting job seekers' job search and providing intelligent supplementary counselling services.

Objectives

There are three goals that can be achieved:

- Through interviews, questionnaires, joint associations and colleges and universities, choose to obtain high-quality graduate resumes and final employment units and job information in recent years.

- Build the most appropriate job recommendation service system with specific parameters.

- Analyse data to list the jobs that are best for graduates.

Expected Outcomes

The system has a lot of benefits, not only has strong analytical suggestion ability, but also can well meet graduate employment consulting services.

Nowadays, the employment competition is becoming more and more fierce. Through the preliminary investigation, we find that the survival of the family is difficult because of the improper positioning of its own strength, and the outstanding graduates are often difficult to choose because of the many offers. Therefore, when the employment consulting smart service system is constructed, graduates can choose the right job according to their own abilities and technology. Not only will it stimulate the enthusiasm of graduates for work, but also reduce the confusion of graduates on their work.

The system has the ability to understand and decision:

- Excellent observation and understanding ability to quantitatively analyze the internal relationship between the resume content of previous graduates (such as proficiency skills, project experience, etc.) and the final position of employment;

- Ability to have insights and discoveries: Ability to perform job classification by real-time analysis of Internet employment demand data, and to predict changes in employment direction;

- Assistance function: It can provide intelligent auxiliary consulting services for the choice of college students. Therefore, the construction of the system can effectively provide advice and help for the choice of college students.

BACKGROUND

Another year of "job hunting season." Graduates are starting to travel to a variety of social and campus job fairs. The survey found that in the process of recruiting candidates for employment, some college students have the phenomenon that they are not allowed to advertise their resumes. Because of the inaccurate positioning, many people may not even have the opportunity to enter the interview. This is a confident graduation. The hit is very big. Finding a job is the biggest test of self-confidence. Regardless of whether you are a good performer or a general scorer, the employer only sees if you are suitable. Those who are not suitable are naturally "contemptuous." When being "contempt", there is often a "resentment" in the heart, and there is also a bit of inferiority "heart": Can I not match him (her)?

In addition, when the self-confidence of graduates has been hit many times, in the process of job hunting in the future, they often have the phenomenon of "fearing and timid". Such a vicious circle, graduates are prone to psychological problems, and the consequences are immeasurable.

For the graduates themselves, they should first recognize the shortcomings of their strengths, find their own job search position, and do not voluntarily vote for their resumes. Otherwise, they will not only be able to add any job-seeking experience to themselves but will also hurt their self-confidence. Secondly, we should try our best to find "allies" and be able to withdraw our "stagnation" as soon as possible when we are depressed and restore our confidence (Tang 2017).

In addition, graduates looking for work because the goals are not clear, career positioning is not clear enough, thus leading many new graduates to find employment planning into the wrong zone, most of the recent graduates will feel confused when they graduate, do not know What is his ideal job, and even the career orientation is not clear enough, which has led to the misunderstanding of many new graduates' job search plans.

According to the survey results of "college students' job-hunting status" in Shanghai, less than 30% of college students think that they have a good understanding or a better understanding of their personality, interests and abilities. It is clear or clear that they are not good or bad in their career development. %; the development plan for the next three to five years is relatively vague, but it accounts for 35%; even 15% said it has never been considered. More than 40% of college students think that the issue of "professional orientation and development direction" needs professional guidance experts to help them solve (Oriental Morning Post 2019).

RESEARCH PROJECT

When graduates face the choice of work, they cannot accurately define their own positioning. There are many problems, including the ability to identify recruitment information (Al-Otaibi, & Ykhlef 2012). University graduates are not strong enough to judge the true and false information of receiving information because of their lack of social experience. There is no clear job search goal and lack of career planning. Many graduates have the attitude of choosing employment after employment, and there is no clear career plan. Some of these people are confused about the future, do not know what work to do; high and far-reaching, the expectation value and ability value are not equal, cannot clearly recognize their position and life stage, too ideal, blindly overestimate their ability value, resulting in Small companies don't want to go, big companies don't want the dilemma. Failure to apply for a job is normal for everyone. At this time, you must be mentally minded and not be discouraged. Because companies will only find the talents that best meet their requirements, and don't generate negative thoughts because they are eliminated. This may not be your personal ability problem, but it is different from the target job responsibilities. Try more, recognize your own deficiencies, and then constantly adjust yourself to find a company that suits you. Then, the job recommendation system is very meaningful, can reduce the anxiety of college students seeking employment, and enhance the confidence of graduates in job hunting.

Significance

The main significance of the project is to improve the employment rate of college graduates and enhance the enthusiasm of graduates.

Increasing the employment rate of college graduates is mainly through improving the graduates' ability to find a counterpart and satisfying work. Graduates can find suitable jobs, and to a certain extent, they also demonstrate the advantages of colleges and universities for student career planning management and achieve satisfactory results for both graduates and colleges.

Gaining your own satisfaction and counterpart work will, to a certain extent, enhance the enthusiasm of graduates for their work. They will be recognized by their colleagues and colleagues when they are working, and they will achieve the goal of achieving no value.

Innovation

The innovation of this project is to choose the right job through the analysis and prediction of the skills and knowledge of the graduates, instead of being overwhelmed by the graduation job.

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This system is mainly based on the Web system, and the collection and processing of information can be updated in real time. This solves the embarrassing situation that many graduates need to travel back and forth in different cities.

Action Plan Outline

Depending on the project's goals and expected outcomes, tasks can be divided into three distinct phases: related research, modelling, and development tools.

Phase One: Relevant Research

The first phase of the project aims to collect information on graduate employment from various institutions.

The first step is to design a form that needs to collect information, and three team members need to complete this part together. Mainly IT staff can collect information through the form of the form, including graduate resume information (including mastery skills, community experience, etc.) and job information. The time is about a week.

In the second step, only two IT team members will participate in this step. They will communicate with the lab leader to understand the content of the form and begin customizing web-based forms for transmission to potential trial sites (such as joint societies and institutions) to collect data. Step 2 will last for about four weeks, including testing.

Step 3, from the fourth week to the eighth week, continue to request and check the data sent from the trial site. These sites are often used to work together. At the beginning of the fourth week, all members of the experimental team will receive a small training to learn how to use the web-based form system to request and check information.

The final step in the research is to purchase the equipment needed. The equipment includes PCs and servers that the IT team needs. At the same time, prepare for the next experiment in two weeks.

Phase Two: Building Model

Typically, the second phase takes approximately seven months to complete the development of the model, including validation and testing.

At the beginning of this phase, the IT team and the experimental team need to work together to identify the training data set for the learning model. On the other hand, the IT team needs the experimental team to provide experimental knowledge, including all aspects of the research object.

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This step is mainly to classify and integrate the collected information to establish a usable model.

According to the collected information, the data is first pre-processed. In the process, Knime is a good platform for data analysis and integration, and the friendly interface can provide users with good feedback. Of course, to get more complex data, you need to use PYTHON to perform analysis tasks.

The model will use one server to load the workflow in KNIME and the other server to host the system.

Phase Three: Tool Development

After the model is completed, the work of developing a web-based user interface will be carried out. The reason for building a web interface is that all college students can access data and get help through authentication.

It takes about a month and a half to develop this web tool, and the rest of the time, the IT team will test it and provide training on how to use it. In order to better solve the problems of the test, the "release" day will be in the 46th week.

Timelines

This project will continue one year (48 weeks) divided into three phases.

- ◆ 2 months for Relevant Research

- ◆ 7 months for Building Model

- ◆ 3 months for Tool Development

The lead researcher of the experiment will arrange the tasks exactly according to the end time of each phase. Due to the testing and observation period of the new system, the date of the system "release" was designed at week 46.

All tasks and their duration are displayed in the Gantt chart (see Appendix A).

Outcome

For the initial project

Before conducting project research, it is difficult for graduates to find a suitable platform to evaluate themselves. Due to problems such as physical and mental state, they cannot position

themselves well and encounter many setbacks in the job search process. Moreover, when starting work, you may also face various workplace incompatibility problems caused by the incompatibility of new jobs. Using this system is a good way to provide job advice for graduates, increase the employment rate of graduates, and strengthen the enthusiasm of graduates.

For the continuous project

Once the institution develops this system, it can increase the employment rate of college graduates and enhance the competitiveness of schools in schools in the long run.

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BUDGET

The following are necessary cost elements of this project:

Category	Unit Cost (AUD)	Days / Amount	Cost in total (AUD)
Venue			
Rent	100	365	36,500
Bills	20	365	7,300
Maintenance	10	365	3,650
Subtotal			47,450
Equipment			
PC Devices	1,500	6	9,000
Servers	4,500	2	9,000
Software and Licenses	1,000	2	2,000
Maintenance	20	365	7,300
Stationery	300	1	300
Subtotal			35,650
Salary			
IT Team Manager* (PM)	100,000	1 year	100,000
IT Team Expert (2)	80,000	2 x 1 year	160,000
IT Team Assistant (2)	250	2 x 70 days	35,000
Survey Team*	0	70 days	0
Survey Researcher*	0	60 days	0
Subtotal			295,000
Allowance (Manager Only)			
Transportation	10	4 x 240	9,600
Subtotal			9,600
Contingency (10%)			37,965
Totals (with Contingency)			417,615

*See personnel section.

PERSONNEL

This project requires several different positions. The salary for all roles is based on \
SEEK.COM.

First, in order to ensure the smooth running of the entire project, the IT team manager will be the project manager* of the project and will participate from start to finish.

Regarding the IT team, the IT team manager will be involved in all matters and play a very important role in communicating with other IT members.

Similarly, two IT team experts will be responsible for building models and developing Web tools and participating in the overall project. IT team assistants need to work in the areas of scheduling model validation, testing and data preprocessing. At the same time, four IT team assistants are required to be part-time.

In this proposal, we also list the unpaid Survey team* in the budget section, which is part of the institution.

REFERENCES

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Appendices

Appendix A

Month				1st				2nd				3rd				4th				5th				6th				7th				8th				9th				10th				11th				12th			
Week				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

Research

1. Identify Form Contents
2. Customise Web-based Form
3. Request and Check Site Information
4. IT Preparation

Building Model

5. Identify Relevant Data
6. Data Pre-processing
7. Building and Refining Model
8. Model Validation
9. Testing
10. Report

Tool Development

11. Developing Web Tool
12. Testing
13. Pilot Run — Go live
14. Report

Legend:
- IT Team
- Survey Team
- Both Teams