Student Career Guidance using Spring Boot

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Abstract: *The process of choosing a career requires not only familiarity but a certain amount of vision about what one finds meaningful. Decision-making at its core is the process we use to reach important choices after completing higher studies. The main idea of our project is to guide the students who are completing their schooling and getting into their college education. It is vital to take time and consider exactly what one wants. Choosing the right institution to start our career includes parameters like Perspective, Internship opportunities, Safety, Academic support, Campus life, Placement records, Location, cost, and so on. After a survey on determining career satisfaction and identifying factors that are most significant in choosing colleges, we have planned to guide the students by developing an application using Spring BootJSP, MySQL, and JVM, where everyone would get answers to their questions. This application includes college details (placement details, number of seats available during counselling) separated by the respective district. The additional advantage is that we have also provided an option to generate feedback about each college by the alumni, which will be more helpful. This application suits all branches of students (Medical students, Engineering, and Arts students). Users can sort the college by their respective district and provide the required Branch. After giving the necessary details, one can get the information regarding the desired college.*

Keywords: Career Information Structure

I. INTRODUCTION

Career selection is the challenging task for the students when leaving secondary schools as their choice of career affects or determines their future plans. At this point, it is difficult for secondary school students to have adequate course information.They have many options to choose, students with the right approach would choose what they want but most of them are not choosing their choice with that perspective. In several studies it was found that many secondary students choose careers without getting detailed information about their choice of career [2, 3, 4].

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There are many parameters involved in the choice of career like family, passion, salary, skills and abilities, interest and so on. From [1], most people try to talk their children to enrol for some courses of their dreams in higher institutions, neglecting their child's abilities, interest or aspirations. Another parameter that plays an important role in choosing the course is their role models in their life. These role models can be parents, teachers, or any person wholooks to be a good example. Many students rely on expert advice from guidance and teachers in their schools in order to make a choice on their career paths or they might choose any course without the knowledge of the course and college. Students may realize their misstep only after the commencement of course and they are push to a situation that they do not have any other options, they are forcefully made to learn that course without interest or idea on that course and for some students that make their career to stop there, and they may discontinue their studies and choose some other work to do. In [6] it is said that a wrong decision in their career can spoil one's peace and joy in life. According to [5], a comfortable job leads to career comfort and decisiveness which can predict organizational commitment. Their study defined that career knowledge and satisfaction is applicable in a contemporary work environment. From [7], the main idea of Student Career Guidance is to give students the control over their career choice. [10] give us the idea like , instead of focusing on hundreds of courses , focus on the major courses that keep touches on all the courses to a particular extent, so that student can get the knowledge of all courses. After all these learnings one can able get some idea on choosing their career. From [12] I got an idea that people who choose their career with their own interest, they make them to think different and make majority of people to plan for a start-up business and make opportunities for many to get job. But still [13] shows that because of various reasons student are quitting their under graduate education , the most prioritised reason for this breakthrough is the way that others make decisions on our studies that make o ur career as a disaster. To overcome this challenge a website for career information is developed, which will give a clear idea on choosing a college by providing an overview of all colleges, courses, job opportunities and so on. This career information structure will provide complete guidance helping students make decisions on their own. Though there is technology support like the internet, used for searching for colleges and courses, still students face the problem in finding correct and appropriate information. This paper explains the career information structure developed, which provides students with a clearview of what is happening around them, and guides them to choose their career.

The career information structure is a network of information that gives the data which is sufficient for a student to choose the course and it also includes suggestions from the alumni by adding review about the college they study and about the course, training and placement offers that are provided in their colleges which will definitely help the student to view their future with positive way of approach i.e. before joining the course they may have some idea of what they are going to learn and what job they are going to do after their completion of the course.

This system will help the students to enter their Undergraduate or Postgraduate course with a perfect view of what they are going to do for the next two to three years.

II. LITERATURE REVIEW

According to [8], students must start to move towards the STEM Education system which would help them developing knowledge from their secondary school. From [1] we found that most of the individuals are influenced by others that makes one's choice to get hide inside himself/herself. Also, from [2,3,4], most students are not educated to choose their career in their secondary school, so they leave their school with any idea on their future. From [9], we found that not only external people change the focus of students over their career, even students who be in their own circle also changes the thoughts of a person. According to [11], we are also giving industrial idea to the students by giving the placement details and reviews about the college they studied and details about the industry they get placed etc. We have also made a survey among the school students who are completing their school by this year, almost 75% of the students who took part are in same situation with no ideas about their career or higher studies. Most schools are missing to educate them in that area. To be a remedy for such a kind of situation to the students we have planned to come up with the website that give clear cut ideas to the students about their studies and profession.

III. CAREER INFORMATION STRUCTURE

Career Information Structure is built using Java Server Pages which would provide us with the most implementation techniques over the User Interface where the user feels more comfortable to use the system and make the User Interface as user friendly. Backend implementation is completely taken care by the Spring Boot which would help us with the CRUD operation i.e., create, read, update and delete functions which are implemented as many micro-services and that are categorized as colleges, courses and jobs. This system is a web-based system which is a full stack design that involves the front-end development, backend development and dealing with databases etc. This involves the complete involvement of spring boot in the backend part that involved the CRUD operation by the creation of Application Programming Interfaces which would help to do multiple functions that we need. In order to maintain privacy of user data, authentication is done using spring - security provided by Spring Boot, which would restrict the fraud users and make the system safe from false contents. The working of spring-security is like when a user logs in a unique id will be generated which is stored as a

token and that is carried over the system until the user logs out, so users without that token will not be able to access the content of the page without logging in. The password is stored in an encoded fashion so that even the owner of the database cannot access the credentials of the user, which would make our system more safe, secure and reliable. JSP with HTML and CSS is used for designing the User Interface, so that the system provides the static data that we need to provide. JSTL is used to manage dynamic data from the Database. Java Server Standard Tag Library is used for enabling iteration functions over the UI and also the if-else statements to restrict the specific users to certain pages etc.

Fig. 1

In addition to the User Interface level we use Bootstrap CSS and tailwind CSS which would help us with providing dynamic and platform independent software. In this system the user interface is categorized into three major groups because most of the courses we choose for career will come under Engineering, Arts and Medical Colleges. Courses will also be different for these groups and the jobs offered post education will depend on the course they choose. This structure is developed and tested focusing on these three categories of college, including the total count of colleges available in the State Tamil Nadu in India and lists them with the detailed information of the college and its district. Courses will also have the same classifications. Along with the information of courses in college, various opportunities based on courses are listed in areas like research, placements. This career information structure will provide all the available opportunities helping in making a choice of career respectively.
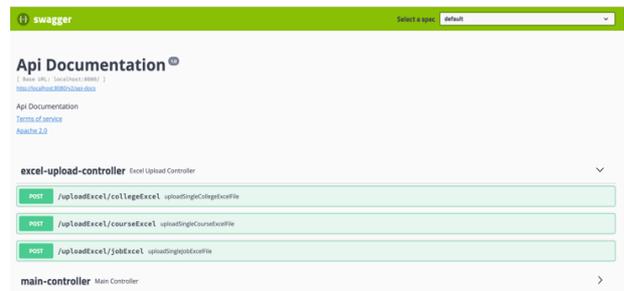

Fig. 2

A. Review System

The most important service that is provided in this system is the review system, information are provided by the students who were passed out in the previous years and a provision for the students who are currently pursuing is provided for posting their review about the college facilities, job opportunities, courses offered and which course would be the most selected one over the years and also the drawbacks and problems that they face in that college, that will help the student to know about the college in prior and choose their option accordingly.

This structure is also facilitating filter options to make their search efficient and easy, by including a sorting system based on district, colleges can be searched and on the review part. In order to maintain authentication, the added reviews will be strictly validated, and after the safety check only the review will be displayed to the user interface.

B. Administration part

Another service that is provided is administration of the entire system for the upload of college details and other details. This process involves adding the information in the excel sheet in specific format and just uploading it in a bulk manner, so that it will be added in the MySQL database. Avoiding duplicate values in the database is taken care of instead it will override the content which is already present. For this excel upload process, swagger is used which is more reliable for use to hit the APIs easier.
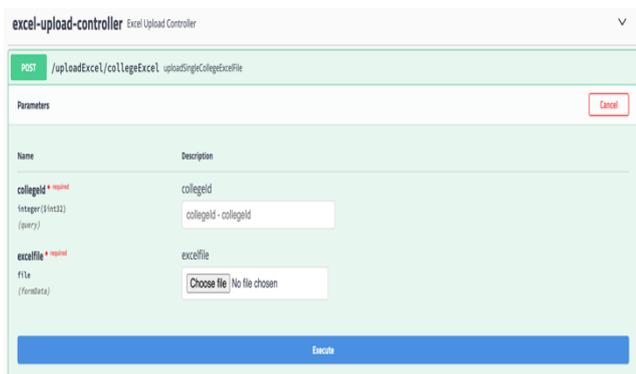

Fig. 3

C. Database Management and Testing

MySQL database is used, on choice to use relational databases for the system and for connecting to the database Spring boot data is used. JPA which would help to deal with the database table through a method called ORM, Object Relational Mapping so that we can easily perform the database actions. Core java implementations such as polymorphism, abstraction, encapsulation and interface are used. Spring Annotations help in reducing more codes. Spring Hibernate is also an important feature of spring that is used to connect to a database and perform actions through it. Test standards in this system are implemented through UI and API testing, to identify if any module(service) fails. Automation scripts are used for testing. Over UI Selenium is used for testing and on API automation Rest Assured Concepts is used to hit the API and assert the response as with the actual expected response and test the system.
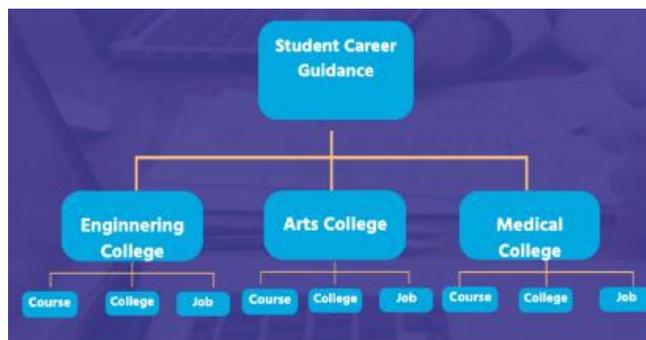

Fig. 4

IV. CONCLUSION AND FUTURE SCOPE

Thus, the Career Information system will help in improving the standard of education of students and may also help in reducing the unemployment, as student choose their course of study by their own, they will get more time to think of their future to move on with the career that they choose and can help in establishing more entrepreneurs as well.

This system provides students with the awareness of the social contents and get connected with the alumni and enlarge their network and raise their career. This system also provides user data privacy. The best colleges which are not revealed to the environment but they perform really well will be shown out through the alumni of the institution. This system will be more useful on the student side and over the colleges side.

For the future enhancement of the system, coverage of colleges and job opportunities all over India will be considered. The review validation part needs to be automated with the implementation of a Content Validation System. Implementation of a chat system on the website so that the students can connect socially and share their thoughts among themselves. Including the left-out courses over the other classifications. Improve the User Interface more user friendly and can launch an application on the Android side so that the user can maintain and update them over that, also updates can be done feature by feature.

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