Implementing a Web-based Career Counseling and Guidance System for High School Students

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Abstract: - In most nations, secondary school requires pupils to choose a topic or stream. For students, choosing a subject or stream is important since it will determine how far their career will go. Most of the time, a professional choice of subject or stream cannot be reversed. A poor choice of courses brought on by parental pressure, a lack of knowledge, etc. might hinder achievement in the chosen field. Advice on choosing a subject or stream based on data from successful researchers in that field and data from students about their interests, families, prior education, and other factors might increase career success.
A web-based application is developed for high school students in mind to address this issue. Through a series of questions, this application will gather data about students from several angles, revealing their interests, aptitudes, and perspectives. This application would forecast a few career alternatives based on the outcomes of these assessments for the field of Engineering, Technology, Art and Business. Furthermore, based on the results of the aptitude tests, our application will also inform the student's parents about their mentality.

Keywords: Educational Guidance, Career Guidance, Career Counseling, Digital Transformation, Higher Education.

I. INTRODUCTION

Students today sometimes struggle to select a college that suits their interests, credentials, and talents. The difficulty of selecting a career that fits their experiences are one that graduates often face. In addition to their skills, education, and drive, graduates are influenced by a variety of variables while deciding on their future path. Students often begin looking for a job path that matches their skills and qualifications after graduating. Researchers have used a variety of scientific techniques and methodologies to create guidance systems for job seeking and to provide additional answers. Many aspects have an influence on student and graduate career assistance, and certain challenges have inspired researchers.

Overall, the research on the topic of "Career and Educational Guidance Information System" suggests that these systems can be effective in helping students make informed decisions about their future careers. However, the effectiveness of these systems depends on a number of factors, including the quality of the information provided and the ability of students to access and use the information. Further research is needed to understand the role of CEGIS in career development and to identify strategies for improving the effectiveness of these systems.

II. RESEARCH PROBLEM

The proposed system answers the follow research questions:

- Could a web-based system be developed that will suggest career guidance to college students.
- Does this system will show the market value of the recommended field as well as its potential if the student chooses that field.

III. CURRENT SYSTEMS

There are many applications used for career counselling or guidance. The primary goal of these applications is to either guide students in choosing a career or to provide information on current trends. Here are some applications that are currently available.

1. **CareerGuidance.pk [1]** is first of its kind free career counseling system of Pakistan for the students and youth to facilitate in determining their career path and relevant education based on their personality

2. **Mindler [2]** The most advanced website in India for online career assessment, career guidance and career counselling in India, designed for school students and graduates. Mindler's 5-dimensional career assessment and revolutionary approach to career counselling and career guidance assist in discovering ideal career.

3. **Alison [3]** was founded in Galway, Ireland, in 2007 and has grown organically to become a major force in free online education and skills training. One of the largest free learning platforms for education and skill development worldwide is Alison. It is a for-profit social enterprise dedicated to making it possible for anyone, to study anything, anywhere, at any time, for free online, at any subject level.

4. **TheBalanceCareer.com [4]** This website shows job available, the tips to get successful in job and Articles.

5. **Career Assayer [5]** This system will bring tools and data in one place for students. The advantages and disadvantages of various professional paths will be made clear to students.

IV. PROPOSED SYSTEM

The proposed system will be very helpful to student of high school or college in determining their career choice. The project will forecast appropriate careers that students can

follow in the future based on the data and information obtained from the user.

This system will be developed through full stack development. With the help of the Django Python web application framework, SQL Lite as database. Both of these technologies are utilized for backend development, whereas front end development is done using web technologies like HTML, CSS, JavaScript, and bootstrap. The system architecture diagram of proposed system as shown in Figure No. 1. The proposed system can do the tasks as follows.

1. Let student take tests.
2. Predict domain of interest of student.
3. Predict fields relevant to the domain.
4. Recommend a few career choices along with relevant job opportunities.
5. Predict the market value of the recommended careers.
6. Generate a report containing all this information.
7. Generate a Sharable Link.
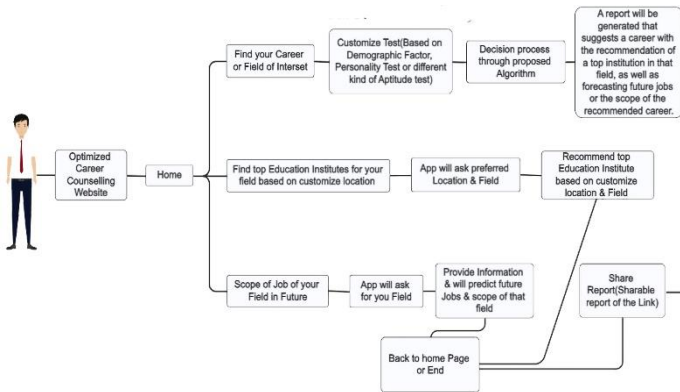
Figure No. 1: System Architecture of Proposed System

V. USE CASE MODEL

As shown in figure No. 2 use case diagram as describe as follows.

- The website visitor will go there and take the tests.
- The database, on which the algorithm will be applied, will save the test results.

- The algorithm will provide an output in the form of a report detailing the desired career by processing the user inputs.

Figure No. 2: UML Use Case Diagram of the proposed
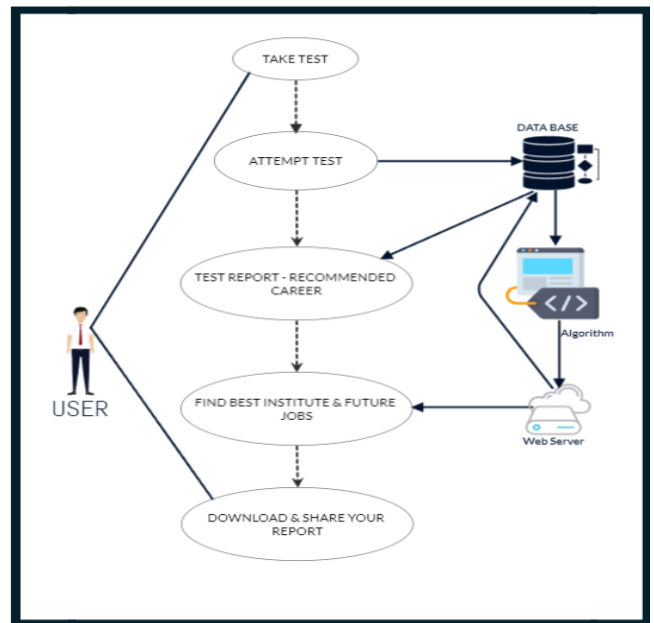
system

VI. COMPARATIVE ANALYSIS

This analysis shows that application has three unique features as compare to other existing application as shown in (Table No.1)

Table No. 1.1: Comparative analysis of other system with proposed system

Features	CareerGuidance.pk [1]	Mindler.com [2]	Alison.com [3]	TheBalanceCareer.com [4]	Career Assayer [5]	Proposed System
Questionnaire/Test	✓	✗	✗	✗	✗	✓
Research Data	✗	✓	✓	✗	✓	✓
Community Page	✗	✗	✗	✓	✓	✓
Institution Recommendation	✗	✗	✗	✗	✗	✓
Job Opportunity	✗	✗	✗	✗	✗	✓
Predict Career	✗	✗	✗	✗	✗	✓

VII. RESULT

Case 1: System will recommend the career guidance to technology Student.

Student 1's test results show that he is interested in technology.

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Figure No. 3: Test results from student 1.

Figure No. 4: Test results from student 2.

According to the program's analysis, the student is mostly interested in Technology, therefore earning a bachelor's degree in computer science is his best course of action. The applications also include salary packages from three recruiters with prior industry experience, as well as a timeline of the prospective field's growth over the last five years.

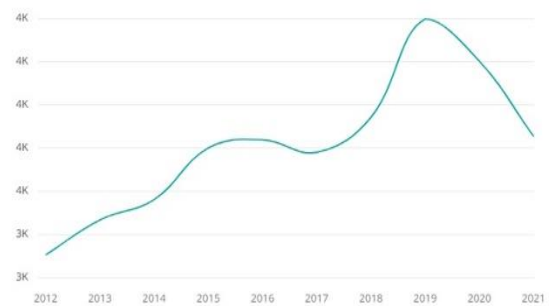**Case 2: System will recommend the career guidance to arts Student.**

Student 2's test results show that he is interested in the arts.

The Programmed generated a report that demonstrates the student's major interest in the arts and his best career fit, which is bachelors in fashion design. The applications include the salary provided by three industry-experienced recruiters as well as a timeline of the proposed field's growth over the previous five years.

Case 3: System will recommend the career guidance to business Student.

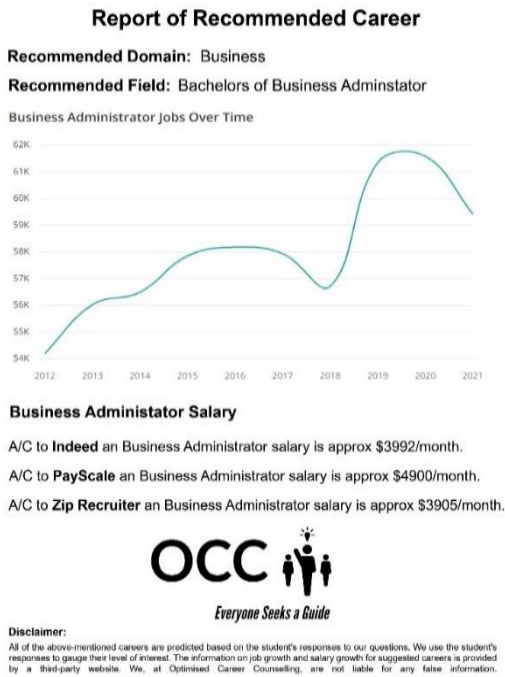Test scores for Student 3 demonstrate his interest in business.

Figure No. 5: Test results from student 3.

The program's analysis reveals that the student's primary area of interest is business, and that his best option is to pursue a bachelor's degree in business administration. In addition to a chronology of the proposed field's development over the last five years, the applications include the compensation offered by three recruiters with previous expertise in the business.

Case 4: System will recommend the career guidance to engineering student.

Several students were requested to test the application by providing various data as an input, and the outcomes of their testing are displayed below. Test results from student 4 indicate that he is interested in engineering.
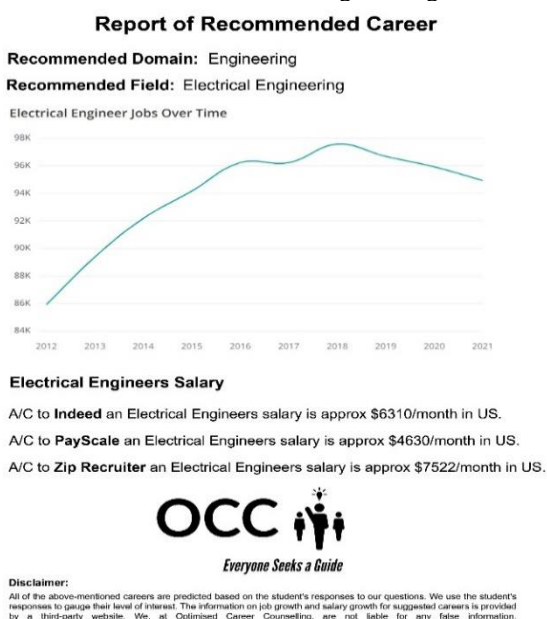

Figure No. 6: Test results from student 4.

The software produced a report outlining the student's primary areas of interest, which are engineering and electrical engineering respectively. Along with the salaries offered by three recruiters with expertise in the sector, the applications also display the suggested field's growth over the last five years.

Case 5: System will show the market value of the recommended technology field.

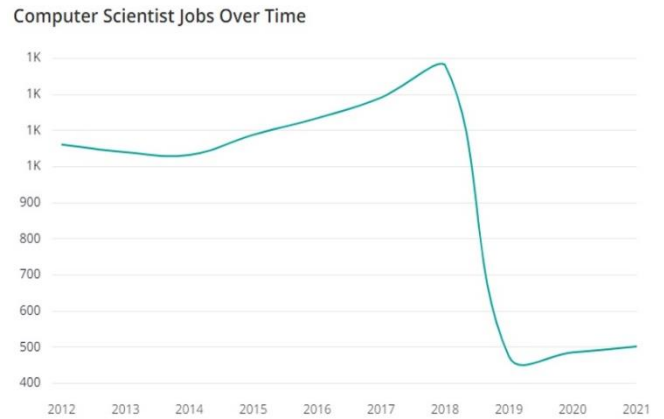The chart below displays a computer scientist's market value.

Figure No. 7: Test results from student 1.

The application shows how valuable a bachelor's degree in computer science is in the workplace. This is the typical computer scientist's monthly income in Pakistan.

Case 6: System will show the market value of the recommended arts field.

The figure below displays the fashion designer's market value.

Figure No. 8: Test results from student 2.
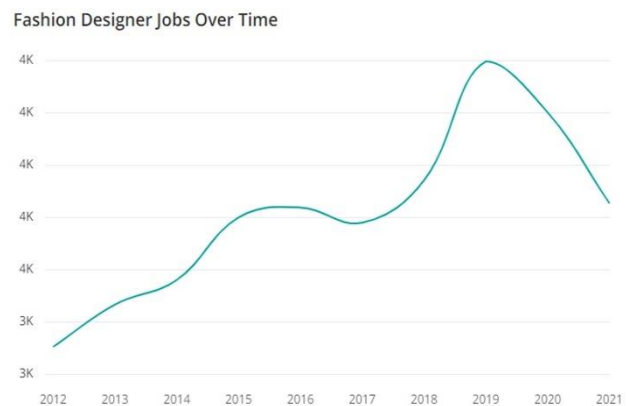
The application illustrates the significance of fashion design in the market. An average clothes designer in Pakistan makes this much money per month.

Case 7: System will show the market value of the recommended business field.

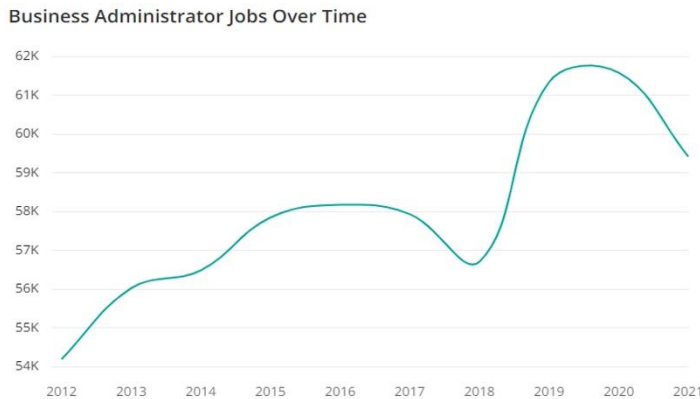The market worth of the company administrator is shown in the figure below.

Figure No. 9: Test results from student 3.

The application serves as an example of the value of a bachelor's degree in business administration in the marketplace. This much money is made each month in Pakistan by the typical business administrator.

Case 8: System will show the market value of the recommended engineering field.

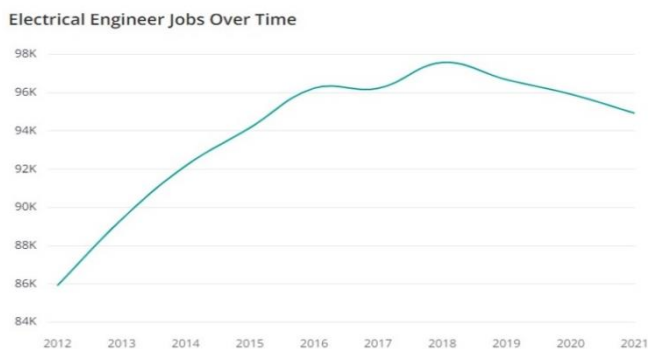The market value of electrical engineering is shown in the figure below.

Figure No. 10: Test results from student 4.

The application shows the market value of electrical engineering. This is the average amount of salary that an electrical engineer in Pakistan earns per month.

VIII. DISCUSSION ON THE RESULTS

The first four scenarios provide the answer to the first research problem, which was to suggest the best career, in the findings. To test the website, four students were brought along. They each completed the tests independently with various inputs, and the system produced a report that was displayed to them. They were then questioned about their satisfaction with the program's outcomes, and their answers were favorable to the online application.

To illustrate the current market worth was the second research challenge, and the second four scenarios offer the solution. Another 4 students were brought to test the website. Each individually completed the tests using different inputs, and the system generated a report that was shown to them. They responded positively regarding the online application when asked if they were happy with the program's results.

IX. CONCULSION

Children in developing countries, such as Pakistan, face several challenges. One of the main problems kids today frequently face is the lack of flexibility to pick the curriculum of their personal preference. No systematic system of career counselling is offered at any level of schooling, including high school, college, and university. Career counselling is typically provided by a mother or a father in their household. Despite having unmatched artistic potential, Pakistani students are unproductive due to a lack of professional practical training. An application that forecasts a few career options for the pupils and also illustrates the market worth of the suggested area is created to address this issue. It is quite possible that with this endeavor, the dire situation of career advice would improve and better graduates will be generated in the near future. It was discovered that career counselling might be crucial in helping a person choose the proper job path. In order to help people chose what they want to do in life, career counselling must be created at all educational levels. Each person may make a significant contribution to society if the appropriate vocation is chosen through competent career guidance.

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[2] Mindler. [online] available at: <https://www.mindler.com/ >
[3] Alison. [online] available at: <https://alison.com/>
[4] The Balance Careers. [online] available at:<https://www.thebalancecareers.com/>
[5] Career Assayer. [online] available at:< https://altcareers.csmls.org/>