



---

## **Career Counseling In the Digital Age: A Research on online Personal counseling**

**S. Vijay Kumar<sup>1</sup>, Shreem Dubey<sup>2</sup>, Vidyasagar Sahu<sup>3</sup>**

<sup>1</sup> B.Tech student, Computer Science, Bhilai Institute of Technology Raipur, Chhattisgarh.

<sup>2</sup> B.Tech student, Computer Science, Bhilai Institute of Technology Raipur, Chhattisgarh.

<sup>3</sup> B.Tech student, Computer Science, Bhilai Institute of Technology Raipur, Chhattisgarh.

---

ABSTRACT –

Online career counseling is a growing trend in the field of career development, offering individuals a convenient and accessible way to receive career guidance and support. The selection of a career path plays a crucial role in a college student's life planning. In the current world, deciding on the appropriate career is one of the most challenging choices to make. Online career counseling is a promising approach to delivering career guidance and support in the digital age. We are developing a ml model using KNN algorithm to recommend the best job profile. In the context of online career counseling, the KNN algorithm can be used to provide personalized career guidance and support to individuals based on their unique characteristics and needs. In this we asking list of question to the user and based on the answer the ml model will give proper career recommendations.

Key Words: Machine Learning, Flask, Django, App Development, Web Development.

---

### **INTRODUCTION**

Career Guidance System using Machine Learning is developed for Engineering Graduates who have completed their final year (Computer Science), who are confused regarding which field/path to choose for their career. As there are already many options available to choose Careers, still taking the correct decision is a challenge. So we have considered all the aspects which are important to choose a Career, aspects considered in our project are marks scored in individual subjects, personality-based questions which judge a student not only based on their Academic scores but also based on personality, which is very important for making any decision on Career.

We have developed a user-friendly website for our users. The user has to give a test on our website. The answers given by the user on Front-End will be stored in the backend. The Backend will be used to store a classifier model for prediction. Already developed code for classifier prediction is appended with the input given by the user.

---

### **LITERATURE REVIEW**

*[1]. Design and development of the online career counselling: a tool for better career decision-making (Nooshin Pordelan, Simin Hosseinian)*

In recent years, students have faced numerous challenges when transitioning from university to the labour market. As a result, there has been a growing need for career counselling services to assist them in making informed decisions about their future career paths. To address this need, a study was conducted in 2019 with three distinct parts.

The first part of the study involved designing an online career counselling website. This website aimed to provide students with access to career guidance and support services in a convenient and accessible manner.

In the second part of the study, the efficiency of the website was evaluated using the opinions of 20 career counselling experts and 20 software engineering specialists. This evaluation helped to ensure that the website was user-friendly, efficient and met the needs of the intended audience.

Finally, in the third part of the study, 45 students were assigned to either the online counselling, face-to-face counselling or control groups to compare their career decision-making abilities before and after receiving counselling services. The results showed that both the online and face-to-face counselling groups exhibited significant and positive improvements in career decision-making when compared to the control group.

These findings suggest that online counselling can be a valuable addition to traditional face-to-face counselling services, particularly in educational institutions that aim to support students as they prepare for their careers. The online counselling website provides a convenient and accessible way for students to access career guidance and support, while the face-to-face counselling services can offer personalized and in-depth guidance tailored to the individual needs of each student.

In conclusion, the study demonstrated the potential of online career counselling as a viable alternative to traditional face-to-face counselling services. The findings provide insights into the effectiveness of online counselling and the need to incorporate such services into existing career guidance and support programs to better assist students in making informed decisions about their future careers.

Kartikey Joshi, Amit Kumar Goel, Tapas Kumar , 2020

### ***[2]. Online Career Counsellor System based on Artificial Intelligence : An Approach***

In today's fast-paced world, many students face the daunting task of choosing the right career path. It is imperative that students identify their capabilities and interests during their academic years, as this will help them make an informed decision about their future career. To address this issue, a system has been developed that will assist students in choosing the best career path based on their abilities and interests.

The system is based on a test that students are required to take, and based on their answers, the system generates a summary of the results. The main objective of this system is to provide an overview of the Artificial Intelligence techniques that were used to predict student performance. The system focuses on the use of predictive algorithms to identify attributes in student data that can help predict the most suitable career path for the student.

The benefits of using this system are numerous. Firstly, it helps students in making informed decisions about their future careers, which in turn can improve their performance and motivation towards achieving their career goals. Additionally, the system can be used by educational institutions and educators to assist students in choosing the right career path, thereby enhancing the overall educational experience.

In conclusion, the development of this system has the potential to revolutionize the way students approach their career choices. By using advanced Artificial Intelligence techniques, the system provides a personalized approach to career counseling, which can help students choose the most suitable career path based on their abilities and interests. The system's benefits extend beyond students and can be utilized by educators and educational institutions to enhance the educational experience and improve student performance.

### ***[3]. "Hello, can you hear me?": Narratives of online mental health counselling among Filipino adults during the pandemic***

Filipinos have been found to be reluctant to seek professional mental health (MH) help, but research suggests that online counselling may be a more viable option. The COVID-19 pandemic may have magnified the anonymity and disinhibiting benefits of technology, making online MH counselling even more attractive. To investigate facilitators of online MH help-seeking, a study was conducted that involved interviewing Filipino adults who had at least one counselling session between March 2020 and March 2022. Out of 83 respondents, 11 were chosen for semi-structured interviews, which were then transcribed and analyzed using Crossley's (2000) method. The study revealed an overarching online MH counselling narrative that consisted of three phases: Precounselling, Counselling, and Postcounselling.

The Precounselling phase included events such as Resiliency Narrative versus MH Awareness, Turning Point, and Linking versus Searching. The Counselling phase consisted of Two-way Introduction, Unloading and Untangling, and Decision to Maintain or Terminate. Finally, the Postcounselling phase included events such as Relapse and Journey towards Growth and Advocacy. Throughout the process, three all-encompassing facilitators were identified: Autonomy, Financial Capability, and MH Institutions. Participants attributed their MH help-seeking to autonomy, despite cultural and stigma-related barriers, because of enabling environments that involved heightened MH literacy, positive past experiences with professional MH help, social support and encouragement, and a sense of shared reality.

The study also revealed that online counselling offered unique benefits, including the ability to overcome geographical boundaries and reduce financial and personal pressures. Overall, the findings suggest that Filipino adults consider online counselling to be a preferable alternative to face-to-face counselling. Therefore, there is a need for further development and institutional support to ensure that online MH counselling becomes a viable option for Filipinos seeking professional help for their mental health.

#### **[4]. Benefits of Online Counselling during Lockdown in India**

Mental health has become an increasingly important topic in today's world as it affects the overall well-being and performance of individuals. With the outbreak of COVID-19, the situation has worsened as people are unable to leave their homes due to the lockdown imposed in many countries. This has resulted in an increase in mental stress, anxiety, and depression among students, parents, and individuals.

The need for professional help, such as counselors and psychologists, has become more apparent than ever before. In such a situation, online counseling has emerged as the best solution as people can easily communicate with professionals from the comfort of their homes. Online counseling offers a range of communication options, including video calls, live chat, Skype, WhatsApp calls, and audio calls, among others. This flexibility means that individuals can use their mobile phones, iPads, or laptops to access the services regardless of their location.

Moreover, online counseling is affordable and convenient for both clients and counselors. Clients can communicate more openly without the fear of judgment, and this helps them to express themselves freely. The comfort of being in one's home also means that clients are more relaxed and can talk more openly about their issues. Additionally, online counseling is helpful for parents who do not have to travel outside with their children, saving them time and money.

Another benefit of online counseling is that it provides access to a wider range of mental health professionals who may not be available in the client's local area. This can be especially helpful for those living in remote areas who may not have access to the necessary resources.

In conclusion, the COVID-19 pandemic has had a significant impact on mental health, and people need professional help to cope with the situation. Online counseling has emerged as the best solution to help individuals overcome their stress, depression, and sadness. It is affordable, convenient, and allows clients to communicate more openly. Furthermore, it provides access to a wider range of mental health professionals and is helpful for parents who have to take care of their children. Online counseling is an effective way to ensure that people can receive the help they need to improve their mental well-being.

#### **[5] online student counselling system**

In today's world, with the increasing population, there is a growing need for digitization and reducing human effort in various areas. Digitization is preferred as it helps to use time more efficiently. The primary benefit of automated systems is reducing human labor, effort, time, and errors caused due to human negligence. With the advancement of technology, people prefer to have everything at their fingertips, including data storage and retrieval. In the past, we used to maintain manual hard copies of records, but now we prefer having everything on our laptop, enabling us to search specific data by touching a few keys.

This project aims to develop an online system for student counseling that can be regularly updated. The main objective of this project is to save time and resources for both counselors and students and overcome the existing drawbacks of maintaining records. The proposed system can be used by the main system admin, counselors, and students to update specific assigned usability data regularly. Trending .net and SQL technologies have been used to develop this project, making it feasible and easy to maintain.

The need for an automated student counseling system is on the rise as it can help streamline the counseling process and reduce the workload of counselors. The proposed system can be accessed by counselors and students anytime and anywhere, making it highly convenient. With the use of this system, counselors can keep track of student progress and update their records accordingly. Students can also benefit from this system as they can easily schedule appointments with their counselors and access their counseling records.

Moreover, the use of .net and SQL technologies makes the system highly reliable and efficient. The system can store a large amount of data, and it can be easily accessed by authorized users. The system's feasibility and maintenance are also essential factors that have been taken into account during the development process, ensuring its longevity and usability.

In conclusion, the proposed online student counseling system offers an efficient and reliable solution to the existing problems of maintaining student counseling records. With the use of advanced technologies and regular updates, the system can streamline the counseling process, saving time and resources for both counselors and students.

---

## **SYSTEM ANALYSIS**

### **A. Existing System**

In the current scenario, the career prediction system work for getting job recommendations. Several platforms such as AMCAT, Co Cubes, etc. they provide job recommendations. There is no such system exist which takes input and gives recommendations of the suitable job profile.

**B. Proposed System**

Our proposed career guidance system is designed for students in the CS/IT field who may be uncertain about their career path. This system aims to assist such students in discovering their hidden key skills through a standardized approach. Our goal is to simplify the process for students, reducing confusion and streamlining career recommendations. By taking inputs through a user-friendly graphical user interface (GUI), our system can process the information provided and suggest job profiles that are most suited to the student's unique skill set and preferences. Ultimately, our system aims to provide valuable guidance and support to students as they navigate their career path in the CS/IT field.

**DIAGRAMS**

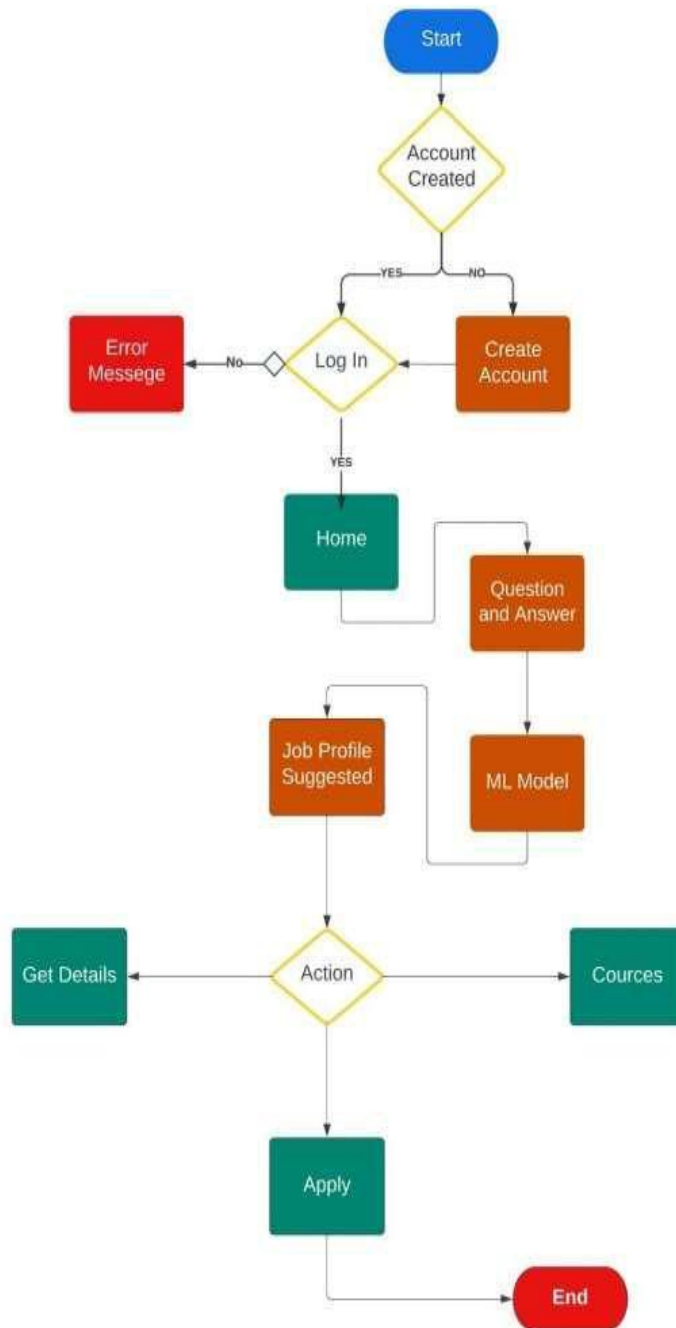


Fig: -System architecture

---

## SYSTEM IMPLEMENTATION

### *A. Data Collection:*

The collection of data is a crucial aspect of any machine learning project as it provides the algorithm with the necessary inputs. In the case of predicting student career paths, various parameters such as academic scores, personality traits, interests, hobbies, hackathons, and workshops play a crucial role in determining a student's progress towards a specific career area. The accuracy and efficiency of the algorithm depend on the quality and correctness of the data collected. Data can be collected through various methods, and in this particular project, 20 thousand records with 21 columns of data were collected.

### *B. Feature Selection:*

To improve the accuracy of the algorithm, it is essential to reduce the number of features in the dataset. In this project, 'Selectkbest' and 'chi2(chisquare)' methods were used for feature selection, which helped reduce the number of features from 38 to 20.

### *C. Label Encoding:*

Data pre-processing is a crucial step before feeding data to the algorithm. In this step, label encoding was performed to convert categorical data into numerical form as the dataset consisted of both categorical and numerical data. The LabelEncoder library of sklearn was used for this purpose, and the transformation was tracked for later use in inverse conversion.

### *D. Training and Testing:*

In the training and testing phase, the model was split into k-folds, and a significant portion of the data was used for training the model. The testing part was then used to calculate the accuracy of the model. The higher the accuracy, the more efficient the model is.

### *E. Algorithm Implementation:*

In this project, the KNN Algorithm was used for implementation. In this project the application asks the user a list of questions based on the answer. The ML model provides a list of job profiles the user can choose.

### *F. Machine learning Algorithm*

K-nearest neighbors (KNN) is a type of supervised machine learning algorithm that can be utilized for both classification and regression predictive tasks. The KNN algorithm operates on the premise that the new data being analyzed is similar to existing data, and subsequently places it into the category that is most closely related to the available categories. The algorithm stores all available data and categorizes new data points based on their similarity to the stored data. This implies that new data can be classified into the appropriate category quickly using the KNN algorithm. KNN is a non-parametric algorithm, meaning it makes no assumptions about underlying data.

### *G. Accuracy:*

This is where the performance of the algorithm, quality of data, and the required output all appear out. We have calculated the Accuracy of the model on the basis of the number of predicted output and the actual output to be predicted.

---

## Result:

The data given by the user is evaluated in backend using KNN Algorithm and it is giving an accuracy of 93%, so we have developed a website and an app that takes input from the user, calculates the output using KNN Algorithm and again displays the results back to the user. Further in the future, more E-Learning blogs related to the Latest technologies going around the market can be added and linked to websites teaching those Technologies to make it the best platform for E-commerce and Career Prediction.

---

## CONCLUSION

The proposed paper introduces a Career Guidance System that incorporates Machine Learning for accurate predictions. This innovative system offers a highly effective and efficient approach for any Computer Science/Information Technology student in their final year or who have recently completed their graduation. It assists them in evaluating their skills and talents and offers guidance on the most appropriate career path to choose from a wide range of options available.

The Career Guidance System has been specifically designed to cater to the individual needs of the user and provides an exceptional user interface experience. The Machine Learning algorithm employed in the system ensures that the predictions made are accurate and reliable. This system provides students with the necessary guidance to help them make an informed decision regarding their future career.

In a nutshell, the proposed system is a game-changer in the field of career guidance. It provides an innovative and effective solution that is tailor-made for each individual user.

---

## FUTURE SCOPE

The Education Field is continuously evolving due to the availability of study materials, videos, and various tutorials on the internet. Our website aims to provide these study materials, tutorials, and guidance to students who are looking to continue their studies. If the user wishes to pursue further studies based on the guidance provided on our site, they can do so by accessing the study materials available on our website.

The Engineering field has undergone revolutionary changes, resulting in the availability of numerous fields of study. Therefore, we plan to expand our scope by providing guidance not only to Computer Science and Information Technology but also to other fields such as Mechanical, Electrical, Civil, etc. Our website will serve as a platform to provide accurate and reliable guidance to students in these fields.

To enhance the user experience, we will implement a Chatbot that will enable easy interaction with human beings. The Chatbot will be available to answer any queries that students may have regarding their career choices or studies. This will ensure that students receive prompt and personalized attention, resulting in a better overall experience.

---

## ACKNOWLEDGEMENT

We take the opportunity to thank our mentor **Omprakash Barapatre** from **Bhilai Institute Of Technology, Raipur** for the most effective and valuable guidance. They have always been up front to motivate and encourage us for bringing out this project successfully and showed great sagacity during the development of project.

---

## REFERENCES

- [1] Yulius Lie, Bens Pardamean, "Information System Model of Succession Planning and Career Path", Information Management and Technology(ICIMTech), International Conference on. IEEE, 2016
- [2] Edlene Nicole M. Dela Cruz Rohann Cris A. Marcelo Bea Ysabelle M. Naling Welison Evenston G. Ty, "Hello, can you hear me?": Narratives of online mental health counselling among Filipino adults during the pandemic.
- [3] Nooshin Pordelan & Simin Hosseinian, "Design and development of the online career counselling": a tool for better career decision-making
- [4] Gopal Bhagat, Pratik Darbhe, "Benefits of Online Counselling during Lockdown in India"
- [5] Kartikey Joshi, Amit Kumar Goel, Tapas Kumar, "Online Career Counsellor System based on Artificial Intelligence": An approach
- [6] Chieko Kato, Yasunori Shiono, Takaaki Goto, "Development of Online Counseling System .