A
Project Report
On
"Career Predictor"

Prepared by

Prakshal Bhandari(20DCS007)
Dhwanil Chauhan(20DCS011)
Mehul Chauhan(20DCS012)

Under the guidance of

Mr. Dipak Ramoliya

Assistant Professor

A Report Submitted to

Charotar University of Science and Technology

for Partial Fulfillment of the Requirements for the

6th Semester Software Group Project-IV (CS357)

Submitted at

Computer Science & Engineering

Devang Patel Institute of Advance Technology and ResearchAt: Changa, Dist: Anand – 388421

April 2023

CERTIFICATE

This is to certify that the report entitled **"Career Predictor"** is a bona fide workcarried out by **Prakshal Bhandari (20DCS007)** under the guidance and supervision of **Prof. Dipak Ramoliya** for the subject (CS357)- **Software Group Project-IV** (Computer Science & Engineering) of 6th Semester of Bachelor of Technology in **DEPSTAR** at Faculty of Technology & Engineering – CHARUSAT, Gujarat.

To the best of my knowledge and belief, this work embodies the work of candidate himself,has duly been completed, and fulfills the requirement of the ordinance relating to the B.Tech. Degree of the University and is up to the standard in respect of content, presentation and language for being referred to the examiner.

Mr. Dipak Ramoliya
Assistant Professor
Computer Science & Engineering
DEPSTAR, Changa, Gujarat.

Dr. Chirag Patel
I/C. Head of Department – Computer Science & Engineering, DEPSTAR
CHARUSAT, Changa, Gujarat.

Dr. Amit Nayak
I/C. Principal,
DEPSTAR
CHARUSAT, Changa, Gujarat.

Devang Patel Institute of Advance Technology And Research

At: Changa, Ta. Petlad, Dist. Anand, PIN: 388 421. Gujarat

CERTIFICATE

This is to certify that the report entitled **"Career Predictor"** is a bona fide workcarried out by **Dhwanil Chauhan (20DCS011)** under the guidance and supervision of **Prof. Dipak Ramoliya** for the subject (CS357)- **Software Group Project-IV** (Computer Science & Engineering) of 6th Semester of Bachelor of Technology in **DEPSTAR** at Faculty of Technology & Engineering – CHARUSAT, Gujarat.

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Mr. Dipak Ramoliya
Assistant Professor
Computer Science & Engineering
DEPSTAR, Changa, Gujarat.

Dr. Chirag Patel
I/C. Head of Department – Computer Science & Engineering, DEPSTAR
CHARUSAT, Changa, Gujarat.

Dr. Amit Nayak
I/C. Principal,
DEPSTAR
CHARUSAT, Changa, Gujarat.

Devang Patel Institute of Advance Technology And Research

At: Changa, Ta. Petlad, Dist. Anand, PIN: 388 421. Gujarat

CERTIFICATE

This is to certify that the report entitled **"Career Predictor"** is a bona fide workcarried out by **Mehul Chauhan(20DCS012)** under the guidance and supervision of **Prof. Dipak Ramoliya** for the subject (CS357)- **Software Group Project-IV** (Computer Science & Engineering) of 6th Semester of Bachelor of Technology in **DEPSTAR** at Faculty of Technology & Engineering – CHARUSAT, Gujarat.

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Mr. Dipak Ramoliya
Assistant Professor
Computer Science & Engineering
DEPSTAR, Changa, Gujarat.

Dr. Chirag Patel
I/C. Head of Department – Computer Science & Engineering, DEPSTAR
CHARUSAT, Changa, Gujarat.

Dr. Amit Nayak
I/C. Principal,
DEPSTAR
CHARUSAT, Changa, Gujarat.

Devang Patel Institute of Advance Technology And Research

At: Changa, Ta. Petlad, Dist. Anand, PIN: 388 421. Gujarat

DECLARATION BY THE CANDIDATE

I hereby declare that the project report entitled “Career Predictor” submitted by me to DevangPatel Institute of Advance Technology And Research, Changa in partial fulfillment of the requirement for the award of the degree of B.Tech in Computer Science & Engineering, from the Department of Computer Science & Engineering, DEPSTAR/FTE, is a record of bona fide CS357- Software Group Project-IV (CSE) carried out by me under the guidance of Assistant Professor Dipak Ramoliya. I furtherdeclare that the work carried out and documented in this project report has not been submitted anywhereelse either in part or in full and it is the original work, for the award of any other degree or diploma in this institute or any other institute or university.

Prakshal Bhandari(20DCS007)
Dhwanil Chauhan(20DCS011)
Mehul Chauhan(20DCS012)

ACKNOWLEDGEMENT

We, the developer of the Project “Career Predictor”, with immense pleasure and commitment would like to present the software group project assignment. The development of thisproject has given us a wide opportunity to think, implement and interact with various aspects of management skills as well as the new emerging technologies.

Every work that one completes successfully stands on the constant encouragement, goodwill, and support of the people around. We hereby avail this opportunity to express our gratitude to several people who extended their valuable time, full support, and cooperation in developing the project.

We express a deep sense of gratitude towards our Principal of DEPSTAR Dr. Amit Nayak and Head of the Computer Science & Engineering Department, Dr. Chirag Patel, and project guide Assistant Professor Dipak Ramoliya for the support during the whole session of study and development. It is because of them, that we were prompted to do hard work, adopting new technologies.

Thanks,

Prakshal Bhandari(20DCS007)
Dhwanil Chauhan(20DCS011)
Mehul Chauhan(20DCS012)

ABSTRACT

Due to the pandemic, the world has shifted to online learning. E-Learning is booming and everyone is trying to get an edge over others. There are an infinite number of courses and skills to learn to make a good use of the lockdown however it might be a little overwhelming for users to choose from such a wide range of materials available on the internet Many universities have launched a lot of courses for students to learn and make a good use of this lockdown period. To make it easier for the students to choose a right course for themselves that will align with their skills, we have come up with CAREER PREDICTOR. It provides a roadmap for the students to pick a course that will be beneficial for them, during academics as well as in the industry. Apart from recommending courses the system also has a portal that provides updates of new technologies and the company. It is very useful for academics as well as overall career development.

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CHAPTER 1: INTRODUCTION

1.1 PROJECT OVERVIEW

Career prediction is a project aimed at helping individuals make informed decisions about their professional journey by analyzing their skills, interests, and personality traits. This project utilizes various technologies and methodologies to collect and process data to predict a suitable career path for the individual.

The project will involve the use of machine learning algorithms to analyze data from various sources, such as career assessments, personality tests, and job market data. The career assessments will provide information about an individual's interests, strengths, and weaknesses, which will be used to match the individual with potential career paths. Personality tests will provide information about an individual's character traits, such as introversion or extroversion, which can be used to identify careers that align with their personality.

The job market data will be used to analyze trends in different industries, such as job growth and salaries, to identify which career paths are in high demand and offer the best opportunities for growth. This data will also be used to identify potential career paths that an individual may not have considered before.

The project will involve creating a user interface where individuals can input their data, including their career aspirations and educational background. The user interface will provide personalized recommendations for potential career paths based on the data collected from the individual.

The project will also involve creating a database of job descriptions, which will be used to provide individuals with detailed information about potential career paths, including the necessary education and skills required, salary ranges, and job responsibilities. This database will be updated regularly to ensure that the information is up-to-date and accurate.

Overall, the career prediction project aims to provide individuals with personalized recommendations for potential career paths based on their skills, interests, and personality traits. This project will utilize cutting-edge technologies and methodologies to analyze data and provide accurate predictions, ultimately helping individuals make informed decisions about their professional journey.

1.2 PROJECT DEFINITION

The career prediction project aims to help individuals make informed decisions about their professional journey by analyzing their skills, interests, and personality traits. This project is designed to address the problem of individuals being unsure of what career path to pursue or feeling stuck in their current profession without a clear path for advancement.

The project involves collecting data from various sources, such as career assessments, personality tests, and job market data, and using machine learning algorithms to analyze the data to predict potential career paths for the individual. The project will provide personalized recommendations for career paths that align with the individual's skills, interests, and personality traits.

The project will also involve creating a user interface where individuals can input their data, including their career aspirations and educational background. The user interface will provide recommendations

for potential career paths based on the data collected from the individual. The recommendations will include detailed information about the necessary education and skills required, salary ranges, and job responsibilities.

The project will require a team of professionals, including data scientists, software developers, and user experience designers, to develop and implement the project. The project team will be responsible for collecting and analyzing data, developing the machine learning algorithms, creating the user interface, and updating the database of job descriptions.

The project's success will be measured by the accuracy of the career predictions and the satisfaction of the individuals who use the platform. The project's ultimate goal is to help individuals make informed decisions about their professional journey, leading to greater job satisfaction, career growth, and success.

1.3 SCOPE

The scope of the career prediction project is vast and has the potential to benefit individuals, educational institutions, and employers. Some of the potential scopes of the project include:

Personalized career guidance: The project aims to provide individuals with personalized recommendations for potential career paths based on their skills, interests, and personality traits. This will help individuals make informed decisions about their professional journey and improve their chances of success.

Educational institutions: Educational institutions can use the project to provide career guidance to their students. The project can help students identify potential career paths and provide them with information about the necessary education and skills required to pursue those careers.

Recruitment and hiring: Employers can use the project to identify potential candidates for job openings. The project can help employers identify individuals who possess the necessary skills and personality traits required for a particular job.

Job market analysis: The project can be used to analyze job market trends, including job growth and salaries, and identify potential career paths that are in high demand.

Skill development: The project can help individuals identify the skills they need to develop to pursue a particular career path. This can help individuals focus on developing the skills that are most important for their chosen profession.

Overall, the scope of the career prediction project is vast, and it has the potential to benefit individuals, educational institutions, and employers by providing personalized career guidance, identifying potential candidates for job openings, and analyzing job market trends.

CHAPTER 2: PROJECT MANAGEMENT

2.1 PROJECT PLANNING

Project planning is a critical step in the successful execution of the career prediction project. The planning phase involves defining the project scope, setting objectives, and creating a roadmap for achieving those objectives.

To begin with, the project team will conduct a thorough analysis of the project requirements and define the scope of the project. This will involve identifying the target audience, the data sources to be used, and the expected outcomes of the project. The team will also identify the risks and constraints that may impact the project's success.

Once the project scope is defined, the team will set objectives for the project. These objectives will be specific, measurable, achievable, relevant, and time-bound. The team will use the objectives to guide their work and measure their progress towards achieving the project's goals.

After setting the objectives, the team will create a roadmap for achieving those objectives. This will involve breaking down the project into smaller tasks and assigning responsibilities to team members. The team will also identify the resources required for each task and estimate the time and cost involved in completing each task.

The project team will use project management tools, such as Gantt charts and task lists, to track their progress and ensure that the project stays on track. The team will also establish a communication plan to ensure that all stakeholders are informed about the project's progress.

The project team will also identify the success criteria for the project. These criteria will be used to measure the project's success and determine if the project objectives have been met. The success criteria may include accuracy of career predictions, user satisfaction, and adoption rate.

Finally, the project team will create a risk management plan to identify and mitigate potential risks that may impact the project's success. The risk management plan will include strategies for addressing risks, such as delays in data collection or unexpected changes in the job market.

Overall, the project planning phase is critical to the success of the career prediction project. It ensures that the project is well-defined, objectives are clearly stated, and a roadmap is established for achieving those objectives. The planning phase also identifies potential risks and provides strategies for mitigating those risks.

CHAPTER 3: STUDY OF SYSTEM REQUIREMENT

3.1 HARDWARE REQUIREMENTS

The hardware requirements for the career prediction project may vary depending on the specific implementation and scale of the project. However, some general hardware requirements for the project are:

Processor: The project may require a powerful processor to handle large amounts of data processing and analysis. A multi-core processor with a clock speed of at least 2.0 GHz or higher is recommended.

Memory: The project may require a significant amount of memory to store and process data. A minimum of 8 GB RAM is recommended, although higher amounts may be necessary for larger datasets.

Storage: The project may require a significant amount of storage space to store datasets and other project-related files. A minimum of 500 GB of hard drive space or a solid-state drive (SSD) is recommended.

Graphics card: The project may involve data visualization and analysis, which may require a dedicated graphics card. A mid-range graphics card with at least 2 GB of VRAM is recommended.

Operating system: The project may require a specific operating system depending on the software and tools used. The latest version of Windows, macOS, or Linux is recommended.

Network connectivity: The project may require network connectivity to access data sources and communicate with other team members or stakeholders. A stable internet connection with sufficient bandwidth is recommended.

Peripherals: The project may require peripherals such as a keyboard, mouse, and monitor. A high-resolution monitor with at least 1080p resolution is recommended for data visualization and analysis.

It's important to note that these are general hardware requirements and may vary depending on the specific implementation and scale of the career prediction project. Additionally, some software and tools used for the project may have their own hardware requirements, so it's important to check those as well.

3.2 SOFTWARE REQUIREMENTS

The software requirements for the career prediction project may vary depending on the specific implementation and scale of the project. However, some general software requirements for the project are:

Programming language: The project may require a programming language to analyze and process the data. Common programming languages used for data analysis include Python, R, and MATLAB.
Machine learning and data analysis libraries: The project may require machine learning and data analysis libraries to process the data and develop predictive models. Common libraries include TensorFlow, Keras, scikit-learn, and pandas.

Database management system: The project may require a database management system to store and manage the data. Common database management systems used for data analysis include MySQL, PostgreSQL, and MongoDB.

Text analytics software: The project may require text analytics software to analyze and extract information from unstructured data, such as job descriptions and resumes. Common text analytics software includes NLTK and spaCy.

Data visualization tools: The project may require data visualization tools to present the data in a visually appealing and understandable manner. Common data visualization tools include Tableau, PowerBI, and matplotlib.

Integrated development environment (IDE): The project may require an IDE to write and execute code. Common IDEs used for data analysis include Jupyter Notebook, Spyder, and Visual Studio Code.

Version control system: The project may require a version control system to track changes to the code and collaborate with other team members. Common version control systems include Git and GitHub.

It's important to note that these are general software requirements and may vary depending on the specific implementation and scale of the career prediction project. Additionally, some software and tools used for the project may have their own hardware requirements, so it's important to check those as well.

CHAPTER 4: SYSTEM DESIGN

4.1 FLOWCHART

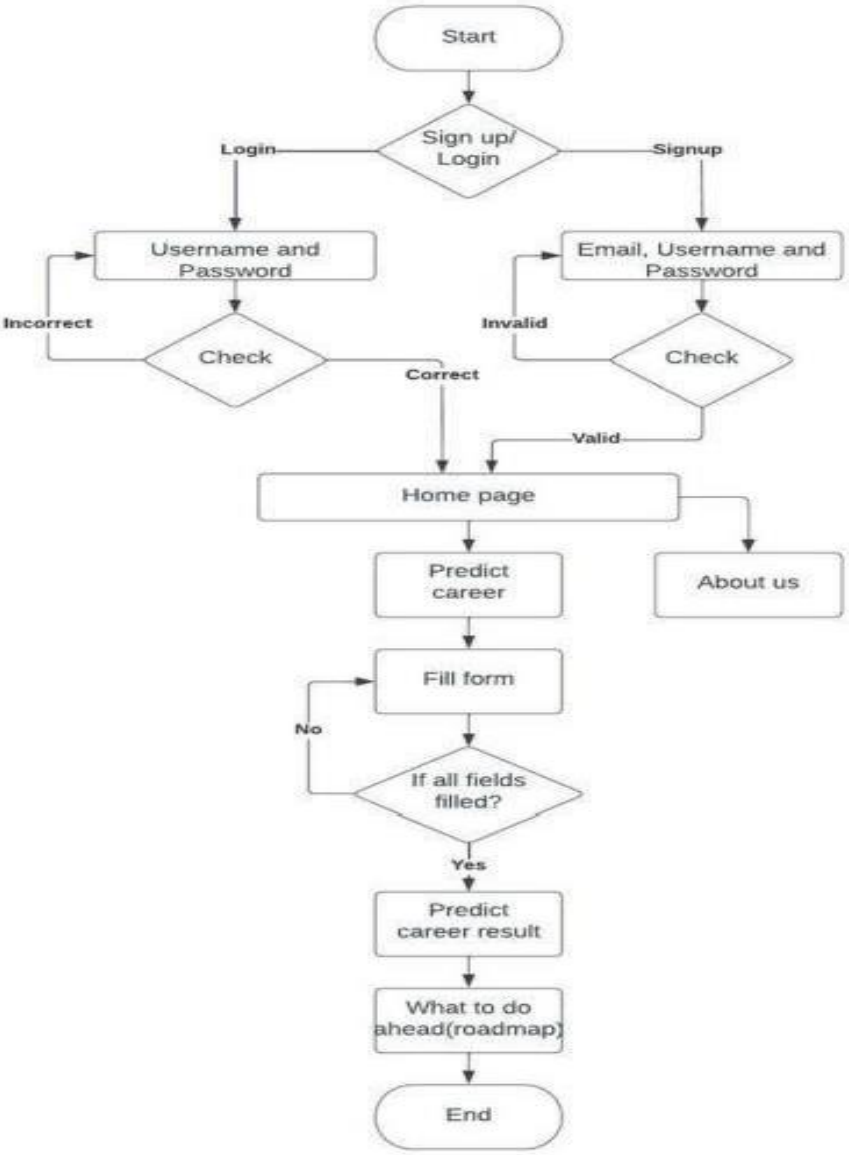

Fig 4.1 Flowchart

4.2 Login Page

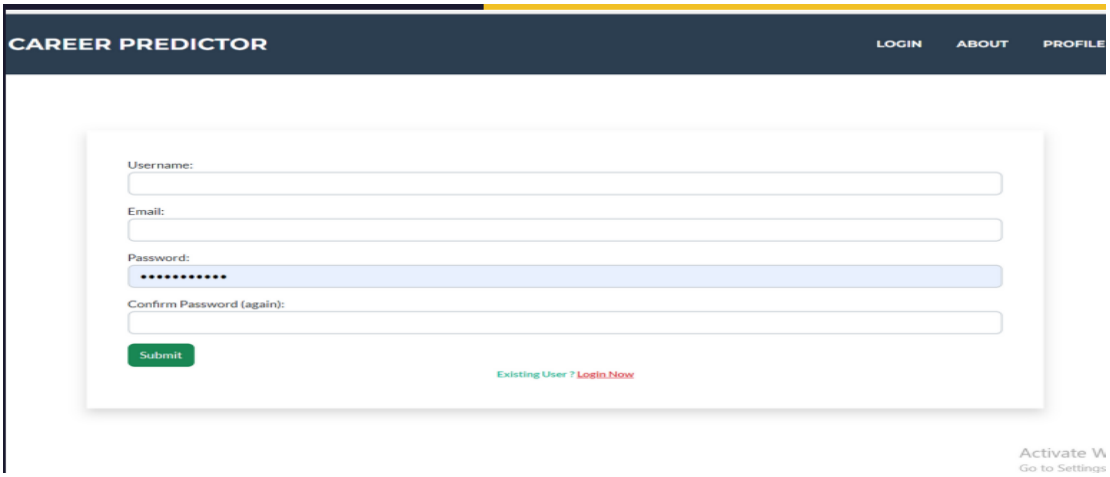

Fig 4.2 Login Page

4.3 Home Page

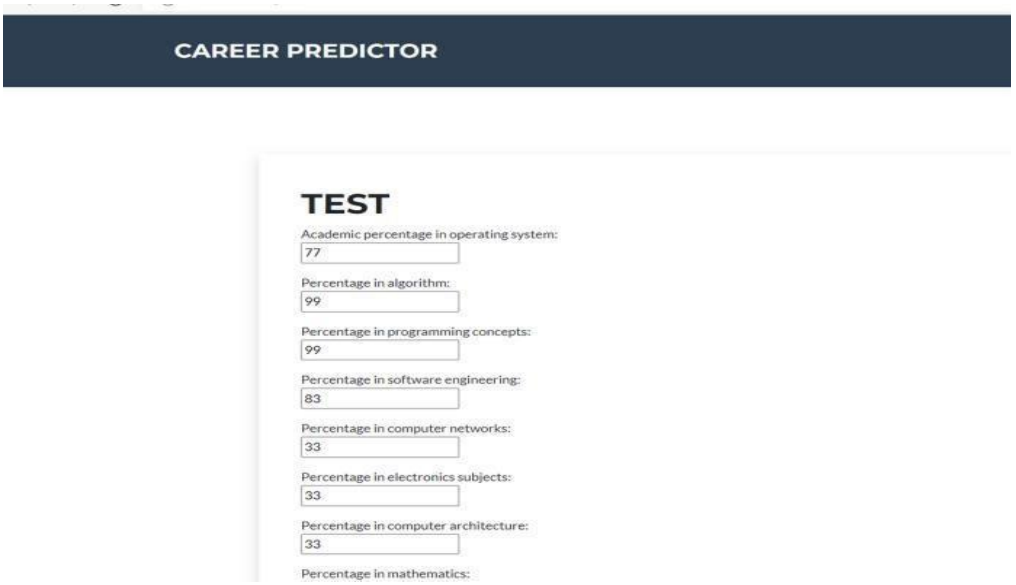

Fig 4.3 Home Page

4.4 Result page

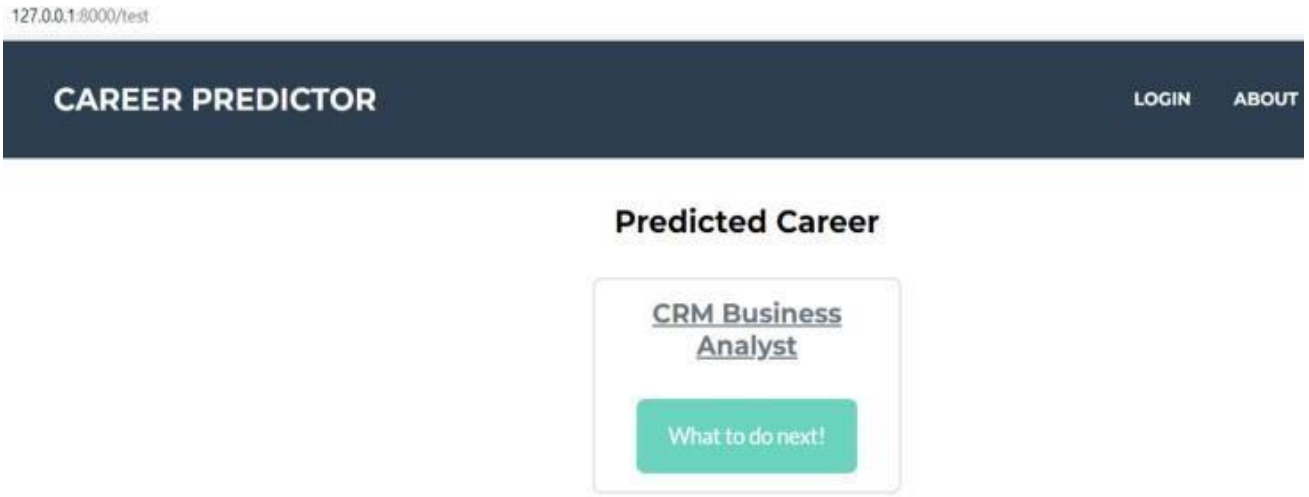

Fig 4.4 Result page

4.5 Road map

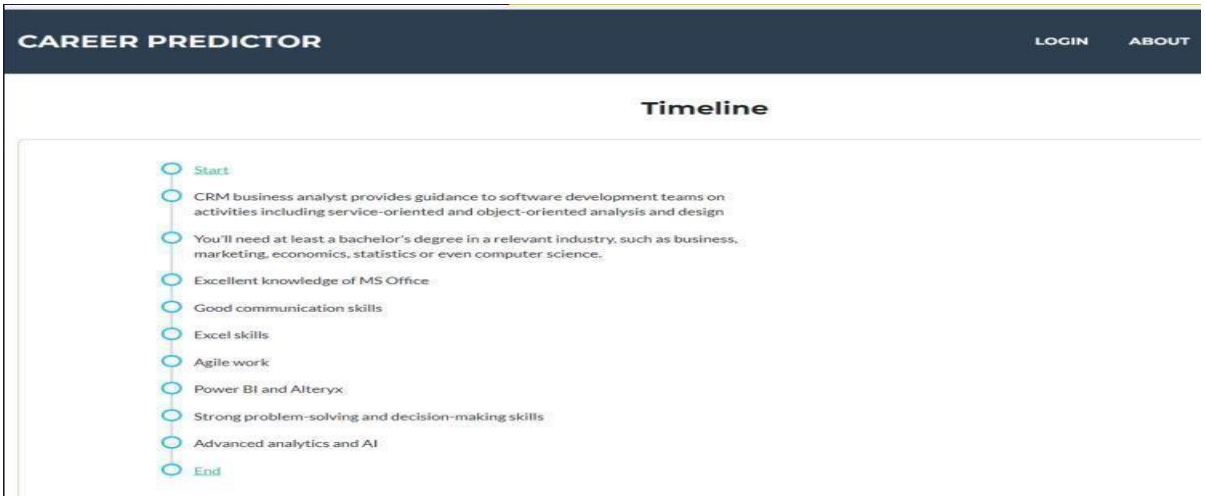

Fig 4.5 Road map

4.6 Profile

Fig 4.6 Road map

CHAPTER 5: SYSTEM IMPLEMENTATION AND TEST

5.1 IMPLEMENTATION ENVIROMENT

The implementation environment for the career prediction project may vary depending on the specific implementation and scale of the project. However, some general implementation environments for the project are:

Operating system: The project may be implemented on any operating system such as Windows, Mac, or Linux.

Development environment: The project may be developed using any integrated development environment (IDE) such as Jupyter Notebook, Spyder, or Visual Studio Code.

Database management system: The project may use any database management system such as MySQL, PostgreSQL, or MongoDB to store and manage the data.

Cloud platform: The project may be deployed on any cloud platform such as Amazon Web Services (AWS), Microsoft Azure, or Google Cloud Platform.

Web framework: If the project has a web-based interface, it may use any web framework such as Django, Flask, or Ruby on Rails.

Machine learning libraries: The project may use any machine learning libraries such as TensorFlow, Keras, or scikit-learn to develop predictive models.

Text analytics libraries: The project may use any text analytics libraries such as NLTK or spaCy to analyze and extract information from unstructured data.

Version control system: The project may use any version control system such as Git or GitHub to track changes to the code and collaborate with other team members.

It's important to note that these are general implementation environments and may vary depending on the specific implementation and scale of the career prediction project. Additionally, the hardware requirements for the implementation environment may also vary depending on the scale of the project.

5.2TESTING METHODS

Testing is an important part of any software development project, including the career prediction project. Here are some testing methods that can be used for the career prediction project:

Unit testing: This method involves testing individual units of code to ensure that they work as expected. For the career prediction project, unit testing can be used to test the functionality of individual modules such as data preprocessing, feature engineering, and model training.

Integration testing: This method involves testing how different modules of the system interact with each other. For the career prediction project, integration testing can be used to test how different modules such as data preprocessing, feature engineering, and model training work together to generate predictions.

Regression testing: This method involves testing the system to ensure that changes made to the code do not introduce new errors or regressions in existing functionality. For the career prediction project, regression testing can be used to ensure that changes made to the predictive models do not degrade their accuracy or performance.

User acceptance testing: This method involves testing the system with real users to ensure that it meets their needs and expectations. For the career prediction project, user acceptance testing can be used to gather feedback from users on the accuracy and usefulness of the predictions.

Performance testing: This method involves testing the system under different loads to ensure that it can handle the expected amount of traffic and data processing. For the career prediction project, performance testing can be used to ensure that the system can generate predictions in a timely manner even with a large amount of data.

Overall, a combination of these testing methods can help ensure the accuracy, reliability, and usability of the career prediction project.

CHAPTER 6: FUTURE ENHANCEMENT

6.1 Future Enhancement

Here are some potential future enhancements for the career prediction project:

Incorporating additional data sources: The career prediction project could be enhanced by incorporating additional data sources such as social media profiles, online job postings, or company websites to improve the accuracy of the predictions.

Developing a mobile app: The project could be enhanced by developing a mobile app that allows users to access their career predictions and recommendations on the go.

Implementing a feedback system: The project could be enhanced by implementing a feedback system that allows users to provide feedback on the accuracy of their predictions and suggest improvements.

Implementing natural language processing (NLP) techniques: The project could be enhanced by implementing NLP techniques to analyze and extract information from unstructured data such as job descriptions or resumes.

Providing personalized career development plans: The project could be enhanced by providing personalized career development plans based on the predicted career path of the user, including recommended courses, certifications, and job opportunities.

Collaborating with employers: The project could be enhanced by collaborating with employers to provide job opportunities that match the predicted career path of the user, increasing the chances of career success.

Adding more predictive models: The project could be enhanced by adding more predictive models to provide users with more comprehensive and accurate predictions.
These are just a few examples of potential future enhancements for the career prediction project. The specific enhancements will depend on the needs and goals of the project stakeholders and users.

CHAPTER 7: CONCLUSION

7.1 Conclusions

In conclusion, the career prediction project is a valuable tool that can help individuals make informed decisions about their future career path. By analyzing various data sources and using predictive models, the project can provide users with accurate and personalized recommendations on their career choices. The project can also help individuals identify skills gaps and recommend training or education programs to help them achieve their career goals.

To ensure the success of the career prediction project, it is important to have a well-planned project management approach, adequate hardware and software resources, and thorough testing methods. Additionally, future enhancements such as incorporating additional data sources, developing a mobile app, and providing personalized career development plans can further improve the project's value and usability.

Overall, the career prediction project has the potential to help individuals make more informed and successful career decisions, leading to increased job satisfaction and overall career success.

REFERENCES

References

- **https://github.com/dnaylah/career-recommender**
- **https://github.com/Shrita10/Career-recomendation-system**
- **https://neoteric.eu/blog/how-to-build-a-recommender-system/**
- **https://towardsdatascience.com/building-a-job-recommender-for-non- technical-business-roles-via-nlp-and-machine-learning-626c4039931e**
- **https://medium.com/mlearning-ai/building-recommendations-system-a- beginner-guide-8593f205bc0a**
- **https://www.coursera.org/lecture/recommender-systems-introduction/recommender-systems-past-present-and-future-GqB2e**
- **https://www.coursera.org/lecture/unsupervised-algorithms-in-machine-learning/recommender-system-introduction-FYoFV**
- **https://www.coursera.org/lecture/ml-foundations/building-a-recommender-system-via-classification-ucffT**
- **https://etasr.com/index.php/ETASR/article/view/3821**