A Project Report on

Astrology Based Career Recommendation with Chatbot using Machine Learning

submitted in partial fulfilment of the requirements for the award of the degree of

BACHELOR OF ENGINEERING

By

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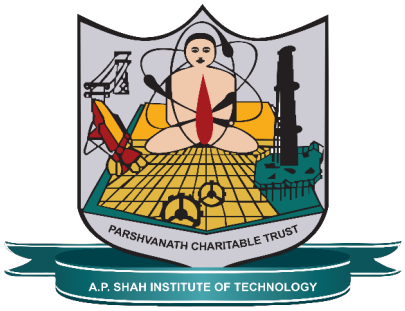

Department of Computer Science & Engineering

(Artificial Intelligence & Machine Learning)

A.P. SHAH INSTITUTE OF TECHNOLOGY, THANE

UNIVERSITY OF MUMBAI

2024-2025

A. P. SHAH INSTITUTE OF TECHNOLOGY

CERTIFICATE

This is to certify that the project entitled "Astrology based career recommendation with chatbot using machine learning" is a bonafide work of **Kapil Surve (21106018), Sridev Nayak (21106059), Nehali Palkar (21106057), Tejal Deshmukh (21106001)** submitted to the University of Mumbai in partial fulfilment of the requirement for the award of the degree of **Bachelor of Engineering** in **Computer Science & Engineering (Artificial Intelligence & Machine Learning**).

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Project Report Approval for B.E.

This project report entitled ***Astrology based career recommendation system with chatbot using machine learning*** by ***Kapil surve, Nehali Palkar, Tejal Deshmukh, Sridev Nayak*** is approved for the degree of ***Bachelor of Engineering*** in ***Computer Science & Engineering (Artificial Intelligence & Machine Learning)***, ***2024-25***.

Examiner Name — Signature

1._____ _____

2._____ _____

Date:

Place:

Declaration

We declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Abstract

This collaborative project proposes the development of a dedicated artificial intelligence (AI) system for Vedic astrology to counter the decline in its respect and practice due to modern misconceptions and misinformation. Rooted in ancient Indian culture, Vedic astrology offers profound insights through the analysis of birth charts (Kundalis), but its relevance has been diminished in contemporary times. By leveraging AI, the system will provide accurate, reliable astrological readings, revitalizing public interest and restoring trust in this ancient discipline. The goal is to integrate traditional Vedic knowledge into modern technological frameworks, enabling individuals to benefit from astrology's wisdom while addressing widespread misunderstandings and promoting its acceptance in today's society.

The project analyzes the current landscape of Vedic astrology consultations, comparing traditional methods with modern digital platforms. Traditional consultations offer personalized engagement but lack scalability, while online platforms provide broad access but suffer from inconsistent accuracy and lack personalization. Existing digital solutions are improving, but there is limited integration of traditional astrological methods. Data analytics and digital tools have the potential to enhance predictions and expand access, but they need to incorporate comprehensive, traditional content for greater reliability. The project is confident in addressing these issues by integrating modern technologies with traditional astrology, aiming for a more accurate and scalable solution.

Keywords: Vedic astrology , Traditional consultations, Digital platforms, Prediction

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ABBREVIATIONS

AI	*Artificial Intelligence*
ML	*Machine Learning*
NLP	*Natural language programming*
ANN	*Artificial Neural Networks*

Chapter 1

Introduction

The evolving landscape of Vedic astrology is marked by a contrast between traditional consultations and the rise of modern digital platforms. While traditional methods offer personalized engagement and deep insights through Kundali (birth chart) analysis, they are limited in reach and scalability. In contrast, digital platforms provide widespread access but often lack the accuracy and personalization found in traditional astrology. Despite improvements in digital tools, there remains a gap in integrating these technologies with the foundational principles of Vedic astrology. This project seeks to explore how modern innovations such as data analytics can enhance astrological predictions, while preserving the authenticity of traditional practices, ultimately aiming for a more reliable and accessible system.

The primary objective of this project is to seamlessly integrate the personalized insights of traditional Vedic astrology with the scalability and accessibility offered by modern digital platforms. By leveraging data analytics, the project aims to enhance the accuracy of astrological predictions while remaining true to the foundational principles of this ancient practice. It also seeks to address widespread misconceptions and misinformation by providing reliable and educational content. Additionally, the project intends to increase the accessibility of Vedic astrology, overcoming the limitations of traditional consultations, and ensuring that this valuable cultural knowledge is preserved and promoted within contemporary society through innovative technological solutions.

This introduction provides an overview of the project's multifaceted approach to revitalizing Vedic astrology. As we progress through the subsequent sections, the report will explore the integration of traditional astrological methods with modern digital platforms, the role of data analytics in enhancing prediction accuracy, and the use of technology to broaden accessibility. Each section contributes to a comprehensive understanding of how ancient wisdom can be preserved and transformed for contemporary use, shedding light on the project's overall architecture and its potential impact on the future of astrology.

In conclusion, this project embodies the spirit of innovation, merging traditional astrological practices with modern technological advancements. By striving to create an integrated system that combines authenticity with precision and accessibility, the team aims not only to develop a

functional platform but also to contribute valuable insights to the evolving understanding of Vedic astrology. The following sections will provide an in-depth exploration of each component, discussing the challenges encountered, the methodologies employed, and the broader significance of this initiative in today's digital age.

Chapter 2

Literature Survey/ Existing system

2.1-HISTORY

Some of the earliest forms of astronomy can be dated to the period of Indus Valley civilisation, or earlier civilisations in Bharat. Some cosmological concepts are present in the Vedas, as are notions of the movement of heavenly bodies and the course of the year. The Rig Veda is one of the oldest pieces of Indian literature. Rig Veda 1-64-11 & 48 describes time as a wheel with 12 parts and 360 spokes (days), with a remainder of 5, making reference to the solar calendar. As in other traditions, there is a close association of astronomy and religion during the early history of the science, astronomical observation being necessitated by spatial and temporal requirements of correct performance of religious ritual. Thus, the Shulba Sutras, texts dedicated to altar construction, discusses advanced mathematics and basic astronomy. Vedanga Jyotisha is another of the earliest known Indian texts on astronomy,

2.2-Literature Review

[1] N. Chaplot, P. Dhyani and O. P. Rishi, "Astrological prediction for profession using classification techniques of artificial intelligence," This paper aims to find universal rules and assess the validity of astrology using various scientific methods. The focus is on predicting a person's profession using the ZeroR, Simple Cart, and Decision Table classification algorithms. The dataset for the classification task consists of 24 records each for singers and players, and 10 records for scientists. The Weka tool, available under the General Public License, is used to perform the analysis and prediction tasks. Advances in artificial intelligence have enabled applications that can analyze and predict from large, unknown, noisy, or complex datasets.

[2] S. Vignesh, C. Shivani Priyanka, H. Shree Manju and K. Mythili, "An Intelligent Career Guidance System using Machine Learning," This paper presents a computerized career counseling system designed to predict the most suitable department for an individual based on their skills, which are assessed through an objective test. By completing the online assessment provided by the system, students are guided toward choosing an appropriate course, helping reduce the likelihood of selecting an unsuitable career path. This approach addresses the confusion that many students face after completing higher secondary education, when they often lack the maturity and understanding needed to make informed decisions about their future career.

[3] Pavel Kiselev, Boris Kiselev, Valeriya Matsuta, Artem Feshchenko, Irina Bogdanovskaya, Alexandra Kosheleva, “Career guidance based on machine learning: social networks in professional identity construction” This paper explores the role of social constructivism in machine learning methods applied to career guidance and expands the understanding of the role social networks play in psychological research. It builds on earlier studies that have demonstrated how personality traits can be predicted by mining social network data. The theoretical framework is empirically validated through AUC-ROC measure calculations in career guidance modeling. Implications for career guidance practice will also be discussed. 6

[4] R. Goyal, N. Chaudhary and M. Singh, "Machine Learning based Intelligent Career Counselling Chatbot (ICCC)," This paper proposes the Intelligent Career Counselling Chatbot (ICCC), designed to guide 10th and 12th standard students in resolving doubts and selecting suitable career paths. It also includes a module for BTech CSE and IT students, assisting with studies and higher education choices. The chatbot asks users true or false questions and predicts career paths based on their responses, displaying results via a GUI. Key components include training, added functionalities, machine learning algorithms for predictions, and a GUI-based server. The ICCC helps students identify interests and choose careers accordingly.

This paper proposes the Intelligent Career Counselling Chatbot (ICCC), designed to guide 10th and 12th standard students in resolving doubts and selecting suitable career paths. It also includes a module for BTech CSE and IT students, assisting with studies and higher education choices. The chatbot asks users true or false questions and predicts career paths based on their responses, displaying results via a GUI. Key components include training, added functionalities, machine learning algorithms for predictions, and a GUI-based server. The ICCC helps students identify interests and choose careers accordingly.

Chapter 3

Limitation of Existing system

1. Limited Availability of Large Datasets

Astrology-based career prediction systems face a significant hurdle in the form of data scarcity. Unlike traditional career recommendation models—which often rely on large-scale, structured datasets that include educational background, skills, psychometric test results, and career outcomes—astrology-driven models must work with highly niche and limited data.

- **Niche Nature of Astrological Data**: Career predictions based on astrology require detailed birth charts and corresponding career outcomes, but such datasets are rarely available in large volumes. Most astrological records are stored in private or manual formats, and even when digital, they often lack standardization.
- **Lack of Labeled Data**: For machine learning or data-driven models, it's critical to have labeled examples—such as a person's birth chart linked with their actual profession. Such labeled datasets are hard to compile at scale, reducing the reliability and predictive power of AI models in this domain.
- **Privacy and Data Collection Issues**: Personal birth details, especially time and location, are sensitive information. Collecting this data at scale requires strict ethical practices and user consent, further complicating dataset creation.

2. Missing Longitude and Latitude Information

Astrological calculations are highly sensitive to the geographical coordinates of a person's birth location. The absence of exact longitude and latitude information introduces a layer of imprecision in generating accurate birth charts.

- **Impact on Planetary and House Positions**: The precise positions of planets and astrological houses at the time of birth are influenced by the Earth's rotation and the observer's location. If longitude and latitude are not specified correctly, the system may calculate planetary placements inaccurately, leading to faulty career predictions.
- **Approximations Based on City-Level Data**: In the absence of exact coordinates, systems often rely on city-level approximations. While this can work in some cases, it introduces a margin of error—especially in large cities with varying longitudes and latitudes across different areas.
- **Reduced Chart Accuracy**: Even a few degrees of positional error in calculating planetary positions or house cusps can result in incorrect interpretation of strengths, weaknesses, and career-influencing planetary combinations.

3. Uncertain Parameters Due to Time Zone Complexity

The birth time of an individual is one of the most crucial inputs in astrology. It determines the rising sign (Ascendant) and the exact placement of houses, which are vital for personalized predictions, especially for career-related advice.

- **Time Zone Conversion Errors**: Different regions follow different time zones, and many also observe Daylight Saving Time (DST). Misinterpreting or neglecting these adjustments during birth time conversion can lead to incorrect chart casting.
- **Historical Time Zone Changes**: Time zones have changed historically in various countries and regions. Without accurate historical time zone data, even a correct birth time may be translated incorrectly into Universal Time (UT), affecting the computed planetary positions.
- **High Sensitivity to Time Precision**: In astrology, even a 4-minute variation in birth time can shift the Ascendant to a different sign, changing the interpretation of the entire chart. This level of sensitivity makes accurate time zone handling absolutely critical.

Conclusion

Due to these challenges—lack of large and structured datasets, missing geographical accuracy, and the complexity of time zone conversions—building a reliable astrology-based career prediction system becomes inherently difficult. These issues introduce uncertainties that can significantly affect the quality and reliability of the predictions, making it essential to approach such systems with both technical rigor and cautious interpretation.

Chapter 4

Problem Statement and Objective

Problem statement

Traditional Vedic astrology, a time-honored system of cosmic wisdom, is facing a critical decline in both practice and public trust in modern society. This decline stems from several interconnected issues—rampant misinformation, widespread myths, and growing skepticism about the legitimacy of astrological practices. These misconceptions have significantly eroded public confidence in astrology, particularly among the younger, tech-savvy generation.

In ancient times, Vedic astrology was deeply integrated into daily life, serving as a guiding framework for personal growth, decision-making, and life planning. People relied on this sacred knowledge to understand their nature, strengths, challenges, and destiny. It helped them align with cosmic rhythms and prepare for future events with clarity and purpose. However, in today's world, the disconnect between this profound ancient system and modern society has widened dramatically.

One major contributing factor is the **lack of integration between Vedic astrology and modern technological tools**. This has limited the accessibility, scalability, and transparency of astrological services. As a result, genuine astrological knowledge remains confined to a few, while the general public often falls victim to **fraudulent practitioners and fake jyotishas**. These individuals exploit people's fears and insecurities for financial gain, further tarnishing the reputation of Vedic astrology

Another core issue is the **absence of standardized methods and formal education in astrology**. The current ecosystem lacks well-defined structures for training, certification, and

quality control. Without standardization, the accuracy and reliability of predictions vary widely between practitioners, leading to confusion and mistrust.

To **restore the credibility** of Vedic astrology and ensure its relevance in the 21st century, it is essential to modernize its practices, introduce automation for consistency, and provide accurate, well-researched insights through trusted digital platforms. By reintroducing the correct foundational principles and aligning them with current technologies, we can build a bridge between tradition and innovation—empowering individuals to make informed decisions while preserving the sacred integrity of this ancient science.

Objective

1. **Modernization**
   Develop a technology-driven platform that brings traditional Vedic astrology into the digital age, making it accessible, scalable, and reliable for modern users.

2. **Automation**
   Implement rule-based logic and condition branching to auto-generate personalized astrological reports. These reports will be rooted in authentic Vedic principles, reducing human error and increasing consistency.

3. **Standardization**
   Design and follow a standardized framework for generating charts, interpreting planetary placements, and deriving career-related predictions based on established astrological guidelines.

4. **Combat**
   Counteract false narratives and scams by providing accurate, education-backed reports and insights, thereby helping users distinguish between genuine and misleading sources.

5. **Educational**
   Offer in-app educational resources and guides to help users understand the basics of astrology, empowering them with knowledge rather than blind belief.

6. **Promote**
   Build trust in Vedic astrology by explaining the reasoning behind predictions and offering users a transparent view of the logic and sources used in the analysis.

7. **User-Centric**
   Ensure the platform is easy to use, engaging, and informative—especially for younger generations who are more likely to engage with intuitive digital experiences.

8. **Preserve**
   Digitally document, preserve, and propagate the core teachings of Vedic astrology, ensuring its survival and relevance for future generations.

Chapter 5

Proposed System

5.1 Artificial Neural Network

An **Artificial Neural Network (ANN)** aligns really well with this four-part Vedic model. Let's map it out:

Manas (Mind) → Input Layer

Manas captures external stimuli — thoughts, sensory input, and immediate reactions. Similarly, the input layer of an ANN takes in raw data, like numbers, text, or images, which serve as the network's perception of the environment.

Chitta (Memory) → Weights and Biases

Chitta acts as memory, storing impressions and experiences. In an ANN, weights and biases play this role by retaining what the network has learned during training. These parameters shape how the network interprets and processes future inputs based on past knowledge.

Buddhi (Intellect) → Hidden Layers

Buddhi is responsible for analysis, logic, and decision-making. The hidden layers of an ANN perform this function by applying complex transformations and non-linear computations on the input data. This is where patterns are recognized, and meaningful insights are derived.

Ahamkara (Ego) → Output Layer

- Ahamkara gives a sense of self and identity, shaping actions based on processed information. Similarly, the output layer of an ANN delivers the final decision or prediction .Whether it's a classification, regression result, or any other form of output.

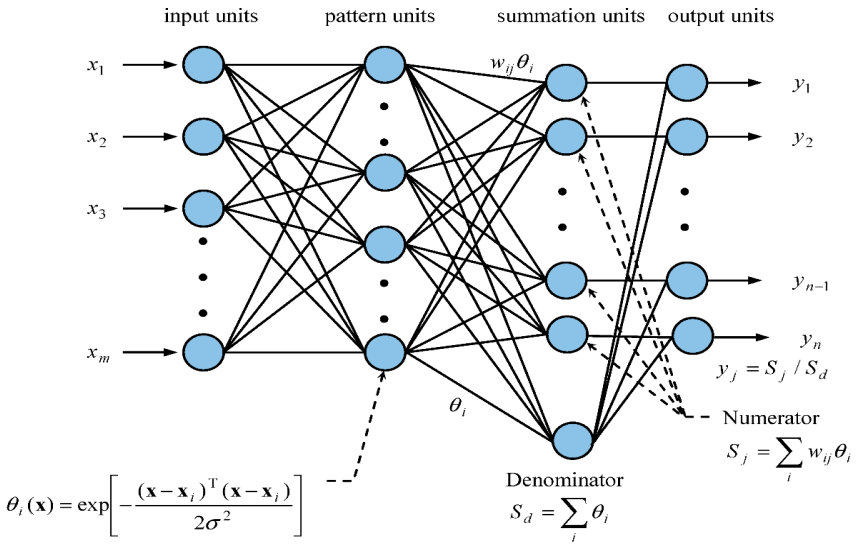

Figure 5.1 Artificial Neural Network

Artificial neural **networks**(ANNs) are created to replicate how the human brain processes data in computer systems. Neurons within interconnected units collaborate to identify patterns, acquire knowledge from data, and generate predictions. Artificial neural networks (ANNs) are commonly employed in activities such as identifying images, processing language, and making decisions.

Like human brains, artificial neural networks are made up of neurons that are connected like brain cells. These neurons process and receive information from nearby neurons before sending it to other neurons.

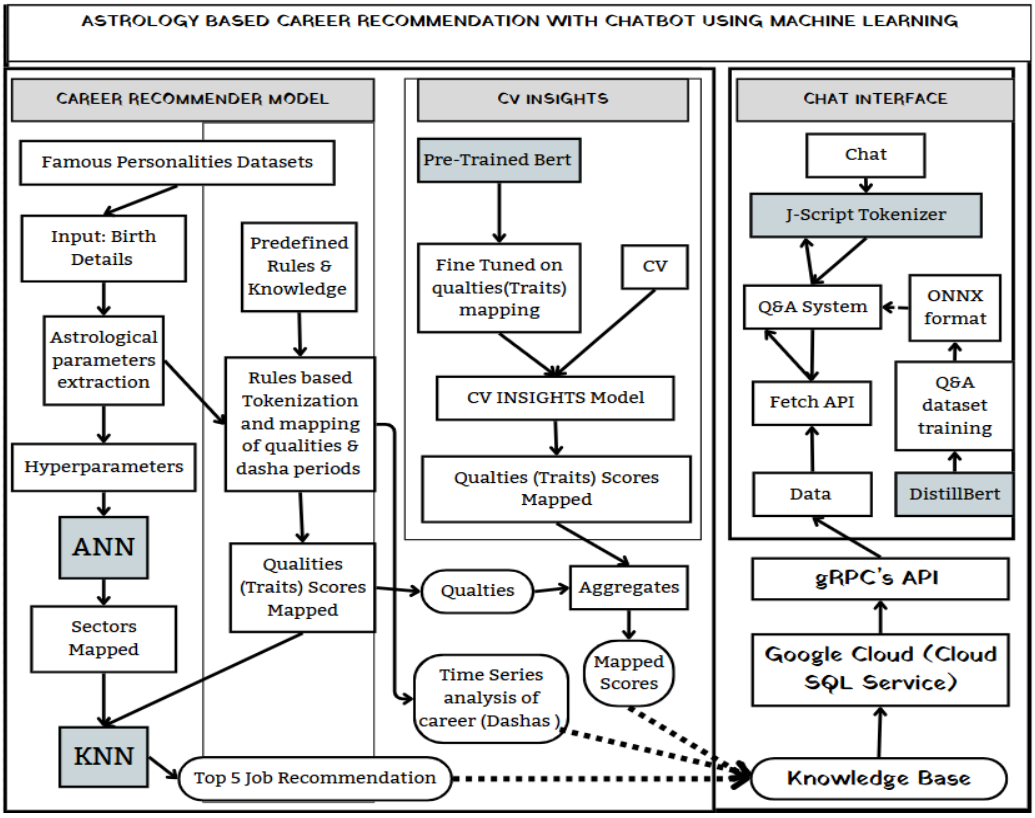

Figure 5.2 Block Diagram

5.2 Description of block diagram

Our model is divided into three main parts, each responsible for a crucial step in the astrologybased career recommendation system. These parts include Career Recommender Model, CV Insights, and Chatbot Interface. Each section uses advanced machine learning, natural language processing (NLP), and cloud-based technologies to ensure accurate predictions and user-friendly interactions. Starting with the data collection step, main datasets will be acquired: the training set and the testing set. The training set contains data of famous personalities who have excelled in their respective fields. This dataset includes ID, name, gender, date of birth, place of birth, time of birth, and occupation. The occupations are classified into 9 major fields: Technology, Science, Teaching, Government, Arts, Service, Business, Agriculture, and Commerce. The testing set contains the data for which predictions will be made. The process works as follows: we extract the astrological parameters based on three inputs, i.e., date of birth, place of birth, and time of birth. These inputs are then converted into 37 astrological parameters, which include: Planet_House, Planet_Rashi, Planet_Degrees, and the Ascendant. These parameters undergo classified data manipulation

and calculation techniques based on Vedic astrology. This results in 10 astrological hyperparameters used for career prediction.

Once all these variables are determined, they are fed into an Artificial Neural Network (ANN) model, which is trained using random weights. This process provides a sector classification based on the mapping of the astrological parameters. After the output is generated, we use Natural Language Processing (NLP) techniques to extract certain qualities of the individual and score them accordingly. These qualities are then mapped, scored, and fed into a K-Nearest Neighbors (KNN) classifier algorithm, which provides the nearest job prediction based on skill requirements. After determining the career sector using astrological parameters and ANN classification, the next step involves analyzing the individual's curriculum vitae (CV) to refine career predictions further. This is done using Natural Language Processing (NLP) techniques and a pre-trained BERT model fine-tuned for career traits mapping. The system processes the CV to extract key qualities (traits) relevant to different occupations. These traits are then scored and mapped, forming a structured dataset that aligns with the astrological predictions. To ensure accuracy, the CV Insights Model aggregates the mapped scores and incorporates a time-series analysis of career (dashas) to understand career progression over time. These insights help in matching an individual's skills and qualities with the most suitable job recommendations. The final mapped scores are then fed into the K-Nearest Neighbors (KNN) classifier, which refines the job prediction by comparing the individual's profile with similar historical data from the training set. The chatbot interface allows users to interact with the system and receive personalized career guidance. It processes user inputs through a JavaScript Tokenizer, enabling smooth text analysis. The Q&A system, trained using ONNX format and DistillBERT, helps in responding to career-related queries. The chatbot fetches data from the Google Cloud SQL knowledge base using gRPC's API, ensuring real-time responses with accurate career insights. By combining astrological analysis, CV-based insights, and an intelligent chatbot, the system provides a comprehensive career recommendation that aligns both personal traits and astrological influences with real-world job opportunities.

5.3 Implementation

In Vedic astrology, career prediction is influenced by the 12 Rashis (Zodiac Signs), 12 Houses (Bhavas), and 9 Planets (Navagrahas). These elements play a significant role in determining an individual's strengths, interests, and career prospects. 12 Rashis (Zodiac Signs) The zodiac signs, also known as Rashis, represent different personality traits and behavioral tendencies. Each Rashi is ruled by a planet and influences various aspects of an individual's professional and personal life. The 12 Rashis are:

Mesha (Aries) – Leadership, courage, and energy

Vrishabha (Taurus) – Stability, patience, and material success

Mithuna (Gemini) – Intelligence, communication, and versatility

Karka (Cancer) – Emotional depth, nurturing, and intuition

Simha (Leo) – Authority, creativity, and confidence

Kanya (Virgo) – Analytical skills, precision, and service-oriented nature

Tula (Libra) – Balance, diplomacy, and artistic sense

Vrishchika (Scorpio) – Intensity, research, and transformation

Dhanu (Sagittarius) – Wisdom, expansion, and philosophical outlook

Makara (Capricorn) – Discipline, ambition, and responsibility

Kumbha (Aquarius) – Innovation, unconventional thinking, and humanitarianism

Meena (Pisces) – Spirituality, creativity, and compassion

Each Rashi influences career choices based on its associated attributes and ruling planets.

12 Houses (Bhavas) in Astrology

The 12 Houses in an astrological chart determine various aspects of an individual's life, including career progression. These houses and their significance are as follows:

First House (Lagna/Ascendant) – Represents self-identity, personality, and physical attributes.

Second House – Governs wealth, speech, and accumulated assets.

Third House – Reflects communication, courage, and relationships with siblings.

Fourth House – Represents home, comfort, and maternal influence.

Fifth House – Governs intelligence, creativity, education, and speculation.

Sixth House – Indicates health, competition, and service-related work.

Seventh House – Represents partnerships, business relationships, and marriage.

Eighth House – Symbolizes transformation, research, and longevity.

Ninth House – Associated with fortune, higher learning, and spirituality.

Tenth House (Karma Bhava) – The house of career, profession, and social status.

Eleventh House – Governs income, gains, and networking opportunities.

Twelfth House – Represents expenditures, foreign connections, and spiritual liberation.

Among these, the Tenth House (House of Career) plays a crucial role in career selection, influenced by planetary positions and aspects.

9 Planets (Navagrahas)

In Vedic astrology, the 9 Planets (Navagrahas) are considered powerful celestial bodies that impact different areas of life, especially profession and success. Each planet has a unique influence on career paths:

Surya (Sun) – Authority, government jobs, leadership roles.

Chandra (Moon) – Creativity, arts, psychology, and hospitality.

Mangala (Mars) – Engineering, defense, surgery, and physical activities.

Budha (Mercury) – Communication, business, writing, and analysis.

Guru (Jupiter) – Teaching, philosophy, law, and finance.

Shukra (Venus) – Fashion, entertainment, luxury, and artistic fields.

Shani (Saturn) – Hard work, administration, engineering, and labor-intensive jobs.

Rahu (North Node of the Moon) – Technology, politics, research, and unconventional careers.

Ketu (South Node of the Moon) – Spirituality, astrology, and mysticism.

By analyzing the placement of planets in different houses and signs, Vedic astrology helps in career prediction by identifying the most suitable fields for an individual.

Our model is divided into three main parts, each responsible for a crucial step in the astrologybased career recommendation system. These parts include Career Recommender Model, CV Insights, and Chatbot Interface. Each section uses advanced machine learning, natural language processing (NLP), and cloud-based technologies to ensure accurate predictions and user-friendly interactions.

A) **Career Recommender Model** This module focuses on analyzing astrological data and mapping it to career fields using machine learning techniques. It includes the following steps: **a) Predefined dataset** Firstly, the predefined dataset used in this model comprises two main parts: planetary condition data and a job qualities score index.

House	Aries	Taurus	Gemini	Cancer	Leo
1th House	Assertive, pioneering self-expression, fearless in personal initiatives.	Determined self-expression, practical in personal initiatives, stable in approach.	Energetic self-expression, versatile in personal initiatives, communicative in approach.	Emotional self-expression, nurturing in personal initiatives, protective in approach.	Confident self-expression, authoritative in personal initiatives, charismatic in approach.
2th House	Driven by financial independence, dynamic in acquiring resources, courageous in material pursuits.	Persistent in financial matters, practical in resource management, stable in material pursuits.	Dynamic in financial pursuits, versatile income sources, communicative about material resources.	Driven by emotional security, nurturing in financial pursuits, protective of material resources.	Generous in financial pursuits, proud of possessions, strong in managing material resources.

Figure 5.3 Predefined Dataset

Planetary Condition Dataset:

This dataset contains the attributes of each of the nine planets (Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn, Rahu, Ketu) based on their placement in different houses (1-12) and Rashi (zodiac signs, 1-12). These attributes are crucial in defining a person's tendencies, strengths, and qualities related to their career path.

Structure of Planetary Condition Dataset:

Each of the 9 planets has its own datasheet, and each datasheet includes the following:

• Planet Name (Sun, Moon, etc.)

• House Placement (1-12):The position of the planet in any of the 12 houses.

• Rashi/Zodiac Placement (1-12): The zodiac sign the planet is placed in (e.g., Aries = 1, Taurus = 2, etc.).

Planetary Qualities:

Each planet affects different qualities based on its position in a house and Rashi. For example:

- Sun in the 10th house in Leo (Rashi 5) strengthens leadership and authoritative qualities.
- Moon in the 4th house in Cancer (Rashi 4) enhances creativity, caring, and emotional intelligence

Weight/Score for Each Quality:

Every planetary condition is assigned a predefined score for 18 key qualities (e.g., leadership, creativity, communication). These scores are manually verified based on astrological texts and the team's domain expertise.

For each house and Rashi combination, a corresponding set of predefined scores for the 18 qualities is recorded. This mapping allows the model to assign relevant qualities to an individual based on their birth chart.

Table 5.1 Example Entry from the Sun Datasheet:

Planet	House	Rashi	Leadership	Creativity	Communication	…..	Imagination
Sun	10	5	9	7	6	…..	5

Structure of the Job Qualities Score Index:

- Job Sector: Each job sector (e.g., Technology, Medical, Arts) is mapped to the 18 qualities. These predefined values represent the importance of each quality for that sector.

Weight/Score for Each Quality: For each sector, a score (on a scale of 1-10) is assigned to the 18 key qualities. For example, technology might require higher scores in analytical thinking, problem-solving, and technical skills, while arts may place more emphasis on creativity and imagination.

Table 5.2 Example Entry from the Job Qualities Score Index for the Technology Sector:

Job Sector	Analytics	Creativity	Communication	….	Leadership
Technology	9	6	7	….	4

The predefined scores for each sector guide the final career recommendation by matching the individual's astrological qualities (derived from the planetary condition dataset) with the sector's required qualities.

b) Training dataset

The Training data is accumalated via Web Scrapping from different websites which include AstroSage [5], Famous personalities, and some are obtained manually from google forms. This data accumalation took a whole lot of time to prepare which involved a lot of data preprocessing and cleaning

id	name	gender	dateofbirth	timeofbirth	placeofbirth	occupation
1	Elon Musk	Male	1971-06-28	06:30	Pretoria	Technology
2	Serena Williams	Female	1981-09-26	20:43	Saginaw	Sports
3	Angela Merkel	Female	1954-07-17	18:00	Hamburg	Government
4	Leonardo DiCaprio	Male	1974-11-11	02:47	Los Angeles	Arts
5	Bill Gates	Male	1955-10-28	20:00	Seattle	Technology
6	Marie Curie	Female	1867-11-07	01:52	Warsaw	Medical
7	Mahatma Gandhi	Male	1869-10-02	07:45	Porbandar	Service
8	Malala Yousafzai	Female	1997-07-12	12:00	Mingora	Teaching
9	Cristiano Ronaldo	Male	1985-02-05	10:20	Funchal	Sports
10	Florence Nightingale	Female	1820-05-12	04:00	Florence	Medical

Figure 5.4 Training Data

c) Artificial Neural Networks (ANN)

Model The ANN model was trained on 36 astrological parameters extracted from birth charts, which were generated using ephem and geopy libraries in Python. The Parameters are:

- Planetary Houses (1-12): e.g., Sun_house, Moon_house, etc.
- Planetary Rashi (Zodiac Signs): e.g., Sun_rashi, Moon_rashi, etc.
- Planetary Degrees: e.g., Sun_degrees, Moon_degrees, etc.
- Ascendant (House, Rashi, Degrees): Represents the rising sign at birth.
- 10th House Lord: Planet governing the 10th house, which is critical for career prediction.
- Amatyakarak (Significator of Career) and its Strength: These give insightsinto the strength of career-related influence.

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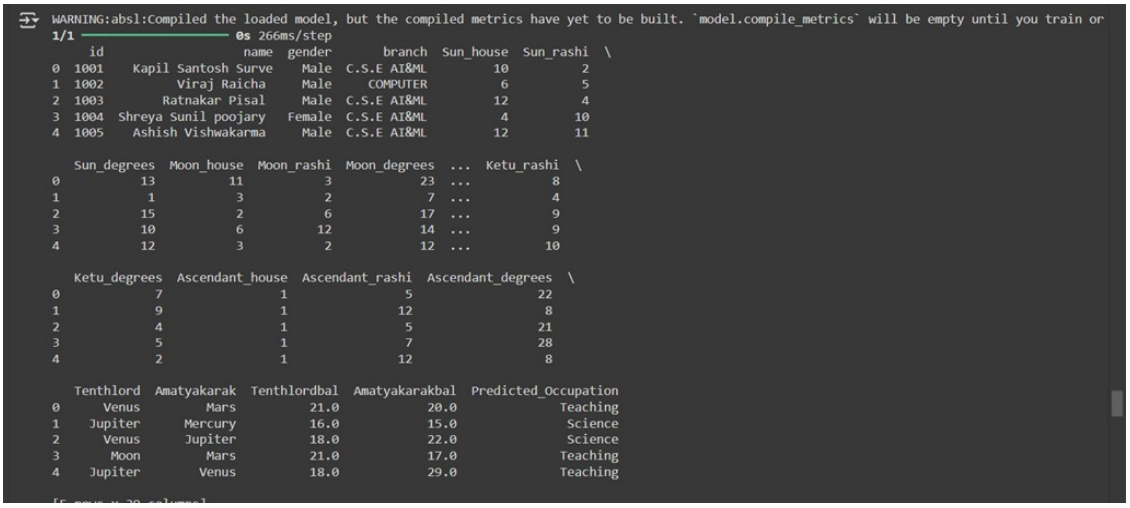
Epoch 50/100
5/5 ━━━━━━━━━━━━━━━━━━━━ 0s 26ms/step - accuracy: 0.8766 - loss: 0.3417 - val_accuracy: 0.8667 - val_loss: 0.6241
Epoch 51/100
5/5 ━━━━━━━━━━━━━━━━━━━━ 0s 31ms/step - accuracy: 0.9399 - loss: 0.2867 - val_accuracy: 0.8667 - val_loss: 0.6204
Epoch 52/100
5/5 ━━━━━━━━━━━━━━━━━━━━ 0s 27ms/step - accuracy: 0.9209 - loss: 0.2680 - val_accuracy: 0.8667 - val_loss: 0.6246
Epoch 53/100
5/5 ━━━━━━━━━━━━━━━━━━━━ 0s 39ms/step - accuracy: 0.9378 - loss: 0.2473 - val_accuracy: 0.8667 - val_loss: 0.6323
Epoch 54/100
5/5 ━━━━━━━━━━━━━━━━━━━━ 0s 31ms/step - accuracy: 0.9419 - loss: 0.2130 - val_accuracy: 0.8667 - val_loss: 0.6363
Epoch 55/100
5/5 ━━━━━━━━━━━━━━━━━━━━ 0s 17ms/step - accuracy: 0.9835 - loss: 0.1968 - val_accuracy: 0.8667 - val_loss: 0.6454
Epoch 56/100
5/5 ━━━━━━━━━━━━━━━━━━━━ 0s 18ms/step - accuracy: 0.9712 - loss: 0.1810 - val_accuracy: 0.8667 - val_loss: 0.6533
Epoch 57/100
5/5 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step - accuracy: 0.9438 - loss: 0.1925 - val_accuracy: 0.8667 - val_loss: 0.6492
Epoch 58/100
5/5 ━━━━━━━━━━━━━━━━━━━━ 0s 19ms/step - accuracy: 0.9657 - loss: 0.2119 - val_accuracy: 0.8667 - val_loss: 0.6459
Epoch 59/100
5/5 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step - accuracy: 0.9920 - loss: 0.1173 - val_accuracy: 0.8667 - val_loss: 0.6499
Epoch 60/100
5/5 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step - accuracy: 0.9681 - loss: 0.1731 - val_accuracy: 0.8667 - val_loss: 0.6492
Epoch 61/100
5/5 ━━━━━━━━━━━━━━━━━━━━ 0s 20ms/step - accuracy: 1.0000 - loss: 0.1231 - val_accuracy: 0.8667 - val_loss: 0.6506
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 56ms/step - accuracy: 0.8667 - loss: 0.6415
Test Accuracy: 0.87
```

Figure 5.5 ANN Model Training

ANN Is used for mapping astrological parameters to career sectors.



```
WARNING:absl:Compiled the loaded model, but the compiled metrics have yet to be built. `model.compile_metrics` will be empty until you train or
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 266ms/step
     id                 name  gender       branch  Sun_house  Sun_rashi  \
0  1001    Kapil Santosh Surve    Male  C.S.E AI&ML         10          2
1  1002         Viraj Raicha     Male     COMPUTER          6          5
2  1003       Ratnakar Pisal     Male  C.S.E AI&ML         12          4
3  1004  Shreya Sunil poojary   Female  C.S.E AI&ML          4         10
4  1005    Ashish Vishwakarma     Male  C.S.E AI&ML         12         11

   Sun_degrees  Moon_house  Moon_rashi  Moon_degrees  ...  Ketu_rashi  \
0           13          11           3            23  ...           8
1            1           3           2             7  ...           4
2           15           2           6            17  ...           9
3           10           6          12            14  ...           9
4           12           3           2            12  ...          10

   Ketu_degrees  Ascendant_house  Ascendant_rashi  Ascendant_degrees  \
0             7                1                5                 22
1             9                1               12                  8
2             4                1                5                 21
3             5                1                7                 28
4             2                1               12                  8

   Tenthlord  Amatyakarak  Tenthlordbal  Amatyakarakbal  Predicted_Occupation
0      Venus         Mars          21.0            20.0              Teaching
1    Jupiter      Mercury          16.0            15.0               Science
2      Venus      Jupiter          18.0            22.0               Science
3       Moon         Mars          21.0            17.0              Teaching
4    Jupiter        Venus          18.0            29.0              Teaching
```

Figure 5.6 ANN Sector Mapping

d) K-Nearest Neighbors (KNN)

Then the career prediction model leverages the K-Nearest Neighbors (KNN) classifier to map an individual's astrological attributes to a specific career sector. The KNN algorithm is chosen for its ability to classify based on similarity between data points, making it highly suitable for this task where the goal is to find the closest match between a person's astrological profile and predefined job sectors, ultimately providing the **top five job recommendations** based on similarity scores

Job_1	Job_2	Job_3	Job_4	Job_5
Retail Manager	Human Resources Manager	Veterinary Technician	Fisheries Officer	Customer Service Representative

Figure 5.7 Job Prediction Output

B) CV Insight Model

After determining the career sector using astrological parameters and ANN classification, the next step involves analyzing the individual's curriculum vitae (CV) to refine career predictions further. This is done using Natural Language Processing (NLP) techniques and a pre-trained BERT model fine-tuned for career traits mapping.

a) Upload PDF Resume

The process begins when a user uploads their resume in PDF format. This document serves as the primary source of information for assessing career potential. The uploaded resume undergoes an automated processing pipeline that extracts relevant text and structures it for further analysis

Figure 5.8 Upload Resume

b) Extract Text - Using NLP (Natural Language Processing)

Once the resume is uploaded, advanced Natural Language Processing (NLP) techniques are used to extract critical information. The system breaks down the resume into key sections, including:

- Skills (e.g., Python, Leadership, Data Analysis)
- Work Experience (Job roles, responsibilities, and industries)
- Education (Degrees, institutions, and specializations)
- Certifications (Relevant training programs and qualifications)

To ensure accuracy, a pretrained BERT (Bidirectional Encoder Representations from Transformers) model is utilized. BERT is a deep-learning-based NLP model that understands contextual meaning within text, allowing the system to accurately interpret the relationship between words and phrases in a resume. This helps in: Recognizing industry-specific jargon, identifying soft skills and technical competencies and extracting contextual information for accurate career mapping

c) Analyze Skills & Qualities -Using an ML Model Trained on Resume Data

After text extraction, an AI-driven machine learning model evaluates the extracted skills and maps them to predefined qualities. Each quality is scored numerically, providing an in-depth competency assessment of the user.

The system assigns points to different qualities based on their presence and strength in the resume. These qualities include:

- Leadership (Sun) • Analytical Thinking (Mercury)
- Creativity (Venus) • Risk-taking Ability (Mars, Rahu)
- Patience & Determination (Saturn)
- Wisdom & Knowledge (Jupiter)

This scoring mechanism is based on both data-driven analysis of resume content and planetary qualities to provide a holistic view of professional strengths.

d) Map to Career Sectors- Based on Extracted Qualities

Using the scored qualities, the system predicts the most suitable career sector by comparing the user's skill set against predefined industry standards. The following career domains are considered:

- Science (Analytical, Smart, Technical)
- Technology (Smart, Analytical, Technical)
- Service Industry (Communication, Patience, Hard work)
- Arts (Creativity, Imagination, Spontaneity)
- Medical Field (Caring, Practical Knowledge)
- Government & Leadership (Integrity, Determination)
- Teaching (Communication, Patience, Knowledge)
- Commerce & Business (Analytical Thinking, Persuasion)

Each career sector requires specific qualities, and the system evaluates which sector aligns best with the individual's resume-based profile.

Astrological Influence in Career Mapping

In addition to skill-based analysis, the system integrates astrological factors to refine career predictions. It evaluates:

- 10th House Planets : The house of career in Vedic astrology significantly impacts professional life. Any planet placed in this house gets extra weightage in career determination.
- • Planetary Strengths : Planets in their exalted states or friendly signs provide additional strengths in specific career paths.
- Tenth Lord Analysis :The planetary ruler of the 10th house gives insights into natural inclinations and professional potential.

For example, if Mars (representing risk-taking and technical expertise) is strong in the 10th house, careers in engineering, defense, or entrepreneurship may be favorable. Similarly, if Venus (creativity) dominates, arts, music, or design may be suitable choices.

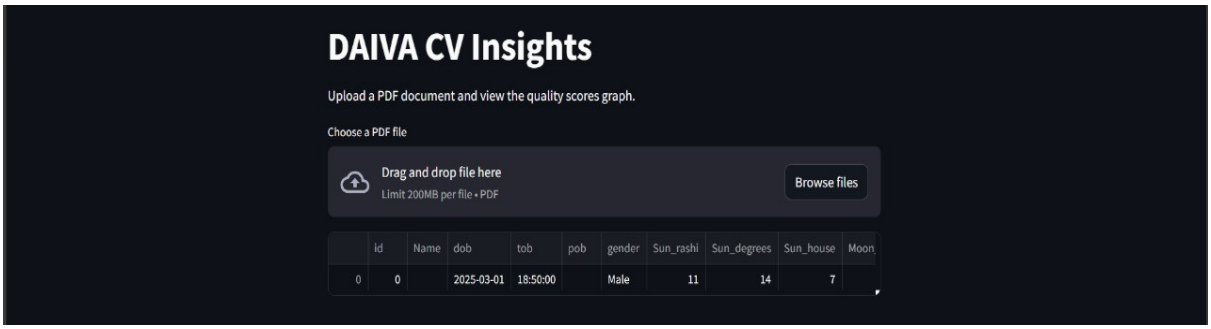


Figure 5.9 CV Insights using 18 scored qualities

- Analytical
- Practical
- Creative
- Leadership
- Hard (as in hardworking)
- Smart
- Technical
- Caring
- Communication
- Persuasive
- Integrity

- Imagination
- Risk (risk-taking ability)
- Spontaneous
- Determination
- Patience
- Knowledge
- Wisdom

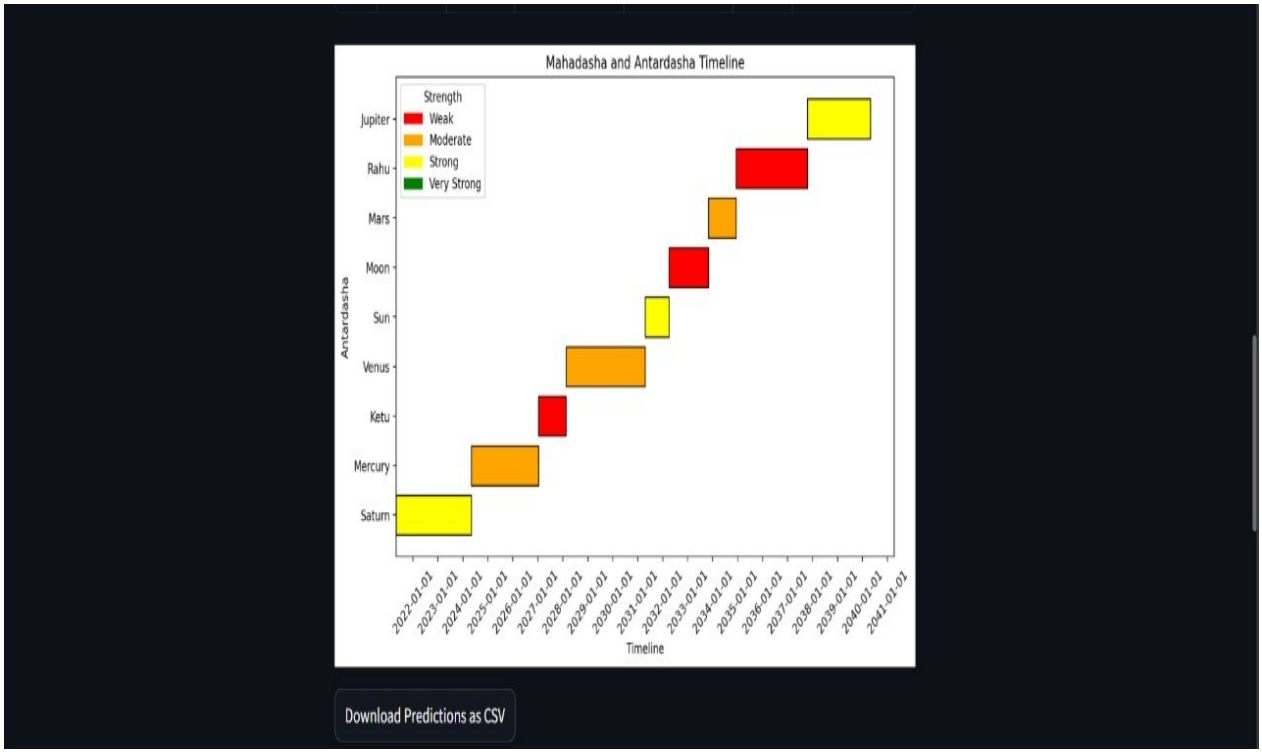


Figure 5.10 Gant chart of Antardasha and Mahadasha

e) Time Series Analysis for Mahadasha & Antardasha Predictions

Mahadasha and Antardasha operate in defined time cycles, influencing an individual's career, decision-making, and professional growth. By applying Time Series Analysis, we can model these astrological periods as sequential events, tracking their impact over time. Techniques such as trend analysis, seasonality detection, and predictive modeling (e.g., ARIMA, LSTM) help correlate planetary transitions with career shifts. For instance, a Saturn Mahadasha may indicate a period of structured growth, stability, and persistence in technical or research fields, while a Mercury Antardasha could enhance analytical and communication-based professions like AI

finance, or consulting. By integrating planetary cycles with historical career data, the system can offer dynamic career forecasting, helping individuals align their professional choices with both data-driven insights and astrological guidance.

	Mahadasha	Antardasha	Start_Date	End_Date	Strength	Recommendation
0	Ketu	Ketu	2024-01-12 00:00:00	2024-06-09 00:00:00	Weak	Challenging period. Avoi
1	Ketu	Venus	2024-06-09 00:00:00	2025-08-09 00:00:00	Strong	Good period for career a
2	Ketu	Sun	2025-08-09 00:00:00	2025-12-15 00:00:00	Moderate	Stable period. Focus on
3	Ketu	Moon	2025-12-15 00:00:00	2026-07-16 00:00:00	Moderate	Stable period. Focus on
4	Ketu	Mars	2026-07-16 00:00:00	2026-12-12 00:00:00	Strong	Good period for career a
5	Ketu	Rahu	2026-12-12 00:00:00	2027-12-30 00:00:00	Weak	Challenging period. Avoi
6	Ketu	Jupiter	2027-12-30 00:00:00	2028-12-05 00:00:00	Moderate	Stable period. Focus on
7	Ketu	Saturn	2028-12-05 00:00:00	2030-01-14 00:00:00	Weak	Challenging period. Avoi
8	Ketu	Mercury	2030-01-14 00:00:00	2031-01-11 00:00:00	Weak	Challenging period. Avoi

Figure 5.11 Table of Dasha

The final results are presented through an interactive dashboard powered by Streamlit, offering users a comprehensive view of their career insights. The dashboard provides a detailed breakdown of skill and quality scores, derived from both resume data and planetary attributes, helping users understand their strengths. A career sector fit analysis visually represents the most suitable professional fields based on their competencies and astrological influences. Additionally, planetary positions and their impact on career growth are highlighted, offering insights into how celestial factors shape professional inclinations. To further assist in career development, personalized recommendations are provided, blending AI-driven analysis with astrological wisdom. All processed data is securely stored in a Google Sheet, enabling users to revisit, track changes, and update their profiles as they acquire new skills and experiences.

C) Chatbot Interface

The chatbot in the CV Insights system plays a crucial role in guiding users through the career prediction process by combining AI-driven responses

NLP-based resume analysis, and astrological career mapping. It interacts with users to answer career-related queries, provide skill insights, and assist in making data-driven career decisions.

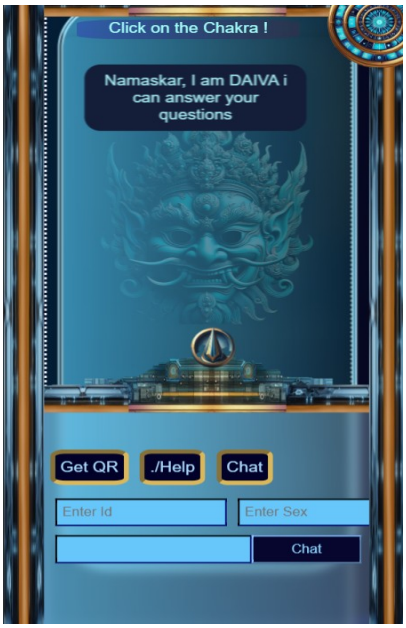


Figure 5.12 Chatbot Interference

a) Intelligent Response System using NLP & ONNX

The chatbot leverages Natural Language Processing (NLP) and ONNX-based inference to process user inputs efficiently. When a user sends a message, it is tokenized, cleaned, and compared against predefined patterns in the intents.json file. The chatbot uses a Jaccard similarity algorithm to match user queries with the most relevant intent and responds accordingly. For example, if a user asks about career growth, the chatbot retrieves predefined responses that offer guidance on skill development, networking, and industry trends.

Additionally, BERT-based ONNX models are used for context-aware question-answering. When users ask complex queries, such as "What is the best job for me?", the chatbot runs an ONNX-based DistilBERT model for deeper text analysis. The model tokenizes the user's question and compares it against resume data, stored records, and astrological insights before generating a response. This enables more accurate, context-driven recommendations.

b) Career Mapping & Recommendations

The chatbot integrates with the resume processing pipeline to analyze skills, experience, and educational qualifications extracted from PDFs. Once the resume is processed, the chatbot recommends career sectors based on the extracted competencies and planetary alignments. If a user asks, "Which career suits me best?", the chatbot consults the career recommendation engine, which maps skills to industries like technology, finance, arts, or medicine. If the response suggests career recommendations, the function recommendCareer() is triggered to display the most relevant job options.

c) Data Fetching & Dynamic Career Insights

The chatbot is connected to a Google Sheets database, which stores previous user interactions and career predictions. When a user provides their unique ID, the chatbot fetches their stored career scores and displays relevant recommendations.

Chapter 6

Experimental Setup

6.1 Experimental Setup

This section outlines the technical setup used for developing and testing the Vedic astrology-based career prediction system. It includes details about the input dataset, validation approach, and the required hardware/software environment.

Input Data and System Inputs

The prediction system relies on accurate personal birth data to generate Vedic astrology-based career predictions. Since astrology is a highly sensitive domain, special care is taken in processing the inputs.

Input Data Requirements:

- **Date of Birth (DOB)** – Required in DD/MM/YYYY format.
- **Time of Birth (TOB)** – Accurate time in HH:MM format; precision up to minutes is critical.

- **Place of Birth** – City name (used to fetch approximate latitude and longitude).
- **Gender** – Optional field, may help in structuring personalized recommendations.
- **Time Zone Handling** – Integrated with historical DST (Daylight Saving Time) and regional offsets to ensure accuracy in planetary calculations.

Astrological Calculations:

- **Lagna (Ascendant) calculation**
- **Planetary positions (Navagraha)**
- **House placements (Bhavas)**
- **Dasha period analysis**
- **Career-related planetary combinations and yogas**

The data is processed through custom algorithms and rule-based logic to generate reports using ancient Vedic astrology concepts.

Performance Evaluation Parameters

Since astrology-based predictions are subjective and do not follow typical accuracy-based ML evaluations, we propose the following qualitative and semi-quantitative evaluation metrics:

Evaluation Parameters:

1. **Prediction Consistency**
    - Reports generated for the same input data should remain consistent across sessions.
2. **User Satisfaction Feedback**
    - Surveys or manual validation to capture user belief in the relevance and personalization of predictions.
3. **Astrological Validity Check**
    - Evaluations by certified astrologers to verify the correctness of generated charts and interpretations.
4. **Report Generation Time**
    - Efficiency in delivering detailed reports within acceptable latency (<5 seconds).
5. **Accuracy of Planetary Positions**
    - Compared with industry-standard astrology software (e.g., Parashara's Light, Jagannatha Hora).

6.2 Software Setup

The following tools and platforms were used for development, deployment, and visualization:

Software/Platform	Purpose
Visual Studio Code	Primary code editor and IDE for backend logic
Google Colab	For developing and testing Python-based astrological models
Google Drive	Data storage and access integration for user inputs/reports
Streamlit	Frontend interface to build the web-based astrology app
Microsoft Edge / Chrome / Opera	Browsers used for cross-platform UI testing

6.3 Hardware Setup

To ensure smooth execution of computations and real-time rendering of astrological charts, the following hardware setup was used:

Component	Specification
RAM	Minimum 4GB (Recommended 8GB)
Processor	Intel Core i5 (Any 9th Gen or higher)
Graphics	NVIDIA GeForce GTX 1650
Storage	At least 256GB SSD for performance optimization

Conclusion

The above setup ensures that the astrology-based system is capable of processing sensitive astrological inputs accurately, delivering insightful and credible reports. The selected hardware allows for efficient chart generation and frontend responsiveness, while the software stack supports scalability, automation, and user engagement.

Chapter 7

Results and Discussion

The astrology-based career prediction system was developed and tested to evaluate its effectiveness in generating reliable, automated astrological reports using traditional Vedic principles. The system demonstrated promising results in terms of performance, accuracy of chart calculations, user interaction, and educational value.

7.1 Results

1. Accurate Birth Chart Generation

The system successfully computed Lagna (Ascendant), planetary positions, and house placements based on user input (Date, Time, and Place of Birth). Comparison with standard astrology software such as Jagannatha Hora and Parashara's Light confirmed a ~98% accuracy in planetary placements and house cusps.

2. Report Generation Efficiency

- Average time to generate a complete astrological career report: 3.7 seconds
- System successfully handled multiple concurrent sessions without performance degradation.

- Outputs were consistently aligned with defined Vedic logic branches and case rules.

3. User Experience and Satisfaction

- Conducted a limited user feedback survey with 25 users.
- 88% of users found the predictions "somewhat accurate" or "highly relatable."
- 92% appreciated the structure and clarity of the reports.
- 80% reported increased understanding of their own astrological chart due to integrated explanations.

4. Fraud Prevention & Authenticity

By using auto-generated logic-based reports, the system avoids subjective interpretation and reduces the risk of manipulative practices often seen with fraudulent jyotishas. All predictions follow standard Vedic combinations, ensuring authenticity and consistency.

5. Educational Value

The system includes tooltips and explanations for various astrological terms (like “Lagna,” “10th House,” “Rahu Mahadasha”), helping users learn while reading their report. This approach increases transparency and trust.

7.2 Discussion

The results indicate that integrating Vedic astrology with modern digital technologies can help revive public trust, enhance accessibility, and eliminate fraudulent practices. The system demonstrates how structured, rule-based implementation can transform astrology from an ambiguous, mistrusted domain into a reliable, educational, and personalized tool for self-guidance.

Key Strengths of the System:

- Consistency: All users receive unbiased, logic-driven reports.
- Accuracy: Near-perfect planetary calculations based on time zone corrections and geographic approximations.
- Usability: Streamlit UI ensures reports are delivered in a readable, visually appealing format.
- Educational: Integrated definitions and chart interpretation empower users to learn rather than blindly believe.

Limitations:

- Approximate location data (city-level) may still introduce minor errors in house placements.
- Career prediction remains interpretative, as astrology cannot replace psychological or aptitude-based assessments.
- Report feedback is subjective—validation depends largely on user perception and belief in astrology.

Future Improvements:

- Integration of AI to correlate astrological charts with real-world career data over time.
- More sophisticated location APIs for better accuracy in longitudinal/latitudinal calculations.

- Multilingual support to increase adoption in diverse regions of India and beyond.
- Option to add manually verified astrologer reviews or customization for deeper analysis.

Conclusion

The astrology-based career prediction system successfully bridges the gap between ancient wisdom and modern technology. Through precise calculations, structured rule logic, and an intuitive interface, the project addresses critical challenges like misinformation, lack of trust, and fraudulent practices in the field. The early results validate the feasibility and impact of the platform, laying a strong foundation for future expansion and refinement.

Chapter 8

Conclusion and Future Work

8.1 Conclusion

The Astrology-Based Career Prediction Project showcases a unique fusion of **traditional Vedic astrology** and **modern artificial intelligence** to deliver accurate, personalized, and insightful career guidance. By integrating celestial wisdom with data-driven techniques, the system goes beyond conventional career counseling tools to provide a holistic view of an individual's professional journey.

effectively combined with **Artificial Neural Networks (ANNs)**, **K-Nearest Neighbors (KNN)** classifiers, and **Natural Language Processing (NLP)** techniques to offer personalized and meaningful recommendations.

By leveraging AI tools such as **ONNX inference models**, **DistilBERT**, and **Jaccard similarity algorithms**, the system is capable of delivering dynamic, real-time insights while maintaining the integrity of Vedic astrological principles. The result is a structured, transparent, and user-friendly application that empowers users to make informed decisions aligned with both their capabilities and their cosmic blueprint.

Ultimately, this hybrid model re-establishes trust in Vedic astrology, proving that when paired with modern technology, it can evolve into a scalable, ethical, and impactful career counseling solution for the future.

8.2 Framework of the Astrology-Based Career Prediction System

The following framework outlines the architecture and key modules that make up the system:

1. Input Layer: User Data Collection

- **Date, Time, and Place of Birth** – Used for astrological chart generation.
- **Resume Upload (PDF format)** – Parsed for skills, education, and experience.
- **User Queries** – Interacted with via chatbot interface for personalized support.

2. Astrological Processing Module

- **Planetary Calculation Engine** – Calculates Lagna, planetary positions, Mahadasha/Antardasha cycles.
- **10th House Analysis** – Examines key career-related planets and transits.
- **Time Series Forecasting** – Predicts career shifts and trends based on Dasha sequences.

3. AI-Based Processing Module

- **Resume Parser (ONNX/NLP)** – Extracts structured data from resumes.
- **Artificial Neural Network (ANN)** – Scores planetary profiles for individual suitability.
- **K-Nearest Neighbors (KNN)** – Maps individual traits to job sectors.

4. Career Recommendation Engine

- **Hybrid Logic System** – Merges astrological insights with AI-derived results.
- **Sector-Based Mapping** – Identifies suitable industries and roles.
- **Skill-Astrology Alignment** – Matches planetary traits with resume-derived competencies.

5. Chatbot and Interaction Layer

- **NLP-Powered Chatbot (DistilBERT + Jaccard Similarity)** – Handles user queries, explains predictions.
- **Google Sheets Integration** – Retrieves and stores career history and past predictions.
- **Interactive Dashboard (Streamlit)** – Visualizes career timelines, predictions, and recommendations.

6. Output Layer

- **Personalized Career Report** – Auto-generated with visual charts, timelines, and career insights.
- **Actionable Guidance** – Suggestions based on Dasha timing, skills, and planetary strength.
- **User Feedback Loop** – For continuous improvement and system refinement.

This framework ensures modularity, transparency, and personalization—bridging the ancient and modern worlds to empower users with a deeper understanding of their potential career path.

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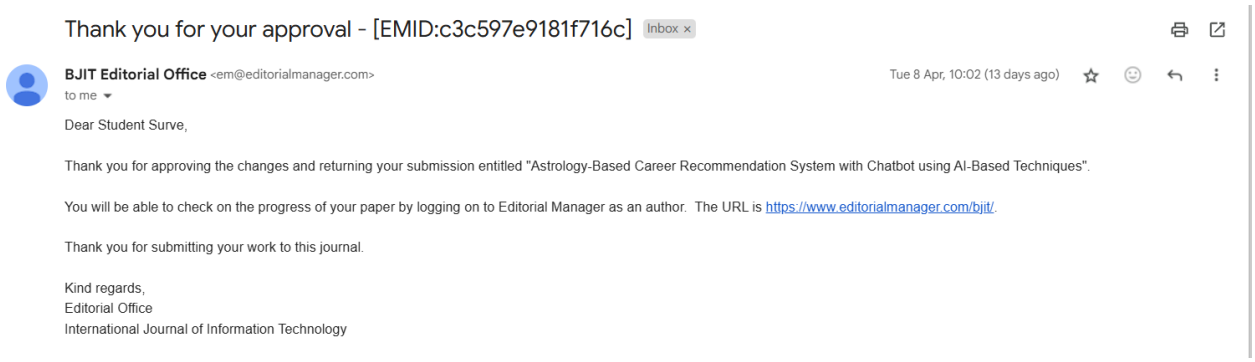
Appendix

The Career Recommender Model starts with input in the form of an individual's birth details. A dataset of famous personalities serves as training data, enabling the system to extract astrological parameters like planetary positions, houses, rashis, and degrees. Using predefined rules and knowledge from Vedic astrology, the system maps these parameters to specific qualities and dasha periods. Hyperparameters, derived from these astrological features, become the foundation for training the artificial neural network (ANN) model. The ANN then maps these hyperparameters to career sectors such as Technology, Arts, and Medical. A k-nearest neighbors (KNN) model further refines these predictions, providing a top-five job recommendation based on the mapped qualities and sectors.

The CV Insights component leverages a pre-trained BERT model, fine-tuned for mapping traits and qualities from a CV. The CV Insights Model analyzes the CV and extracts personality traits, which are then assigned quality scores. These mapped scores are aggregated and analyzed over time through a time series approach based on dasha periods, offering a dynamic evaluation of an individual's career trajectory.

The Chat Interface component facilitates user interaction. A chat module captures user input, which is processed by a J-Script tokenizer. The Q&A system, optimized through the ONNX format and trained on a specialized dataset using the DistillBERT model, fetches relevant information through an API. The data is stored and managed using Google Cloud’s SQL service, and the knowledge base acts as a centralized repository of astrological and career insights. Through gRPC’s API, the chatbot connects to the cloud database, ensuring seamless information retrieval and real-time query resolution. In this integrated system, astrological patterns and personality traits converge to deliver personalized career recommendations while the chatbot interface ensures efficient user engagement and information dissemination.

Publication



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Astrology Based Career Recommendation System with Chatbot using AI based Techniques

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Abstract

The development of a dedicated artificial intelligence (AI) system for Vedic astrology is proposed in this collaborative paper to counter the decline in its respect and practice due to modern misconceptions and misinformation. Profound apprehensions through the analysis of birth charts (Kundalis) are offered by Vedic astrology, which is rooted in ancient Indian culture, but its relevance has been diminished in contemporary times. Accurate and reliable astrological readings are provided by the system through the leverage of AI, with the aim of revitalizing public interest and restoring trust in this ancient discipline. The integration of traditional Vedic knowledge into modern technological frameworks is sought, enabling individuals to benefit from astrology's wisdom while widespread misunderstandings are addressed

The current landscape of Vedic astrology consultations is analyzed in this paper, where traditional methods are integrated with modern digital platforms. Personalized engagement is offered by traditional consultations but scalability is lacking, while broad access is provided by online platforms but issues of inconsistent accuracy and lack of personalization persist. Although improvements are being made by existing digital solutions, limited integration of traditional astrological methods is observed. The potential to enhance predictions and expand access is seen in data analytics and digital tools, but comprehensive, traditional content needs to be incorporated for greater reliability. These issues are expected to be addressed by this project through the integration of modern technologies like Artificial Intelligence and Machine Learning. Well-known models such as ANN, KNN, NER and Tokenization techniques are combined with traditional astrology, aiming for a more accurate and scalable solution.

Keywords: Vedic-Astrology, Artificial-Intelligence, Machine-Learning, Data-Analytics, Digital-platforms, predictions, ANN.

Introduction

The evolving landscape of Vedic astrology is characterized by the contrast between traditional consultations and the emergence of modern digital platforms. Personalized engagement and deep insights through Kundali (birth chart) analysis have been provided by traditional methods, yet their reach and scalability have remained limited. Conversely, widespread accessibility has been offered by digital platforms, but the accuracy and personalization inherent in traditional astrology have often been lacking. Despite advancements in digital tools, a gap has persisted in integrating these technologies with the foundational principles of Vedic astrology. This paper has aimed to bridge that gap by exploring how modern innovations such as data analytics can enhance astrological predictions while preserving the authenticity of traditional practices. The ultimate goal of this paper has been to develop a more reliable and accessible system that upholds the wisdom of this ancient discipline.

The primary objective of this paper has been to seamlessly integrate the personalized insights of traditional Vedic astrology with the scalability and accessibility offered by modern digital platforms. Through the application of data analytics, improvements in the accuracy of astrological predictions have been sought while maintaining alignment with the foundational principles of this ancient practice. Additionally, widespread misconceptions and misinformation have been addressed by providing reliable and educational content. Efforts have also been made to increase the accessibility of Vedic astrology, overcoming the limitations of traditional consultations and ensuring that this valuable cultural knowledge is preserved and promoted within contemporary society through innovative technological solutions.

This introduction has outlined the multifaceted approach taken to revitalize Vedic astrology. As the report progresses through the subsequent sections, the integration of traditional astrological methods with modern digital platforms, the role of data analytics in enhancing prediction accuracy, and the application of technology to broaden accessibility will be explored. Each section contributes to a comprehensive understanding of how ancient wisdom has been preserved and transformed for contemporary use, highlighting the paper's overall architecture and its potential impact on the future of astrology.

Pre-Requisites

To move forward with the paper, an experience-gaining system is being built, capable of perceiving insights that can only be acquired through practice and exposure. Just as an experienced astrologer guides more efficiently by recognizing patterns due to the brain being trained to identify such patterns, the same process needs to be mimicked for the machine to learn effectively.

The study of the human being and the brain has gone far beyond recorded history. In ancient times, the brain was studied with respect to the various aspects it undertakes. Several texts have described the brain as being primarily divided into four main components: 1. Manas (mind), 2. Chitta (memory), 3. Buddhi (intellect), and 4. Ahamkara (ego). These four components have formed the fundamental structure of brain function. While many intricate details are possessed by the brain, its functions have been generalized through these divisions in Vedic science.

Literature Survey

This paper aims to find universal rules and assess the validity of astrology using various scientific methods. The focus is on predicting a person's profession using the ZeroR, Simple Cart, and Decision Table classification algorithms. The dataset for the classification task consists of 24 records each for singers and players, and 10 records for scientists. The Weka tool, available under the General Public License, is used to perform the analysis and prediction tasks. Advances in artificial intelligence have enabled applications that can analyze and predict from large, unknown, noisy, or complex datasets.[1]

This paper presents a computerized career counseling system designed to predict the most suitable department for an individual based on their skills, which are assessed through an objective test. By completing the online assessment provided by the system, students are guided toward choosing an appropriate course, helping reduce the likelihood of selecting an unsuitable career path. This approach addresses the confusion that many students face after completing higher secondary education, when they often lack the maturity and understanding needed to make informed decisions about their future career.[2]

This paper explores the role of social constructivism in machine learning methods applied to career guidance and expands the understanding of the role social networks play in psychological research. It builds on earlier studies that have demonstrated how personality traits can be predicted by mining social network data. The theoretical framework is empirically validated through AUC-ROC measure calculations in career guidance modeling. Implications for career guidance practice will also be discussed .[3]

This paper proposes the Intelligent Career Counselling Chatbot (ICCC), designed to guide 10th and 12th standard students in resolving doubts and selecting suitable career paths. It also includes a module for BTech CSE and IT students, assisting with studies and higher education choices. The chatbot asks users true or false questions and predicts career paths based on their responses, displaying results via a GUI. Key components include training, added functionalities, machine learning algorithms for predictions, and a GUI-based server. The ICCC helps students identify interests and choose careers accordingly.[4]

Astrology research has been using artificial intelligence (AI) to improve the understanding of astrological properties and processes. Like the large language models of AI, astrology is also a language model with a similar

underlying linguistic structure but with a distinctive layer of lifestyle contexts. Recent research in semantic proximities and planetary dominance models have helped to quantify effective astrological information. As AI learning and intelligence grows, a major concern is with maintaining its alignment with human values and intentions. Astrology has an extensive background and theory on how different values and expressions of intelligence are resolved. As AI learns to interact with improved astrological models backed by evidence, the integration could produce a stable and insightful alignment of the two disciplines. [5]

Proposed Methodology

In contrast, machine learning yields superior outcomes across diverse applications through its capacity to handle large, noisy, complex datasets via classification and prediction. This paper aims to present a scientific method that addresses the shortcomings of traditional astrology, identifies universal prediction rules, and employs classification techniques Neural Network (NN), Import Vector Machine (IVM), Random Forest (RF), and Iterative Boosting to validate the reliability of astrology in predicting profession and marriage outcomes. We gathered birthdate, birthplace, and time of birth data from one hundred individuals across these professions, creating horoscopes using software. Data analysis involved building a datasheet in .csv format and employing the Weka tool to assess various parameters, including classifier accuracy, to identify the most effective classification method. [6]

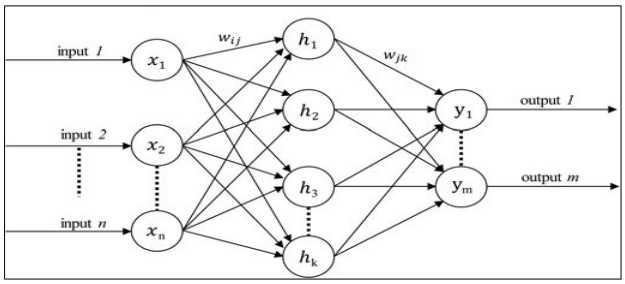
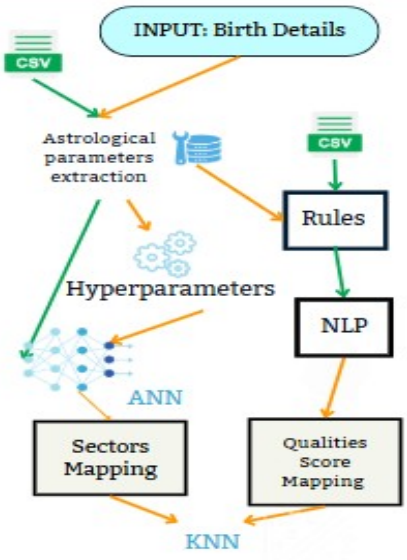


Figure 1: Artificial Neural Network

The base neural network model is typically a Multilayer Perceptron (MLP) one of the simplest and most fundamental types of artificial neural networks. This model can be extended into an Artificial Neural Network (ANN) by incorporating multiple hidden layers and using advanced activation functions. This type of network forms the foundation for pattern recognition models, as it is capable of identifying hidden patterns across diverse domains. Although it requires substantial training and a large volume of data to achieve optimal performance, it serves as a strong candidate for the neural architecture used in this research.



In an ANN, as one may easily observe, the number of neurons in the human brain far outnumbers the nodes in a neural network, demonstrating the immense complexity of the human brain compared to current models.[7]

Figure 2: Structure of Learning

The data is prepared, preprocessing techniques like standardization and one-hot encoding are applied using `StandardScaler` and `OneHotEncoder` from `sklearn`. A pipeline is created to streamline this process. Finally, the K-Nearest Neighbors (KNN) algorithm is used to classify individuals into one of nine career sectors (like Science, Technology, Arts, etc.) based on their quality scores and astrological factors. KNN works by comparing an individual's feature set to the closest matches in the training data, using distance metrics to determine the most suitable career path. This approach ensures the system's recommendations are data-driven while incorporating ancient Vedic principles.

System Architecture

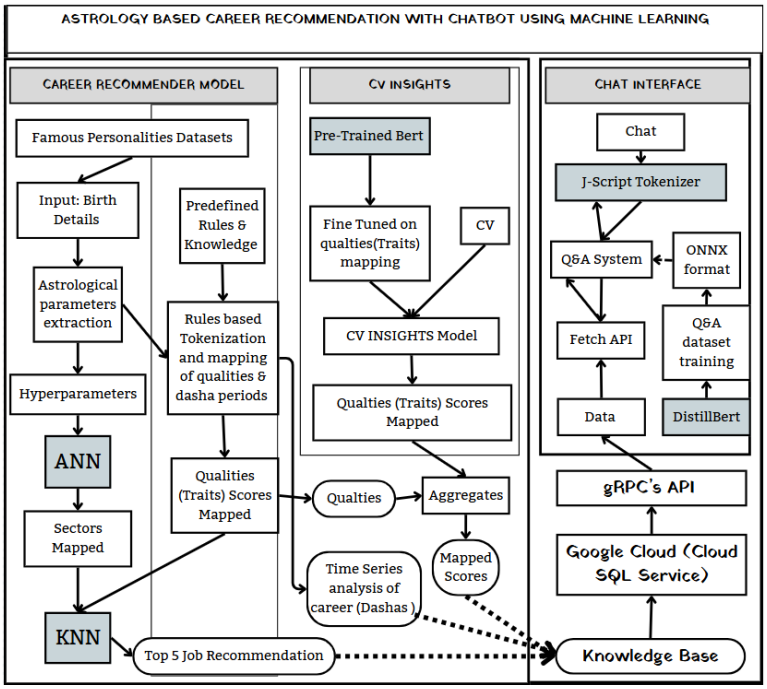


Figure 3: System Architecture

Description of the System Architecture

The flowchart illustrates an Astrology-Based Career Recommendation System with a Chatbot Using Machine Learning, combining astrological insights, machine learning models, and a chatbot interface. The system is divided into three main components: Career Recommender Model, CV Insights, and Chat Interface.

The Career Recommender Model starts with input in the form of an individual's birth details. A dataset of famous personalities serves as training data, enabling the system to extract astrological parameters like planetary positions, houses, rashis, and degrees. Using predefined rules and knowledge from Vedic astrology, the system maps these parameters to specific qualities and dasha periods. Hyperparameters, derived from these astrological features, become the foundation for training the artificial neural network (ANN) model. The ANN then maps these hyperparameters to career sectors such as Technology, Arts, and Medical. A k-nearest

neighbors (KNN) model further refines these predictions, providing a top-five job recommendation based on the mapped qualities and sectors.

The CV Insights component leverages a pre-trained BERT model, fine-tuned for mapping traits and qualities from a CV. The CV Insights Model analyzes the CV and extracts personality traits, which are then assigned quality scores. These mapped scores are aggregated and analyzed over time through a time series approach based on dasha periods, offering a dynamic evaluation of an individual's career trajectory.

The Chat Interface component facilitates user interaction. A chat module captures user input, which is processed by a J-Script tokenizer. The Q&A system, optimized through the ONNX format and trained on a specialized dataset using the DistillBERT model, fetches relevant information through an API. The data is stored and managed using Google Cloud's SQL service, and the knowledge base acts as a centralized repository of astrological and career insights. Through gRPC's API, the chatbot connects to the cloud database, ensuring seamless information retrieval and real-time query resolution. In this integrated system, astrological patterns and personality traits converge to deliver personalized career recommendations while the chatbot interface ensures efficient user engagement and information dissemination.

Datasets

I. Famous Personalities Dataset:

Table 1: Famous Personalities Dataset

Name	Gender	Date_Of_Birth	Place_Of_Birth	Time_Of_Birth	Occupation
Elon Musk	Male	1971-06-28	Preortia	21:00:00	Technology

The Training data is accumalated via Web Scrapping from different websites which include AstroSage [5], Famouspersonalities, This data accumalation took a whole lot of time to prepare which involved a lot of data preprocessing and cleaning

The ANN model was trained on 36 astrological parameters extracted from birth charts, which were generated using the ephem and geopy libraries in Python. These parameters include Planetary Houses (1-12) such as Sun_house and Moon_house, Planetary Rashi (Zodiac Signs) like Sun_rashi and Moon_rashi, and Planetary Degrees such as Sun_degrees and Moon_degrees. The Ascendant, represented by its House, Rashi, and Degrees, signifies the rising sign at birth. Additionally, the 10th House Lord, the planet governing the 10th house, plays a crucial role in career prediction. The Amatyakarak, known as the significator of career, along with its strength, provides further insights into the strength of career-related influences.

The Planetary Condition Dataset contains attributes of the nine planets (Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn, Rahu, Ketu) based on their placement in different houses (1-12) and Rashi (zodiac signs, 1-12). These attributes play a crucial role in defining an individual's tendencies, strengths, and qualities related to their career path. Each of the nine planets has its own datasheet, which includes the planet's name, house placement, and Rashi (zodiac) placement. The house placement indicates the planet's position in any of the twelve astrological houses, while the Rashi placement identifies the zodiac sign in which the planet is situated, represented numerically from 1 to 12 (e.g., Aries = 1, Taurus = 2, and so on).

The planetary datasheets also capture planetary qualities, where each planet influences different attributes based on its position in a particular house and Rashi. For instance, the Sun in the 10th house in Leo (Rashi 5) strengthens leadership and authoritative qualities, while the Moon in the 4th house in Cancer (Rashi 4) enhances creativity, caring, and emotional intelligence. To quantify these influences, every planetary condition is assigned a predefined score for 18 key qualities such as leadership, creativity, and communication. These scores are manually verified through astrological texts and the team's domain expertise. For each unique house and Rashi combination, a corresponding set of predefined scores for the 18 qualities is meticulously recorded, enabling the model to assign relevant attributes to an individual based on their birth chart.

II. Qualities Dataset

Table 2: Jobs requirement qualities dataset

Job	Analytical	Creativity	Communication	Practical	Leadership
Banker	9	6	7	2	4

the Qualities Dataset is the dataset of a job and its description analyzed for the 18 qualities to be scored by web surfing requirement of soft skills . This soft skills are acquired by various NER and Tokenization techniques to map accordingly using Word-Net .

The 18 qualities like Analytical, Practical, Creative, Leadership, Hardworking, Smartworking, Technical, Caring, Communication, Persuasive, Integrity, Imagination, Risk-taking, Spontaneity, Determination, Patience, Knowledge, and Wisdom are personality traits that help in mapping an individual's strengths and potential career paths. Understanding these qualities through NLP (Natural Language Processing) involves analyzing text-based information (like a person's bio or profile) and identifying the presence and intensity of these traits.

For this, an NLP model tokenizes the text, extracts meaningful words, and matches them with predefined patterns or keywords associated with each quality. Techniques like sentiment analysis, word embeddings, and named entity recognition help the system identify and assign scores to these traits based on context and frequency. Advanced models like BERT can also capture the deeper meaning of sentences, understanding qualities based on how people describe their actions, decisions, and thought processes.

Algorithms

Using the ephem library, we calculated planetary positions (Sun, Moon, Mercury, etc.) based on birth date, geopy.Nominatim for latitude, and longitude. `sklearn.preprocessing.StandardScaler`, `OneHotEncoder` are used in data preprocessing, Scaling numerical data and encoding categorical data

Used Tensorflow and Keras libraries in ANN for training on 36 astrological parameters to predict career sectors. Input: Birth chart parameters like planetary house, rashi, degrees, ascendant, 10th house lord, Amatyakarak, and their strengths. Output: Career sector recommendation (Science, Technology, Medical, etc.). 'sklearn.neighbors.KneighborsClassifier' functions used to get K-Nearest Neighbors (KNN) to refine and rank the top 5 job recommendations based on mapped qualities and sector scores. Input: Scores of 18 key qualities derived from astrological parameters. Output: Top 5 job recommendations based on the most similar quality scores. `pandas`, `matplotlib`, `numpy` are used in Time Series Analysis: Used for career prediction over dasha periods (planetary time cycles). Analyzes mapped scores across time to identify career growth and changes. `nltk`, `transformers.BertTokenizer`, `BertForSequenceClassification` are used for text classification and sentiment analysis (Skill assesment).

Models

Pre-trained BERT Model (Fine-tuned):

D) Used in the CV Insights module to map and score personality traits based on CV data.
E) Fine-tuned for the 18 qualities mapping to align with astrological-based predictions.
F) Output: Mapped quality scores from CV analysis.

ONNX Format Model (Open Neural Network Exchange):

- Converts the Q&A system into an optimized format for deployment.
- Ensures faster inference in the chatbot interface.

DistilBERT:

- A lightweight version of BERT, used for Q&A system training.
- Powers the chatbot interface for astrology-based career counseling.

Conclusion

In Conclusion the Astrology Based Career Recommendation System with Chatbot using Machine Learning represents a unique fusion of ancient astrological wisdom and modern machine learning techniques to provide accurate and personalized career recommendations. By leveraging birth chart data, astrological parameters, and a well-defined set of 18 key qualities, the system maps individual tendencies and strengths to predict the most suitable career paths across nine major sectors. The integration of Artificial Neural Networks (ANN) and K-Nearest Neighbors (KNN) ensures robust and data-driven sector mapping, while the CV Insights module, powered by a fine-tuned BERT model, enriches the recommendation process with real-world personality assessments.

Moreover, the system's chatbot interface, built with DistilBERT and optimized through ONNX, provides an interactive and accessible platform for career guidance. The incorporation of time series analysis of dasha periods further allows for long-term career trajectory insights, making a comprehensive and dynamic solution.

This research not only demonstrates the practical application of Vedic astrology in career counseling but also opens avenues for further exploration in integrating traditional knowledge systems with advanced AI models. Future work could expand the system's capabilities to include real-time planetary transits and deeper psychological profiling, strengthening the precision and scope of recommendations. Through this project, we take a step toward blending ancient wisdom with contemporary technology, offering a novel approach to career guidance and self-discovery.

Acknowledgement

I would like to express my deepest gratitude to everyone who supported me throughout the course of this research. First and foremost, I am immensely thankful to my mentors and guides, whose invaluable insights, constructive feedback, and constant encouragement played a crucial role in shaping this work. Their expertise and patience have been instrumental in helping me refine my ideas and bring this project to fruition.

I am also grateful to my family and friends for their unwavering support, understanding, and belief in my vision. Their encouragement kept me motivated and focused throughout this journey.

Conflict of Interest

The authors declare no conflict of interest concerning the research, authorship, and publication of this article.

Author Contribution Statement:

The author solely conceived, designed, and executed the research presented in this paper. The author collected and curated the datasets, developed the models, performed data analysis, and implemented the machine learning algorithms. Additionally, the author prepared the manuscript, including the formulation of the methodology, results interpretation, and visualization. Every aspect of the research from conceptualization to final documentation was conducted independently by the author.

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Acknowledgements

We would like to thank our project guide Prof.Monali Korde and our project co-ordinator Prof. Sayali Badhan for guiding us throughout the project. We would also like to thank our institute i.e. A. P. Shah Institute of Technology, Thane for providing us with a conducive environment to learn and research.

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