

Project Report: Programming Language Recommendation System

Objective: The objective of this project is to develop a programming language recommendation system based on user preferences such as programming paradigm, complexity, purpose, and other criteria.

Data Representation: The project uses a set of facts and rules to represent information about various programming languages. Key attributes include the type (low/high), object-oriented nature (yes/no), logic-based (yes/no), complexity (simple/complex), purpose (web/desktop/mobile), and usage (e.g., web development, system programming).

Language Characteristics: The system considers multiple characteristics of programming languages, including type, object-oriented nature, logic-based nature, complexity, purpose, and usage. This information is used to recommend suitable programming languages based on user input.

Recommendation Algorithm: The recommendation algorithm takes user input regarding the desired characteristics of a programming language (e.g., type, object-oriented, logic-based, complexity, purpose). It then matches this input against the available data on programming languages to suggest a language that aligns with the user's preferences.

User Interaction: The system interacts with the user through a series of questions to gather information about the user's preferences. Questions include inquiries about the desired type of language, object-oriented nature, logic-based nature, complexity, and purpose. Users can also request additional information about the recommended language and explore other languages with similar characteristics.

Validity Checks: The system includes validity checks for user input to ensure accurate and meaningful recommendations. If the user provides invalid input, the system prompts the user to enter valid information.

Additional Information: Users have the option to request more information about the recommended language. The system provides details such as type,

object-oriented nature, logic-based nature, complexity, purpose, and usage. Additionally, users can explore other languages with similar characteristics.

Similarity Feature: The system includes a feature that allows users to explore languages with similar characteristics to the recommended language. This helps users discover alternative languages that may also meet their requirements.

User Interaction (example):

- **System Initialization:**
 - User: ?- recommend(Language).
- **Asking About Language Type:**
 - System: Is the language low, high, or idk? (low/high/idk): idk.
 - User: yes. (Object-oriented)
- **Asking About Object-Oriented Nature:**
 - System: Is the language object-oriented, not object-oriented, or idk? (yes/no/idk): yes.
 - User: (Provided "yes" for object-oriented)
- **Asking About Logic-Based Nature:**
 - System: Is the language logic-based, not logic-based, or idk? (yes/no/idk): idk.
 - User: (Provided "idk" for logic-based)
- **Asking About Complexity:**
 - System: Is the language complexity complex, simple, or idk? (complex/simple/idk): simple.
 - User: (Provided "simple" for complexity)
- **Asking About Purpose:**
 - System: Is the language purpose desktop, web, or mobile or idk? (web/mobile/desktop/idk): web.
 - User: (Provided "web" for purpose)
- **Recommendation and Additional Information:**
 - System: Recommended language: Python
 - System: Do you want more information about this language? (yes/no): yes.
 - User: (Requested more information)

- **Displaying Information about Python:**
 - System: **Information about Python:**
 - Type: **high**
 - Object-oriented: **yes**
 - Logic-based: **no**
 - Complexity: **simple**
 - Purpose: **web**
 - Usage: **Data Science**
 - System: **Do you want more languages that are similar with type, object-oriented, and logic to Python? (yes/no): yes.**
 - User: (Requested similar languages)
- **Displaying Similar Languages:**
 - System: **Languages with similar characteristics: [Java, JavaScript, PHP, TypeScript, Ruby]**
 - System: **Language = Python.**

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% c:/users/zakaria/onedrive/documents/prolog/start 8 compiled 0.00 sec, -2 clauses
?- recommend(Language).
Is the language low, high, or idk? (low/high/idk): idk.
Is the language object-oriented, not object-oriented, or idk? (yes/no/idk): |: yes.
Is the language logic-based, not logic-based, or idk? (yes/no/idk): |: idk.
Is the language complexity complex, simple, or idk? (complex/simple/idk): |: simple.
Is the language purpose desktop, web, or mobile or idk? (web/mobile/desktop/idkweb.
Recommended language: python
Do you want more information about this language? (yes/no): |: yes.
Information about python:
Type: high
Object-oriented: yes
Logic-based: no
Complexity: simple
Purpose: web
Usage: Data Science
Do you want more languages that are similar with type , oo ,logic to python? (yyes.
Languages with similar characteristics: [java,javascript,php,typescript,ruby]
Language = python ,
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Conclusion: The programming language recommendation system provides a user-friendly interface for individuals seeking guidance on selecting a programming language based on their specific preferences. By considering various language characteristics, the system aims to offer tailored recommendations and enhance the user's understanding of different programming languages.

