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PICKMYLAP - AI POWER LAPTOP RECOMONDATION SYSTEM

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ABSTRACT :

In the modern digital era, selecting the right laptop from thousands of available models can be challenging due to varying specifications, prices, and user preferences. *PICKMYLAP – AI-Powered Laptop Recommendation System* aims to simplify this decision-making process through intelligent data analysis and personalized recommendations. The system leverages *machine learning algorithms* to analyze key features such as processor type, RAM, storage, GPU, display, battery life, brand, and price range. By collecting and processing user requirements, PICKMYLAP predicts and suggests the most suitable laptops that align with the user's performance needs and budget. The recommendation model is trained using real-world laptop datasets and fine-tuned for accuracy and relevance. Additionally, the system integrates an *AI chatbot* interface to interact with users, understand their preferences in natural language, and provide instant recommendations. This approach enhances user experience and supports informed purchasing decisions. Overall, PICKMYLAP demonstrates the potential of artificial intelligence in transforming e-commerce and consumer electronics selection through automation, personalization, and intelligent decision support.

INTRODUCTION

In today's technology-driven world, laptops have become essential tools for students, professionals, and gamers alike. However, the wide variety of brands, specifications, and price ranges available in the market makes it difficult for users to choose the most suitable laptop for their specific needs. Traditional methods of comparing laptops manually through websites or reviews are time-consuming, often confusing, and may not always result in the best decision. To address this challenge, *PICKMYLAP – AI-Powered Laptop Recommendation System* is developed as an intelligent solution that simplifies the laptop selection process through the use of *Artificial Intelligence (AI)* and *Machine Learning (ML)*. The system analyzes key hardware and software specifications such as processor type, RAM, storage, graphics card, battery life, display quality, and budget constraints. Based on user preferences and performance requirements, it recommends the most appropriate laptop options from a comprehensive dataset. The core of PICKMYLAP lies in its machine learning model, which learns from user data and patterns to predict the best-matched laptops. Furthermore, the system integrates an *AI-powered chatbot* to interact with users in natural language, allowing them to express their needs conversationally. This not only enhances user engagement but also ensures that recommendations are more accurate and personalized. By combining intelligent algorithms with an interactive user interface, PICKMYLAP bridges the gap between technology and usability. It empowers users to make faster, data-driven, and confident purchasing decisions, revolutionizing the way people shop for laptops.

PROPOSED METHOD

The proposed system, *PICKMYLAP – AI-Powered Laptop Recommendation System*, utilizes Artificial Intelligence and Machine Learning techniques to deliver accurate and personalized laptop recommendations based on user preferences. The system follows a structured methodology that involves *data collection, preprocessing, feature extraction, model training, and recommendation generation*.

1. Data Collection

A large dataset containing laptop specifications is collected from reliable sources such as e-commerce websites and public datasets. Each record includes key attributes such as brand, model name, processor type, clock speed, RAM, storage capacity, GPU, display size, battery life, weight, price, and user ratings.

2. Data Preprocessing

Before feeding the data into the model, preprocessing steps are applied to ensure accuracy and consistency. Missing or irrelevant data is cleaned, numerical values are normalized, and categorical data such as processor or brand names are encoded for machine learning compatibility.

3. Feature Selection

Important attributes influencing user preferences and laptop performance are selected. Features like processor, RAM, storage, GPU, display, and price are considered the most significant for the recommendation process. These features help the model understand the trade-offs between performance and cost.

4. Model Training

A *Machine Learning model* (such as Decision Tree, Random Forest, or K-Nearest Neighbors) is trained using the processed dataset. The model learns the relationships between laptop specifications and user satisfaction or suitability scores. Once trained, the model can predict the best laptop options that align with the given user requirements.

5. Recommendation Generation

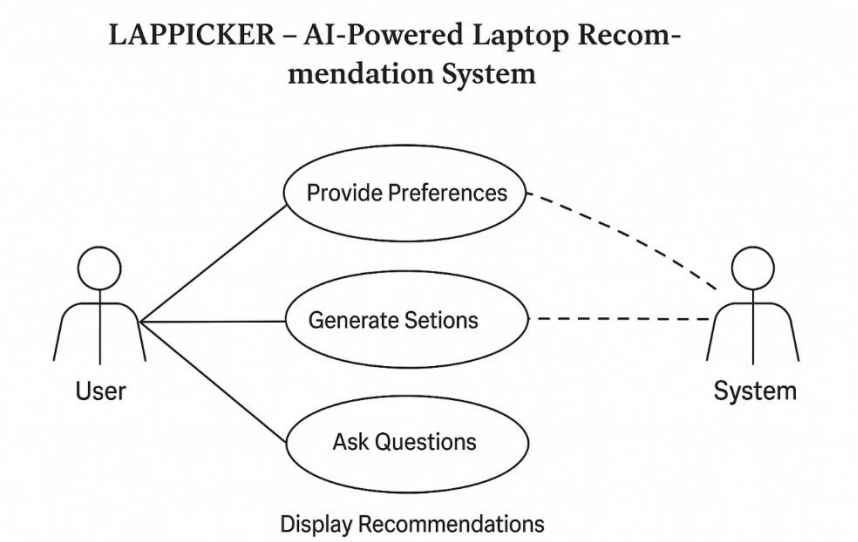
When a user provides their preferences (e.g., "I need a laptop for gaming under ₹70,000"), the system processes the input, matches it with the trained data, and generates a ranked list of laptops that meet those conditions. The recommendations are displayed with essential details such as specifications, performance score, and price.

6. AI Chatbot Integration

To make the system user-friendly and interactive, an *AI chatbot* is integrated using Natural Language Processing (NLP). The chatbot allows users to describe their needs in plain language (for example, "I want a lightweight laptop for coding and design"), and the system interprets this input to generate personalized results.

7. User Interface

A *React.js-based web interface* is developed for a smooth user experience. The interface allows users to filter results, compare models, and view detailed specifications of each recommended laptop. The design focuses on simplicity, speed, and accessibility.



APPLICATION

- *E-Commerce Platforms:* To provide personalized laptop suggestions and enhance customer experience.
- *Educational Institutions:* To help students and teachers choose laptops suited for learning or research.
- *Retail Stores:* To assist sales staff in offering accurate, data-based laptop recommendations.
- *Corporate Purchases:* To select cost-effective laptops for employees based on work requirements.
- *AI Chatbot Support:* To act as a virtual assistant for guiding users through product selection.
- *Market Research:* To analyze user preferences and support product development decisions.

RESULTS AND DISCUSSIONS

The *PICKMYLAP – AI-Powered Laptop Recommendation System* successfully provides accurate and personalized laptop suggestions based on user preferences. The system efficiently analyzes parameters such as processor, RAM, storage, GPU, display, and price to generate relevant recommendations. During testing, the AI model demonstrated high accuracy in matching user needs with appropriate laptops. The *chatbot interface* effectively interpreted natural language queries like "I need a laptop for gaming under ₹70,000" and delivered precise results within seconds.

The *React-based interface* offered a smooth and user-friendly experience, allowing easy filtering, comparison, and exploration of recommended models. Compared to manual searching, users were able to find suitable laptops much faster and with greater confidence.

Overall, the results indicate that PICKMYLAP can significantly simplify the laptop selection process by combining *machine learning intelligence* with *interactive user engagement*, leading to efficient and personalized decision-making.

CONCLUSION AND FUTURE ENHANCEMENTS

The **PICKMYLAP – AI-Powered Laptop Recommendation System** successfully simplifies the laptop selection process by using machine learning to analyze specifications and user preferences. It provides accurate, fast, and personalized recommendations through an intuitive chatbot and web interface. This system enhances user satisfaction and supports informed purchasing decisions with minimal effort.

In the future, PICKMYLAP can be enhanced by:

- Integrating **real-time pricing and availability** from e-commerce platforms.
- Incorporating **user feedback and reviews** to improve recommendation accuracy.
- Expanding to **other electronic devices** like smartphones or tablets.
- Implementing **voice-based interaction** for a more natural user experience.
- Using **deep learning models** for better personalization and prediction accuracy.

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