PicLingo  
An AI-Driven Image Caption Generator

Project Report Submitted  
In Partial Fulfillment of the Requirement for the Award of the Degree of  
BACHELOR OF TECHNOLOGY  
IN  
COMPUTER SCIENCE

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# Certificate

This is to certify that the project report titled “PicLingo - An AI Driven Image Caption Generator” submitted by PRINCE SINGH (21142), PRATHAM HARSH (21141), and TABISH JAVED (21160) is a bonafide record of the work carried out under my supervision in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Computer Science and Engineering.

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# Abstract

PicLingo is an AI-powered image caption recommendation system built to transform how textual information is derived from visual inputs. The project employs OpenAI’s CLIP (Contrastive Language–Image Pre-training) model to understand and match image content with the most contextually appropriate captions using cosine similarity. By bridging computer vision and natural language processing, PicLingo addresses the limitations of traditional captioning methods.

The project stands out for its use of a retrieval-based approach instead of generative models, making it more efficient and accurate for real-world applications such as content management, accessibility for visually impaired users, social media automation, and SEO enhancement. The backend is powered by Flask (Python), and the frontend is built using modern web technologies, deployed seamlessly via Vercel.

This report outlines the technical architecture, methodology, and testing strategies used in developing the project, offering a comprehensive understanding of the system’s capabilities and potential extensions.