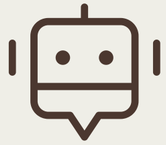
CODEGENIE 

“AI-powered code suggestions for seamless coding.”

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INTRODUCTION

CodeGenie is an AI-powered coding assistant designed to seamlessly integrate with Visual Studio Code.
It uses the DeepSeek-Coder model to provide:

- 🔹 Real-time code suggestions and intelligent autocompletions
- 🔹 Smart error detection and debugging support
- 🔹 AI-generated code snippets to speed up development

With CodeGenie, developers can code faster, reduce errors, and stay focused on building high-quality applications.
It acts like a personal AI coding partner inside your IDE, enhancing productivity and minimizing manual effort.

Code Genie - “Your AI coding partner”

CODE SMARTER CODE FASTER

"Transform Ideas into Code Effortlessly."

deepseek coder

What CodeGenie will Achieve?

- Build an AI-powered coding assistant as a VS Code extension that provides:
  - ✅ Real-time code suggestions
  - ✅ error detection
  - ✅ smart autocompletions
- Help developers write better code faster with DeepSeek-Coder AI model integration.
- Uses DeepSeek Coder to optimize developer workflow.
- Runs on high-performance RTX 4090 GPU, ensuring fast and efficient inference

🛠️ Business Problem Addressed

- Slow Development & Inefficiency: Time-consuming coding and debugging slow progress.
- Lack of Personalization: Generic AI models don’t fit specific project needs.
- Security & Privacy Concerns: Risks limit AI adoption in organizations.
- Inconsistent Code Quality: Syntax errors and poor best practices reduce code quality

Users:

- Software Developers
- Students
- Researchers
- Companies and Enterprises

Roles:

- End Users
  - Developers who use CodeGenie for real-time code suggestions and autocompletions
- AI Model Trainers
  - Continuously fine-tune and improve the AI model based on feedback and new coding trends.
- Administrators
  - Manage user access, settings, and extension configurations.

Solving Developers pain points :

- Faster Coding
- Better Coding Quality
- Enhanced Security
- Personalized Suggestions

User Interaction:

Input

- User types a prompt, query in VS Code.
- Request is sent to the AI model.

Output

- AI generates real-time code suggestions and auto completions.
- Displays result in the CodeGenie panel inside VS Code

Datasets & Preprocessing

DATASETS:

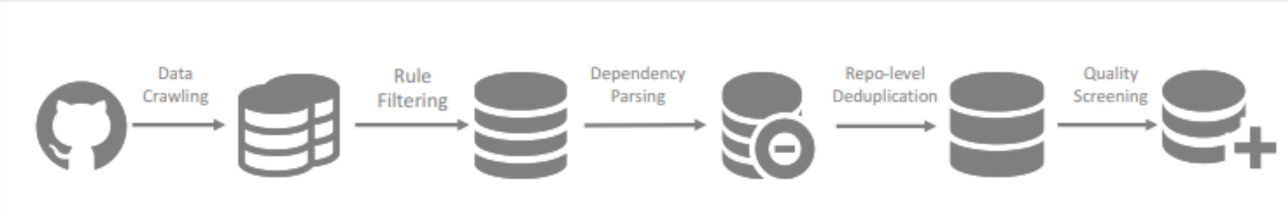
- Pre-trained model (DeepSeek Coder)
- Open-source code repositories (e.g., GitHub public datasets)
- Programming question-answer pairs (e.g., Stack Overflow dumps)

SOURCES:

- Publicly available open-source projects

DATA PREPROCESSING:

Data is crawled, filtered, parsed for dependencies, deduplicated at the repository level, and quality screened to ensure a clean and reliable dataset.



- GitHub Data Crawling and Filtering: Collecting data from public GitHub repositories while filtering out large or irrelevant files.
- Dependency Parsing: Analyze and sort file dependencies topologically.
- Repo-level Deduplication: Remove near-duplicate code per repository.
- Quality Screening: Filter low-quality code, prevent test contamination.

Tech Stack

FRONTEND :

- Language: TypeScript
- Framework: VS Code Extension API
- UI Components: HTML,CSS,React

BACKEND :

- Model Hosting: Flask API
- Framework: VS Code Extension API
- API Integration: RESTFul API

AI MODEL :

- Model: DeepSeek-Coder(LLM)
- Library: Hugging Face Transformer(for loading and utilizing the model)
- GPU Acceleration: CUDA (to leverage RTX 4090 GPU)

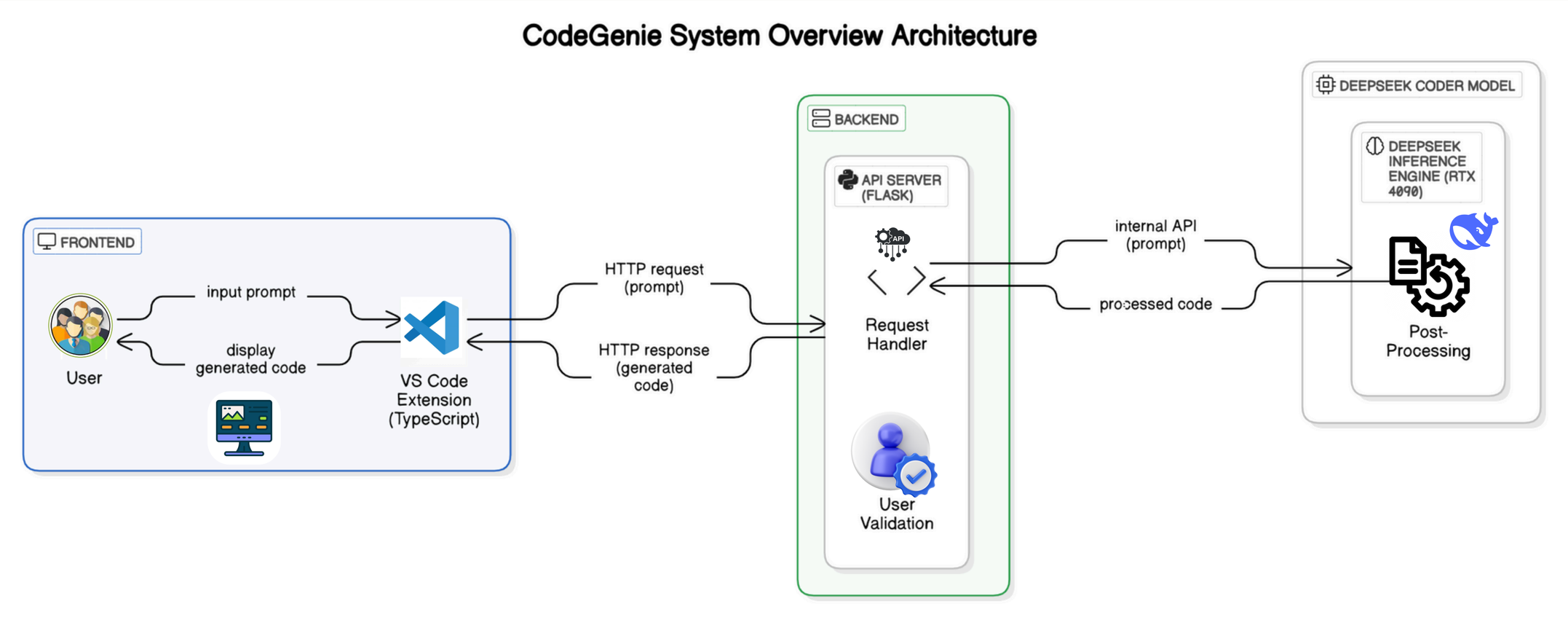
DEPLOYMENT :

- Publishing: Visual Studio Code Marketplace
- Version Control: Git & GitHub

Cloud Deployment

- Deployment in VS Code Marketplace.
- Accessible via VS Code Marketplace for global reach.
- Cloud-hosted intelligence (DeepSeek API) powers suggestions.
- Scalable cloud resources maintain local performance.

ARCHITECTURE DIAGRAM



THANK YOU!