# Feasibility Study: Code Summarizer & Flowchart Generator



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## Decision: Go / No-Go

### 1. Technical Feasibility

The proposed project is a web-based application designed to accept source code, summarize it into plain text, and generate a visual flowchart of its logic. This leverages modern web technologies and AI capabilities for efficient code analysis.

**Technology Stack:**

**Backend:** Python (FastAPI), REST APIs, PostgreSQL/MySQL

**Frontend:** HTML, JavaScript, React.js,Vite,Tailwind CSS

**Flowchart Generator:** Graphviz, NetworkX, Python custom algorithms

**Generative AI:** LangChain (with OpenAI API / HuggingFace models integration)

**Testing Tools:** PyTest, Selenium

**Project Management:** Agile methodology, Jira/Trello

**Justification:**

The chosen technologies are well-established, open-source, and offer excellent scalability. The utilization of existing libraries for code parsing and visualization will significantly reduce overall development time and effort.

### 2. Operational Feasibility

The system is intended for use by a diverse audience including developers, students, and educators. Its primary purpose is to accelerate code comprehension and provide clear visual representations of program logic.

**Operational Workflow:**

User uploads source code via the web interface.

The backend processes the code, utilizing ML/NLP models for summarization.

The flowchart module generates a visual representation of the code's logic.

The user interface displays the summarized text and the generated flowchart, with options for downloading or exporting.

**Benefits:**

**Time Savings:** Significantly reduces the time required for code analysis and understanding.

**Improved Comprehension:** Enhances understanding through clear, visual logic flows.

**Accessibility:** Accessible through any modern web browser, requiring no special software installation.

**Challenges:**

**Language Support:** Ensuring robust support for a wide range of programming languages.

**Accuracy:** Maintaining a high level of accuracy in code summarization.

### 3. Economic Feasibility

**Estimated Costs:**

**Development:** Minimal, primarily utilizing open-source tools and in-house resources.

**Hosting:** Approximately ₹2,000 per month for cloud services.

**Maintenance:** Ongoing periodic bug fixes and feature enhancements.

**Benefits:**

**Efficiency Gains:** Reduces time spent on code reviews and debugging.

**Revenue Potential:** Possibility of generating revenue through premium licensing or advanced features.

**ROI:** Low initial investment with a high potential for return on investment.

**Conclusion:**

The economic outlook for this project is positive, with the anticipated benefits substantially outweighing the estimated costs.

### 4. Legal Feasibility

**Licensing:** Strict adherence to all applicable open-source licensing agreements.

**IP Compliance:** No anticipated intellectual property violations.

**Attribution:** Proper crediting and licensing will be maintained for all external libraries and tools used.

### 5. Schedule Feasibility

**Project Duration:** An estimated total project duration of 18 weeks, as detailed in the prepared Gantt chart.

**Team Allocation:** Parallel work distribution across four team members is planned to ensure timely delivery.

### 6. Resource Feasibility

**Human Resources:**

**Member 1:** Backend Development

**Member 2:** Frontend Development

**Member 3:** ML/NLP Development

**Member 4:** Flowchart Generation & Quality Assurance

**Hardware Resources:**

Developer laptops/desktops with stable internet connectivity.

**Software Resources:**

Integrated Development Environments (IDEs) such as VS Code, PyCharm.

Version Control System (Git,Github).

Testing Frameworks (PyTest, Selenium).

Project Tracking Tools (Jira/Trello).

### 7. Cultural Feasibility

**Collaboration:** Fosters collaboration between technical and non-technical team members.

**Inclusivity:** Designed with accessibility and multilingual support in mind.

**Educational Impact:** Encourages educational use across diverse geographical regions and learning environments.

## Go/No-Go Decision

Considering the strong technical foundation, a clear operational plan, a favorable economic analysis, and an achievable schedule, the project is deemed feasible.

**Decision: ✅ Go**

# Week-Wise Gantt chart.: Code Summarizer & Flowchart Generator



