# AI ENHANCED DEBUGGING AND CODE TRANSLATION

**A MINI PROJECT REPORT**

***Submitted by***

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***in partial fulfillment for the award of the degree of***

## BACHELOR OF TECHNOLOGY

**IN INFORMATION TECHNOLOGY**



## St. JOSEPH’S COLLEGE OF ENGINEERING

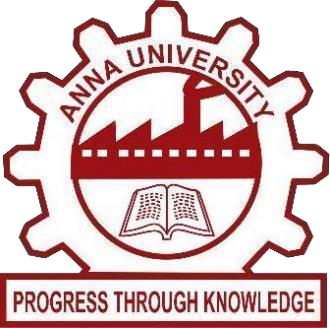
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### BONAFIDE CERTIFICATE

Certified that this mini project report **“AI ENHANCED DEBUGGING AND CODE TRANSLATION”** is the bonafide work of **PRANAV VS (312321205121)** and **RAJA N (312321205128)** who carried out the mini project under my supervision, for the partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Information Technology.

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# CERTIFICATE OF EVALUATION

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The report of the mini project work submitted by the above students in partial fulfillment for the award of Bachelor of Technology Degree in Information Technology of Anna University were evaluated and confirmed to be reports of the work done by the above students.

Submitted for mini project and Viva Examination held on .

**INTERNAL EXAMINER EXTERNAL EXAMINER**

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**ABSTRACT**

In the dynamic landscape of software development, effective debugging and seamless code translation across programming languages are paramount to accelerating development cycles and promoting interoperability. The project "AI Enhanced Debugging and Code Translation" is dedicated to addressing these challenges by harnessing cutting-edge artificial intelligence (AI) techniques. The primary goal of this project is to revolutionize the debugging process through AI-driven automation and optimization. By leveraging advanced AI algorithms, the system will analyze code structures, detect errors, provide detailed error explanations, suggest fixes, and optimize code performance. This intelligent approach aims to streamline the identification and resolution of code issues, ultimately enhancing developer productivity and software quality.

Furthermore, the project focuses on enabling seamless code translation between different programming languages using AI-powered tools. The system will preserve the underlying logic and functionality of the code while adapting it to the syntax and conventions of the target language. This transformative capability empowers developers to overcome language barriers, facilitating code reuse and promoting interoperability across diverse development environments.

Key features of the project include intelligent error detection and diagnosis using AI-driven code analysis, automated suggestions for code fixes and optimizations based on AI insights, and seamless code translation capabilities powered by advanced AI models. The technological implementation will leverage state-of-the-art AI frameworks and cloud-based services to deploy robust and scalable solutions. By democratizing access to AI-enhanced debugging tools and code translation capabilities, this project aims to empower developers of all skill levels to build innovative and resilient software applications, thereby fostering collaboration and advancement within the global programming community.

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|  | **TABLE OF CONTENTS** |  |
| **CHAPTER** | **TITLE** | **PAGENO** |
|  | ABSTRACT | 3 |
|  | LIST OF FIGURES | 6 |
|  | LIST OF TABLES | 6 |
|  | LIST OF ABBREVIATIONS | 7 |
| **1** | **INTRODUCTION** | 8 |
| **2** | **LITERATURE SURVEY** | 10 |
| **3** | **SYSTEM ANALYSIS** | 15 |
|  | 3.1 EXISTING SYSTEM |  |
|  | 3.2 PROPOSED SYSTEM | 15 |
| **4** | **SYSTEM DESIGN** | 16 |
|  | 4.1 ARCHITECTURE | 19 |
|  | 4.2 SYSTEM FLOW | 21 |
|  | 4.3 USE CASE DIAGRAM | 23 |
|  | 4.4 SEQUENCE DIAGRAM | 24 |
|  | 4.5 ACTIVITY DIAGRAM | 25 |
|  | 4.6 CLASS DIAGRAM | 26 |
| **5** | **SYSTEM IMPLEMENTATION** | 27 |
|  | 5.1 MODEL DESCRIPTION | 27 |
|  | 5.2 METHODOLOGIES |  |
| **6** | **CONCLUSION AND FUTURE SCOPE** | 36 |
|  | APPENDICES |  |
|  | REFERENCES  v |  |

|  |  |  |
| --- | --- | --- |
|  | **LIST OF FIGURES** |  |
| **FIGURE NO** | **TITLE** | **PAGE NO** |
| 3.1 | PROPOSED SYSTEM ARCHITECTURE | 20 |
| 3.2 | USE CASE DIAGRAM | 23 |
| 3.3 | SEQUENCE DIAGRAM | 24 |
| 3.4 | ACTIVITYDIAGRAM | 25 |
| 3.5 | CLASS DIAGRAM | 26 |
| A1.1 | CODE SNIPPET | 49 |
| A1.2 | ERROR IDENTIFICATION | 50 |
| A1.3  A1.4  A1.5  A1.6 | OPTIMIZED CODE GENERATION  CONVERSATIONAL BOT  DESIRED LANGUAGE  TRANSLATED CODE | 50 |

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**LIST OF ABBREVIATIONS**

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| **ABBREVIATION** | **DEFINITION** |
| AWS  GEN AI | Amazon Web Services  Generative Artificial Intelligence |
| LLM | Large Language Model |
| AI | Artificial Intelligence |
| NLP | Natural Language Processing |
| NLTK | Natural Language Toolkit |