A Mini Project Report on

**“ABSOLUTE LOADER IN C”**

Submitted in partial fulfillment of the requirement for the Sixth Semester

**Bachelor of Engineering**

In

**Computer Science and Engineering**

**Visvesvaraya Technological University, Belgaum**



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2022-2023

**Department of Computer Science and Engineering,**

**DAYANANDA SAGAR COLLEGE OF ENGINEERING**

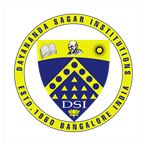
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**CERTIFICATE**

This is to certify that the mini project entitled “**ABSOLUTE LOADER IN C”** is a bonafide work carried out by “**AUM PATIL [1DS20CS145], PAVAN GOWDA SN [1DS20CS146], PRAJWAL SN [1DS20CS147], PRASANNA DESHPANDE [1DS20CS148]**” in partial fulfilment of 6th semester, **Bachelor of Engineering** in **Computer Science and Engineering** under **Visvesvaraya Technological University, Belgaum** during the year 2022-23.

**(Internal Guide) Vice Principal & HOD Principal,**

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**Signature: \_\_\_\_\_\_\_\_\_\_\_ Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_ Signature: \_\_\_\_\_\_\_\_\_\_\_**

**Name of the Examiners Signature with date**

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**ACKNOWLEDGEMENT**

We are pleased to have successfully completed the Mini project **“Title of the project”**. We thoroughly enjoyed the process of working on this project and gained a lot of knowledge doing so.

We would like to take this opportunity to express our gratitude to **Dr. B G Prasad**, Principal of DSCE, for permitting us to utilize all the necessary facilities of the institution.

We also thank our respected Vice Principal, HOD of Computer Science & Engineering, DSCE, Bangalore, **Dr. Ramesh Babu D R**, for his support and encouragement throughout the process.

We are immensely grateful to our respected and learned guide, Prof. **Aparna M**, As. Professor, CSE, DSCE for her valuable help and guidance. We are indebted to them for their invaluable guidance throughout the process and their useful inputs at all stages of the process.

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Minor Project - Report

March 2023-July 2023

Course Faculty: Prof. Aparna M Course Name & code: System Software

Lab (18CS6DLSSL)

Semester: 6 Date: 12/6/2023

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| --- | --- | --- | --- | --- |
| TITLE OF THE PROJECT | Absolute Loader in C | | | |
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| STUDENT NAME | Aum S. Patil | Pavan Gowda SN | Prajwal SN | Prasanna Deshpande |
| USN | 1DS20CS145 | 1DS20CS146 | 1DS20CS147 | 1DS20CS148 |
| INDIVIDUAL  CONTRIBUTION | Researching, design, C programming | Researching, design, C programming | Researching, C programming, algorithm analysis, design | Researching, design, C programming, testing |
| GUIDE | Prof. Aparna M | | | |
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| PROJECT ABSTRACT : | This project focuses on the implementation of an absolute loader using the C programming language. The absolute loader plays a crucial role in the translation process, where machine code instructions and data stored in secondary storage are loaded into main memory for execution. Our objective was to develop a robust and efficient absolute loader capable of accurately loading machine code into memory addresses specified in the input file.  In this report, we provide an overview of our absolute loader implementation discussing the design choices, algorithms, and data structures employed during the development process. We also present the testing procedures used to ensure the correctness and reliability of the loader. By undertaking this project, we aimed to gain practical experience in software development, understand the principles of loading and apply programming concepts effectively. | | | |
| PLATFORM USED  (H/W & S/w tools used | Tools used:   * Code editors/IDE (VS Code, Vim, Notepad++) * C compilers (GCC) | | | |
|  |  | | | |
| Introduction | The efficient execution of computer programs heaviliy relies on a well-strucutred process that transforms human-readable code into machine-executable instructions. Loading is an integral part of this process, where the instruction and data residing in secondary storage are brought intomain memory for execution. Absolute loaders, on of the fundamental types of loader, play a critical role in this translation process.  In this project, we have implemented an absolute loader using the C programming language. Our objective was to develop a robust and efficient loader capable of loading abslute machine code into memory addresses specified in the input file. By creating a functional absolute loader, we aimed to understand the underlying principles of loading and gain practical experience in implementing this essential component of the software development process.  This report provides an overview of our absolute loader implementation, detailing the design choices, algorithms employed, and challenges encountered during the development process. We will also discuss the testing procedures employed to ensure the correctness and reliability of the loader. Through this project, we aim to demonstrate a practical application of programming concepts, data structures, and file handling techniques in the domain of systems software. | | | |
| List of papers/URLS referred | * <https://www.geeksforgeeks.org/system-software/> * <https://www.geeksforgeeks.org/difference-between-system-software-and-application-software/> * <https://www.javatpoint.com/load> | | | |
|  |  | | | |
| DesiGn  {SYSTEM DESIGN DIAGRAM} |  | | | |
| Project Source Code Link (Github/ Google DRive) | <https://github.com/aum123456/ss-mini-project> | | | |
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| Conclusion /FUTURE ENHANCEMENT | In conclusion, this project has provided us with a valuable opportunity to  explore the implementation of an absolute loader in C. Through this  endeavor, we have gained practical experience in the development of loaders  and deepened our understanding of the intricacies involved in the loading process.  Our implemented absolute loader successfully accomplishes the critical task  of loading machine code into memory addresses specified in the input file.  ‘We have employed effective design choices, algorithms, and data structures to ensure the loader's robustness, efficiency, and accuracy. | | | |
|  |  | | | |
| Ui SCREENSHOTS OF SAMPLE RESULTS |  | | | |
| REFERENCES | * Leland L. Beck, D Manjula, *System Software* 3rd edition, Pearson Publication, 2012 * Doug Brown, John Levine, Tony Mason, *LEX & YACC* 2nd edition, O’Reilly Media, 2012 * Ayu Sharma, *What is System Software*, [www.geeksforgeeks.com](http://www.geeksforgeeks.com), May 2023 * Abhishek S, *Basic Functions of a Loader*, [www.geeksforgeeks.com](http://www.geeksforgeeks.com), Nov 2022 | | | |