Dear Intern

Project report is an inherent component of your internship. We are enclosing a reference table of content for the project report. Depending on the internship project (IT/Non-IT, Technical/Business Domain), you may choose to include or exclude or rename sections from the table of content mentioned below. You can also add additional sections. The key objective of this report is for you to systemically document the project work done.

|  |  |  |
| --- | --- | --- |
| Internship Project Title | TCS iON RIO- 45: Create a CAPTCHA Service to Secure a Simple Web-based Application |  |
| Name of the Company | TCS iON |  |
| Name of the Industry Mentor | Vidhya Renganathan |  |
| Name of the Institute | Sri Sri University |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Start Date | End Date | Total Effort (hrs.) | Project Environment | Tools used |
| 17/09/2022 | 26/09/2022 | 45 | Eclipse IDE, windows, JAVA-8 | JAVA, HTML, CSS, JavaScript, JSP |

**Here’s an updated draft of your table of contents and details based on your project documents:**

**TABLE OF CONTENTS**

1. **Acknowledgements**
   * **Express gratitude to TCS iON, industry mentors, and academic advisors for their guidance.**
2. **Objective**
   * **Define the goal: Developing a CAPTCHA service to enhance web application security.**
3. **Introduction / Description of Internship**
   * **Explain CAPTCHA, its purpose, and the significance of preventing bots from overwhelming systems.**
4. **Internship Activities**
   * **Outline tasks such as researching CAPTCHA requirements, implementing logic using Java, and integrating the service into a login page.**
5. **Approach / Methodology**
   * **Detail the step-by-step process, including the design of the login page, CAPTCHA generation, validation, and integration.**
6. **Assumptions**
   * **Mention presumptions like users' ability to interpret CAPTCHA and the compatibility of Java-based solutions across platforms.**
7. **Exceptions / Exclusions**
   * **Identify limitations, e.g., lack of support for mobile apps or visually impaired users.**
8. **Charts, Tables, Diagrams**
   * **Include:** 
     + **Flowchart: CAPTCHA generation and validation process.**
     + **Table: CAPTCHA features and properties like distortion methods and validation techniques.**
     + **Diagram: System architecture connecting the CAPTCHA service, user interface, and backend.**
9. **Algorithms**
   * **Detail CAPTCHA generation and validation logic, supported by code snippets and explanations.**
   * **Include sample code for random string generation and distorted CAPTCHA image creation.**
10. **Challenges & Opportunities**
    * **Challenges: Implementing distortion techniques, handling user errors, and ensuring accessibility.**
    * **Opportunities: Expanding the CAPTCHA types, such as audio CAPTCHA or multi-language support.**
11. **Risk Vs Reward**
    * **Risks: User frustration with difficult CAPTCHAs or reduced accessibility.**
    * **Rewards: Improved security and protection against bots.**
12. **Reflections on the Internship**
    * **Insights and personal growth gained during the project development.**
13. **Recommendations**
    * **Suggestions for future development, such as adopting AI-driven CAPTCHA solutions.**
14. **Outcome / Conclusion**
    * **Deliverable: A secure login page with CAPTCHA functionality to protect the application.**
15. **Enhancement Scope**
    * **Suggestions:** 
      + **Use color-based CAPTCHA.**
      + **Hidden text field validation with masking.**
      + **Expand CAPTCHA to support multiple web pages.**
16. **Link to Code and Executable File**
    * **Links provided:** 
      + [**Aghorix88/TCS\_ION\_RIO\_45\_INTERNSHIP**](https://github.com/Aghorix88/TCS_ION_RIO_45_INTERNSHIP)
      + <https://souvik1020.github.io/TCS-RIO/>
17. **Research Questions and Responses**
    * **Addressed questions related to optimizing CAPTCHA, improving user experience, and ensuring platform compatibility.**

