# ABSTRACT

The main reason for integrating Devops with Machine Learning Application is to integrate Development and Operation Environment Seamlessly. The machine learning processes of development and deployment during the experimentation phase may seem easy However, if not carefully designed, deploying and using such models may lead to a complex, time-consuming approaches which may require significant and costly efforts for maintenance, improvement, and monitoring with the help of continuous integration (CI) and continuous delivery (CD) principles, practices, and tools so as to minimize waste, support rapid feedback loops, explore the hidden technical debt, improve value delivery and maintenance. Machine Learning model should be reproducible, collaborative, scalable and continuous in nature to which integrating it with agile practices to meet and improve operational functions for real-world machine learning application. With huge amount of data generating everyday we need efficient practices to handle it so we need good mlops that are designed to standardize and streamline the lifecycle of ML in production which incorporates these practices to deliver machine learning applications and services at high velocity.

Any achievement doesn’t depend solely on the individual efforts but on the guidance, encouragement and cooperation of intellectuals, elders and friends. A number of personalities have helped us. I would like to take this opportunity to thank all of them.

I would like to express our sincere gratitude to **Dr. H Ramakrishna,** Principal, S. C. E., Bengaluru, for his help and inspiration during the tenure of the course.

I extend warm thanks to **Dr. H R Ranganatha**, H.O.D., Dept. of I.S.E., S.C.E., Bengaluru, for his constant encouragement, motivation and guidance.

I also extend my thanks to Technical Seminar Coordinator **Prof. Sushmitha M S**, Assistant Professor, Dept. of I.S.E., S.C.E., Bengaluru, for their valuable coordination and support.

I would like to thank my guide **Dr.Asha P N,** Associate Professor, Dept. of I.S.E., S.C.E., Bengaluru, for her timely advice, constructive suggestions and regular assistance in the Technical Seminar work.

Wholeheartedly I would like to thank the faculty members and staff of the Department of I.S.E., S.C.E., for their valuable time and expertise.

We would like to extend our heartfelt gratitude to our parents and to all our friends for their co-operation and motivation.

**ADITYA N (1SG17IS003)**

|  |  |  |
| --- | --- | --- |
| **Chapter No.** | **Chapter Name** | **Page No.** |
| **1.**  1.1  1.2 | **INTRODUCTION**  Overview  Organisation of report | **01-03**  02  03 |
| **2.** | **LITERATURE SURVEY** | **04-05** |
| 2.1 | Related works | 04 |
| 2.1.1 | Description | 04 |
| 2.1.2 | Drawbacks | 05 |
| **3.**  3.1    3.1.1    3.1.2  3.2  3.2.1  3.2.2 | **PRINCIPLE/WORKING**  ML Method  Crisp-DM Methodology  Semma methodology    Working  Machine Learning Manual Pipeline  Automated pipeline with CI/CD | **06-11**  06  06  07  08  08  09 |
| **4.**  4.1  4.2  **5.** | **MERITS AND DEMERITS**  Merits Demerits  **APPLICATIONS CONCLUSION GLOSSARY ACRONYMS**  **BIBLIOGRAPHY** | **10**  12  12  **13**  **14**  **15**  **16**  **17** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl. No.** | **Figure No.** | **Title of figure** | **Page No.** |
| 1 | 3.1.1 | CRISP-DM Methodology | 06 |
| 2 | 3.1.2 | SEMMA Methodology | 07 |
| 3 | 3.2.1.1 | A Machine Learning Manual Pipeline Process**.** | 08 |
| 4 | 3.2.2.1 | ML pipeline automation for CI/CD | 11 |