

Birla Institute of Technology & Science – Pilani

DISSERTATION

TITLE OF YOUR PROJECT

Submitted in partial fulfillment of the requirements of the
MTech Data Science and Engineering Degree programme

By

Your Name
Your Roll No.

Under the supervision of

Your Supervisor, Position In company
Company name

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE
Pilani (Rajasthan) INDIA

(Jan, 20xx)

1. Acknowledgement

During the project, I have received good number of suggestions, technical guidance and support so I would like to express my gratitude for people involved in completing my dissertation.

To start with, I would like to thank my supervisor **YOUR SUPERVISOR**, whose technical knowledge and expertise helped in formulating the system architecture and design. Her deep technical feedbacks pushed me to sharpen my thinking and brought my work to a higher level.

I would like to express my sincere thanks for Prof. XXXX from BITS Pilani who's deep and extensive reviews have helped me to understand the problem statement better and then, narrow down to the solution. His/Her special emphasis on literature review and technical discussion has helped me in refining and building the solution. His/Her guidance has built up my approach that I needed to choose the right direction and successfully complete my dissertation.

I would like to acknowledge my colleagues from data team for their strong collaboration and support. This is also the right place to acknowledge the contribution from open source community and documentation available online which helped me to complete the project. It was a great learning.

Finally, I could not have completed this dissertation without the help of my family, who provided me great support to extend my work and sacrifice their personal time.

2. Disclaimer

In this section, author has explained the limitations and usage restriction of the proposed application.

Development

Author and associated people are working on the research and development of an engineering solution in healthcare domain. At no point, this solution shall be consider recommended and useable in medical services.

Data

Model is built and tested on open source data. This open source data is supplemented with the manually annotated dataset by the author and team. This dataset is not qualified by any medical authority and institution. Henceforth, it shall not trusted for making any decision.

Model

This model is not ready for medical setting and can only be used a representative work for other work in the organization.

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3. Certificate from Supervisor

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CERTIFICATE

This is to certify that the Dissertation entitled “**TITLE**” and submitted by **Mr. Ankit Tomar** ID No. **YOUR ROLL NO.** in partial fulfillment of the requirements of Dissertation, embodies the work done by him/her under my supervision.

Signature of the Supervisor

Name:

Place: _____

Designation:

Date: _____

4. Abstract

COPY PASTE ABSTRACT FROM OUTLINE

➔ May be become innovative.

5. Introduction and background

Explain the background. Add at least 1 page for explains why do you care about this project.

Problem Statement

➔ **Explain the problem problems**

Risk of projects

Always explains what are the potential failures of the project or atleast what you can foresee.

6. Summary of Literature Review

<add three lines why this section>

Literature review was focused upon –

- Need assessment of the solution
- GAP identification
- Learning from past work to improve the solution

Need Assessment

< Read the multiple papers on your subject, add learnings from them>

Existing Engineering Solutions Review

This section of the document, author has provided summary of the past engineering solutions done by various organizations.

Summary of existing solutions

Explain how it is done today.

Tip – Use other paper's content to build the summary and then always give reference.

7. GAP analysis

Talk about the gaps you found and you will build your product to address those gaps.

8. Proposed Solution

Introduce the conceptual level of info. For your proposed solution.

Uniqueness of Proposed solution

<add atleast 5>

In-scope:

- Literature review of the subject
- Dataset creation
- MVP level user interface for interaction with model
- Etc.

Out of scope:

- Add what all you will not cover

Resources Needed

The project has dependency on multiple python libraries and these are mentioned in project code.

The below mentioned hardware and software resources are used during model development.

- 8GB RAM,
- 500 GB HDD
- Google Colab for development
- Google Cloud Platform for hosting

9. Key Consideration of the solutions

This is very important section. You cannot build perfect solution. You need to make some assumptions and take decisions. So, fill the section carefully.

Key Decisions

During the project planning, certain decision were taken in regards to development. The rationale to such decisions are explained in this section.

10. Evaluation Metrics

11. High Level System Requirements

In this section, system level requirements are described.

Functional Requirements

This section states the functional requirement for the solution.

Non-Functional Requirements

This section states the non-functional requirement for the solution.

Req. No.	Requirement Description	Implementation	Validation
1	System shall be able to respond within 1 sec		
2	Solution shall be scalable and fault tolerant		
3	Model shall be trained on weekly basis		

12. Solution Architecture and ML System Design

This section provide information on solution architecture for the proposed solution. The solution is an integration of multiple modules and follows a strong decoupled module principle.

Key Features and principles

- Independent and decoupled modules so that any module can be improved as and when needs arise
- Deployment on GCP infrastructure to maintain the scalability and load balancing

Solution Architecture

Figure1: Solution architecture

Future enhancements recommendation:

- Architecture shall be improved for managing the exception handling for model re-training
- Model versioning shall be implemented

ML System design - Level Machine Learning system design approach

In this section, ML system design has been explained in detail. The proposed solution architecture has 4 major components.

13. Data

<Talk about your data >

Example of data

Key issues and obstacles

While working on this project, data quality has been seen a major challenge.

-

Recommendation to do better data collection

- Spread more awareness how data is used in the system
- Built dedicated systems to store the data for training and testing the model

14. Experiment Logs & Decisions

Results for latest model

15. Production and deployment design

< Provide pipeline design here>

16. Conclusions / Recommendations

17. Directions for future work

<summary>

Features to be added in next steps

These features can be added to get the maximum value from the project in future releases.

Key Points to be consider for future work:

< add 3 points>

18. List of Tables

This section has list and reference to the tables used the report.

19. List of Figures

This section has list and reference of the figures used in the report

20. List of Symbols & Abbreviations used

Term	Description
AI	Artificial Intelligence
AIML	Artificial Intelligence Machine Learning
BERT	Bidirectional Encoder Representations from Transformers (BERT) is a transformer-based machine learning technique for natural language processing (NLP)

21. Bibliography / References

22. Appendices

1.

23. Check list of items for the Final report

#	Activity	Status
1	Is the Cover page in proper format?	Y / N
2	Is the Title page in proper format?	Y / N
3	Is the Certificate from the Supervisor in proper format? Has it been signed?	Y / N
4	Is Abstract included in the Report? Is it properly written?	Y / N
5	Does the Table of Contents page include chapter page numbers?	Y / N
6	Does the Report contain a summary of the literature survey?	Y / N
7	Are the Pages numbered properly?	Y / N
8	Are the Figures numbered properly?	Y / N
9	Are the Tables numbered properly?	Y / N
10	Are the Captions for the Figures and Tables proper?	Y / N
11	Are the Appendices numbered?	Y / N
12	Does the Report have Conclusion / Recommendations of the work?	Y / N
13	Are References/Bibliography given in the Report?	Y / N
14	Have the References been cited in the Report?	Y / N
15	Is the citation of References / Bibliography in proper format?	Y / N

Signature of the Supervisor

Signature of the Student