MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Final Year Internship Report

on

BUSINESS INTELLIGENCE

Submitted By:

GAYATRI JOSHI

0901CS193D03

Faculty Mentor:

Mr. Mahesh Parmar, Assistant Professor

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE
GWALIOR - 474005 (MP) est. 1957

MAY-JUNE 2022

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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BUSINESS INTELLIGENCE

A final year internship report submitted in partial fulfilment of the requirement for the degree of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

Submitted by:

GAYATRI JOSHI

(0901CS193D03)

Under Supervision of

Internship Faculty Mentor:

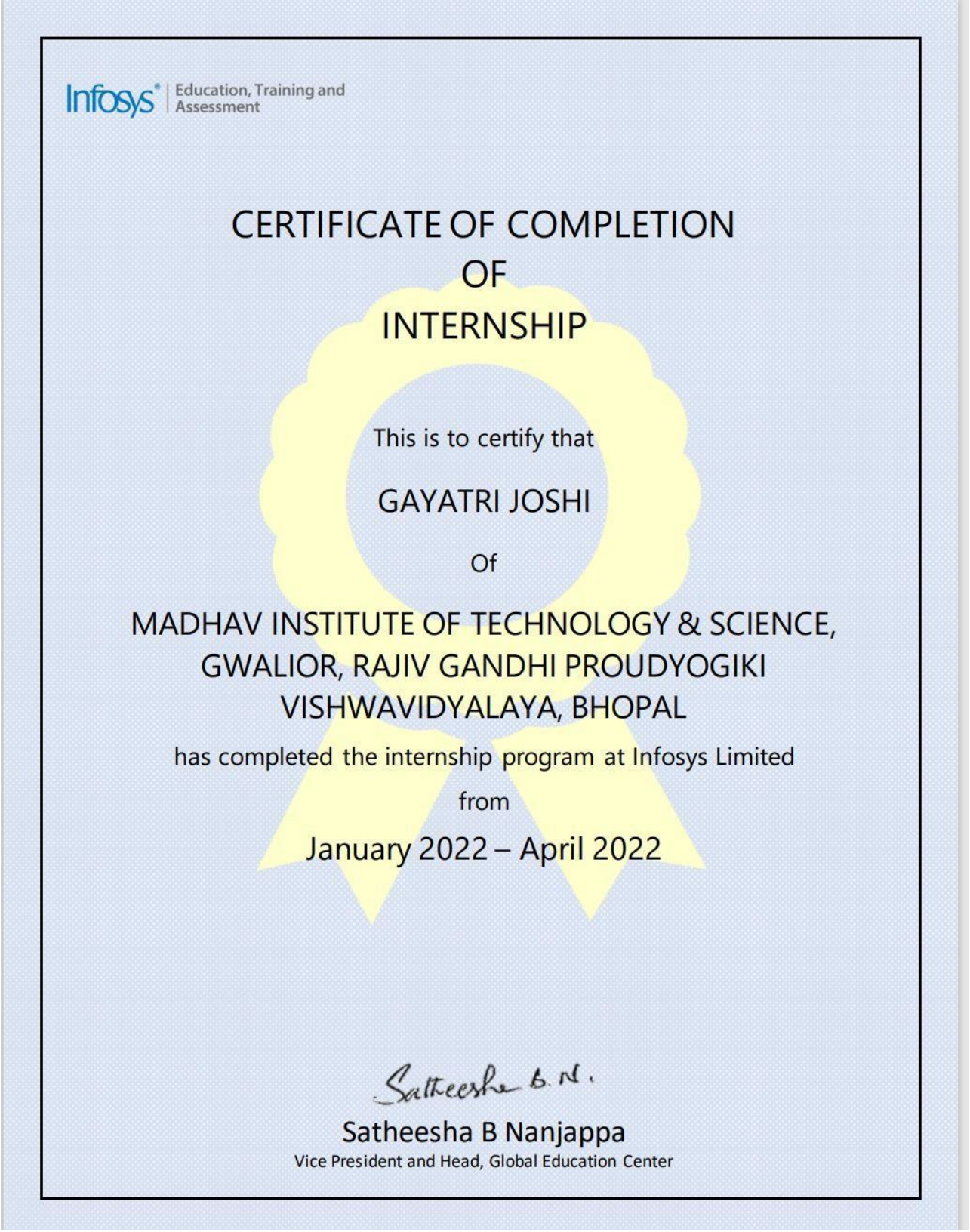
Mr. Mahesh Parmar, Assistant Professor

Submitted to:

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE
GWALIOR - 474005 (MP) est. 1957

MAY-JUNE 2022

Internship Certificate
from
Infosys Private Limited, Mysore



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CERTIFICATE OF COMPLETION
OF
INTERNSHIP

This is to certify that

GAYATRI JOSHI

Of

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR, RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

has completed the internship program at Infosys Limited

from

January 2022 – April 2022

Satheesha B N

Satheesha B Nanjappa
Vice President and Head, Global Education Center

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

CERTIFICATE

This is certified that **GAYATRI JOSHI** (0901CS193D03) has submitted the Internship report titled **INTERNSHIP ON BUSINESS INTELLIGENCE** of the work she has done under the mentorship of **Prof. MAHESH PARMAR**, in partial fulfilment of the requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering from Madhav Institute of Technology and Science, Gwalior.

Mr. Mahesh Parmar
Faculty Mentor
Assistant Professor
Computer Science and Engineering

27/05/22

Dr. Manish Dixit
Professor and Head,
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Dr. Manish Dixit
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DECLARATION

I hereby declare that the work being presented in this Internship report, for the partial fulfilment of requirement for the award of the degree of Bachelor of Technology in CSE at Madhav Institute of Technology & Science, Gwalior is an authenticated and original record of my work under the mentorship of **Mr. Mahesh Parmar**, Assistant Professor, Department of CSE.

I declare that I have not submitted the matter embodied in this report for the award of any degree or diploma anywhere else.

GAYATRI JOSHI
0901CS193D03
IV Year,
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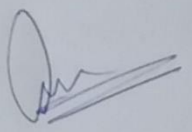
ACKNOWLEDGEMENT

The full semester internship has proved to be pivotal to my career. I am thankful to my institute, **Madhav Institute of Technology and Science** to allow me to continue my disciplinary/interdisciplinary internship as a curriculum requirement, under the provisions of the Flexible Curriculum Scheme (based on the AICTE Model Curriculum 2018), approved by the Academic Council of the institute. I extend my gratitude to the Director of the institute, **Dr. R. K. Pandit** and Dean Academics, **Dr. Manjaree Pandit** for this.

I would sincerely like to thank my department, **Department of Computer Science and Engineering, for allowing** me to explore this internship. I humbly thank **Dr Manish Dixit**, Professor and Head, Department of Computer Science and Engineering, for his continued support during the course of this engagement, which eased the process and formalities involved.

I am sincerely thankful to my faculty mentors. I am grateful to the guidance of **Mr. Mahesh Parmar**, Assistant Professor, Department of Computer Science and Engineering, for his continued support and close mentoring throughout the internship. I am also very thankful to the faculty and staff of the department.



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ABSTRACT

This project report describes my work for the development of “Vehicle Fault analysis”, an enterprise application project. An Enterprise application project is a software application that helps enterprise in managing their business-related activities. They are huge and complex and solve real time problems to fulfil the needs of the enterprises. The existing systems are good, but as we know the habit of people driving carefully is decreasing day by day.so we have to make user aware about the fact of driving safely and carefully which is only possible when you have the vehicle in appropriate condition. They had some less features, so we want to provide the best option and analyze the facts and conditions of vehicle faults in best possible way in this project.

About the company:

Infosys limited is an Indian MNC that provides business consulting, information technology and outsourcing services. The company was founded in Pune and is headquartered in Bangalore. Infosys is the second-largest Indian IT company after TCS. This internship is in Business intelligence development training from **Infosys Private Limited, Mysore** using different Lex courses and various data management tools. This training is followed by a project in which we have to implement what we have learnt throughout the training.

Objective of Proposed work:

As the title of the project reflects this is a analysis based software which helps in analysing most technical vehicle Faults and helps in better decision making regarding the vehicle condition which further lead to prevent life causing accidents. It is easy to use and surely gives better results and more option to explore.

Keywords: Business Intelligence, BI, Extract, Transform, Load, SSRS, SSIS, and SSAS

सार:

यह परियोजना रिपोर्ट "वाहन दोष विश्लेषण", एक उद्यम अनुप्रयोग के विकास के लिए हमारे काम का वर्णन करती है। एंटरप्राइज एप्लिकेशन एक सॉफ्टवेयर एप्लिकेशन है जो उद्यम को उनके व्यवसाय से संबंधित गतिविधियों के प्रबंधन में मदद करता है। वे विशाल और जटिल हैं और उद्यमों की जरूरतों को पूरा करने के लिए वास्तविक समय की समस्याओं को हल करते हैं। मौजूदा प्रणालियाँ अच्छी और अच्छी भी हैं, लेकिन जैसा कि हम जानते हैं कि लोगों की सावधानी से गाड़ी चलाने की आदत दिन-ब-दिन कम होती जा रही है। उपयुक्त स्थिति। उनके पास कुछ कम विशेषताएं थीं, इसलिए हम सबसे अच्छा विकल्प प्रदान करना चाहते हैं और इस सॉफ़्टवेयर में वाहन दोषों के तथ्यों और स्थितियों का सर्वोत्तम संभव तरीके से विश्लेषण करना चाहते हैं।

कंपनी के बारे में:

इंफोसिस लिमिटेड एक भारतीय बहुराष्ट्रीय कंपनी है जो व्यापार परामर्श, सूचना प्रौद्योगिकी और आउटसोर्सिंग सेवाएं प्रदान करती है। कंपनी की स्थापना पुणे में हुई थी और इसका मुख्यालय बैंगलोर में है। इंफोसिस टीसीएस के बाद दूसरी सबसे बड़ी भारतीय आईटी कंपनी है। यह इंटर्नशिप विभिन्न लेक्स पाठ्यक्रमों और विभिन्न डेटा उन्मुख उपकरणों का उपयोग करके इंफोसिस प्राइवेट लिमिटेड, मैसूर से बिजनेस इंटेलिजेंस डेवलपमेंट ट्रेनिंग में है। इस प्रशिक्षण के बाद एक परियोजना होती है जिसमें हमें जो सीखा है उसे पूरे प्रशिक्षण में लागू करना होता है।

प्रस्तावित कार्य का उद्देश्य:

जैसा कि परियोजना का शीर्षक दर्शाता है कि यह एक विश्लेषण आधारित सॉफ्टवेयर है जो अधिकांश तकनीकी वाहन दोषों का विश्लेषण करने में मदद करता है और वाहन की स्थिति के बारे में बेहतर निर्णय लेने में मदद करता है जो आगे चलकर दुर्घटनाओं को रोकने में मदद करता है। इसका उपयोग करना आसान है और निश्चित रूप से बेहतर परिणाम और तलाशने के लिए अधिक विकल्प देता है।

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LIST OF ABBREVIATIONS

Abbreviation	Description
BI	Business Intelligence
OLAP	Online Analytic Processing
OLTP	Online Transaction Processing
ETL	Extract, Transform, and load
SSMS	SQL Server Management Studio
SSIS	SQL Server Integration Service
SSAS	SQL Server Analysis Service
SSRS	SQL Server Reporting Service
VM	Virtual Machine

Chapter 1:

INTRODUCTION

Business intelligence (BI) is an umbrella term for the technique that allows data preparation, data mining, facts/data visualization and data management.BI tools and methods enables end-users to perceive actionable statistics from raw data, facilitating data-driven decision making within organizations throughout a variety of industries. BI systems are anticipated to have dashboarding, reporting and information visualization capabilities. To remain competitive, BI platforms are making use of integrating ML and AI. At the core, they depend on data warehouses, ETL, and OLAP.

Much greater than a specific "thing," BI is as an alternative an umbrella term that covers the processes and methods of collecting, storing, and analyzing facts from enterprise operations or activities to optimize performance. All of these things come collectively to create a complete view of enterprise to help users make better, actionable decisions. Over the previous few years, BI has advanced to include greater techniques and activities to help improve performance. These processes include:

- **Data mining:** Using databases, statistics, and machine learning to uncover trends in large datasets.
- **Reporting:** Sharing data analysis to stakeholders so they can draw conclusions and make decisions.
- **Performance metrics and benchmarking:** Comparing current performance data to historical data to track performance against goals, typically using customized dashboards.
- **Descriptive analytics:** Using preliminary data analysis to find out what happened.
- **Querying:** Asking the data-specific questions, BI pulling the answers from the datasets.
- **Statistical analysis:** Taking the results from descriptive analytics and further exploring the data using statistics such as how this trend happened and why.
- **Data visualization:** Turning data analysis into visual representations such as charts, graphs, and histograms to more easily consume data.

1.1 Objective:

- Learn and apprehend the techniques involved in BI.

- Learn how to collect, arrange and interpret the data for related departments to make an appropriate decision under the uncertainty to achieve the organizational goal.
- Learn how to process beneficial facts from collections of data.
- Create user-friendly reports using BI tools.

1.2 Scope:

- Large information handling of vehicles
- The reports are also designed to easily filter data on various perimeters.
- More data can be added or updated on real time basis. Where the changes are directly reflect in the dashboards. Also the vehicle faults can be more categorized.

1.3 Internship Features in BI:

Different organization will make investments in
BI solution for extraordinary reasons relying on
their precise instances and industry. Some of the features of Business Intelligence are- :

- Better decision making
- Enhance communication
- Reduce bottlenecks
- Save time and resources.

1.4 System Requirement:

Processor : Intel i3 Processor(minimum)

Hard Disk:	:	500 GB HDD
Monitor:	:	12” minimum needed

Software Requirements:

Operating system	:	Windows 8/10
Browser	:	Google chrome /Firefox
Language:	:	Python, MySQL, Power Bi Desktop

Extra Software Required: Visual studio code, SSMS, Google collab

Chapter 2:

LITERATURE REVIEW

The term '**Business Intelligence**' was coined by Howard Dresner in 1989. (Gartner).

He defined BI as: "A set of concepts and methodologies to improve decision making in business through use of facts and fact-based system".

2.1 Business Intelligence Architecture:

BI is a term used to describe a comprehensive, cohesive, and built-in set of tools and techniques used to capture, collect, integrate, store, and analyze information with the aim of producing and presenting data used to support business decision making.

BI is a framework that permits an enterprise to transform data into information, information into knowledge, and information into wisdom. Implementing BI in an enterprise includes apprehend not only data (internal and external) but also the metadata, or information about the data. BI presents a well-orchestrated framework for the management of data that works throughout all tiers of the organization.

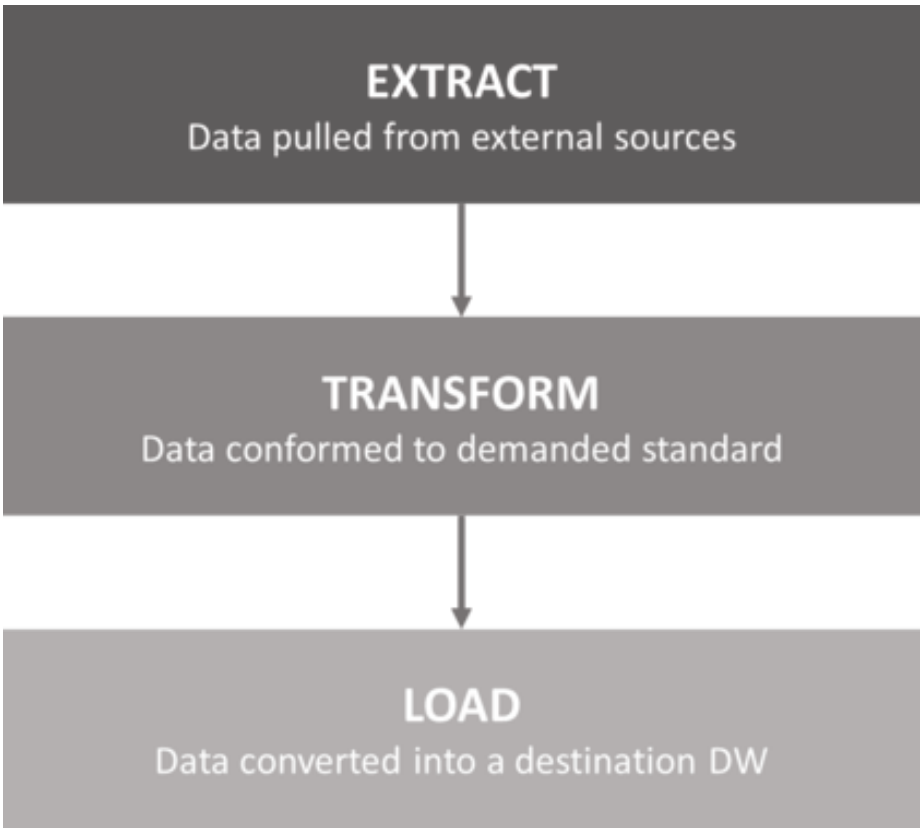


Fig: Flow chart of working of an ETL Tool

Data Analysis: Data analysis is a procedure of inspecting, cleansing, transforming, and modelling information with the purpose of discovering beneficial information, informing conclusions, and helping decision-making.

2.2 Need of Business Intelligence:

- To gain competitive advantage in the marketplace by making better, faster and fact based decisions.
- To retain customers by understanding their behaviour and providing them with an appropriate experience.
- To improve employee productivity by identifying and removing bottleneck processes.
- To improve operation efficiency by optimizing service offerings.
- To bring new value to the business by recognizing the changing business needs.

2.3 Business Intelligence Tools:

BI tools are kinds of application software program that collect and analyze huge amount of unstructured information from inside and exterior systems, which includes books, journals, documents, images, files, email, video, and other enterprise sources.

2.3.1 SQL Server Management studio (SSMS)

SQL Server Management Studio (SSMS) is an integrated platform for managing any SQL infrastructure. SSMS is used to access, configure, administer, manage, and improve all factors of SQL Server, Azure SQL Database, Azure SQL Managed Instance, Azure Synapse Analytics and SQL Server on Azure VM. SSMS offers a single complete utility that combined a wide group of graphical tools with many script editors to gives access to SQL Server for developers and database administrators of all skill levels.

SQL Server Contains Two Types Of Databases:

1. **OLTP (Online Transaction Processing)-** This type of database contains normalized data, without redundancy or duplicate data values**.**

2. **OLAP (Online Analytical Processing)-** This type of database contains demoralized data i.e. redundancy will be there.

Services of SSMS:

- **Database Engine-** It is the default server type. Which is used to store, access and manage the data from the database.
- **Integrative Service (SSIS):** It is used to extract data, transform and load it at destination source.
- **Analysis Service (SSAS):** Used to create cubes and present the data in multiple dimensions and preview in hierarchical manner.
- **Reporting Service (SSRS):** Used to create reports and dashboards in different formats.

2.3.2 MongoDb:

MongoDB is an open-source document-oriented database that is developed to store a huge scale of information and additionally lets in you to work with that information very efficiently. It is classified under the NoSQL (Not only SQL) database due to the fact the storage and retrieval of information in the MongoDB are not available in the form of tables.

Features of MongoDb:

- **Schema-less database-** Means one collection can keep various documents in it.
- **Document Oriented:** All the information stored in documents rather then tables like in RDBMS.
- **Scalability:** It provides horizontal scalability by making use of Shrading.
- **Indexing:** All the facts in the documents are indexed with primary and secondary indices it makes easy to retrieve the data.
- **Aggregation:** able to perform aggregation operations on grouped data and get a single computed result.

2.3.3 Power BI:

Power BI is a collection of software program services, apps, and connectors that work collectively to execute your unrelated sources of information into visually immersive, coherent, and interactive insights. Your information can be an Excel spreadsheet, or a group of cloud-based and on-premises hybrid data warehouses. Power BI lets you effortlessly connect to your datasources, visualize and find out what's important, and share that with everybody or anyone you want.

2.3.4 Agile Methodology:

The **Agile software development** methodology is one of the easiest and effective processes to turn a vision for a business requirement into software solutions. Agile is a terminology used to describe software development approaches that includes continual planning, learning, improvement, team collaboration, evolutionary development, and early delivery. It encourages flexible responses to change.

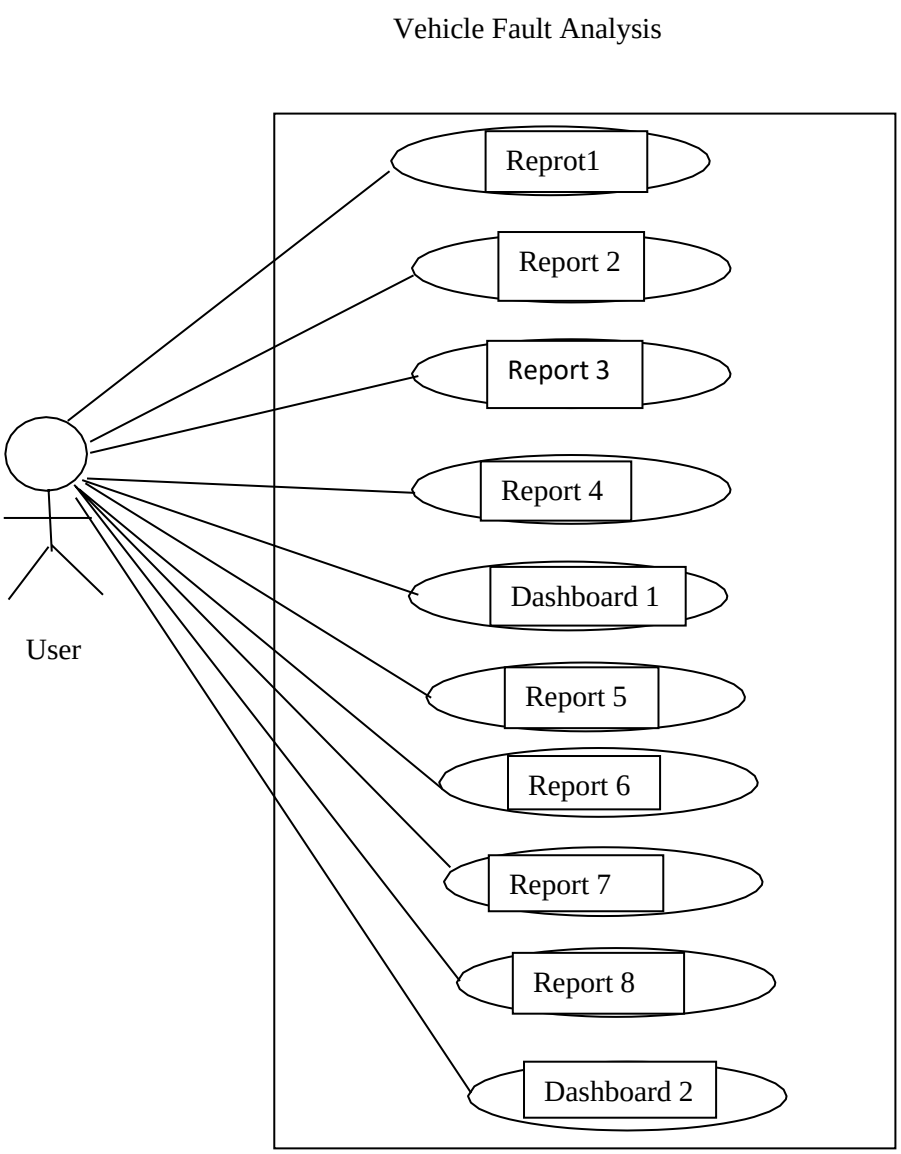
Chapter 3:

PROJECT ANALYSIS

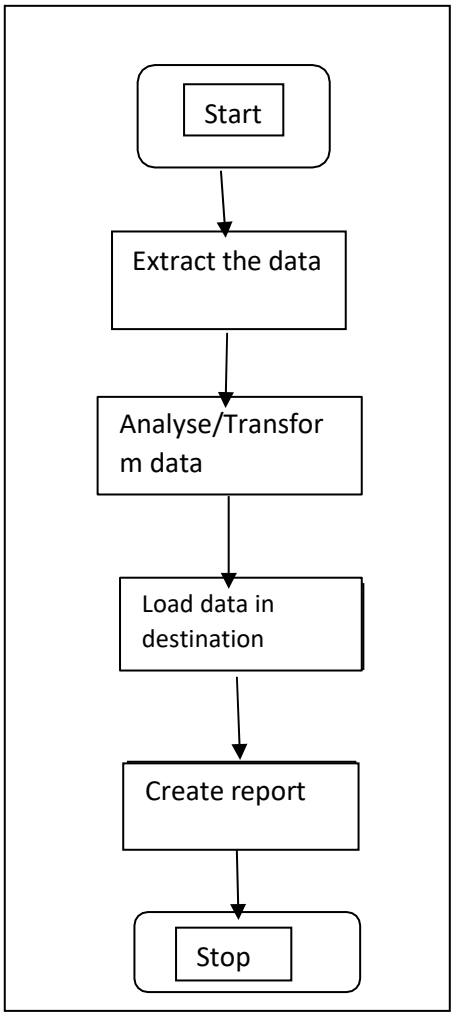
Project: “Vehicle Fault analysis”

As the title of the project reflects this is a analysis based software which helps in analyzing most technical vehicle Faults on the historic, present as well as real time based data and helps in better decision making regarding the vehicle condition by diagnosing and monitoring the faults which further lead to prevent life causing accidents. It is easy to use and surely gives better results and more option to explore.

3.1 Use Case diagram:



3.2 Flow chart diagram:



Chapter 4:

FINAL ANALYSIS AND DESIGN

In my internship, I was assigned to a team of 6 members. We were allocated to a project titled as "Vehicle Fault Analysis". The main features and goal of the project are as follows:

- Fault analysis refers to the most technical faults found in the two wheeler and cars category of vehicles.

- In this mainly we perform analysis on the historic data present in the dataset and also on real time data by applying different perimeters and filter the data.

- It is proven to be helpful in preventing the huge life causing accidents by properly monitoring the vehicle condition and faults as well as helps in improving the countries economic growth by removing the unsuitable vehicles which are causing harmful particles in environment like excessive amount of CO2.

- Majorly this project is to analyze the given dataset and to represent the data in suitable data visualization using different BI tools.

Task Performed:

- Make various user stories to determine the requirements of user in agile sheet in order to use agile methodology.
- Extracted the dataset created with the help of SSMS and Visual studio and transform the information.
- Apply different filters and create various perimeters.
- Delivered the report in the form of data visualization for better decision making.

Data sources:

Two wheeler dataset-:

Bike_Name	Price	Kms_Driven	Age	Horse Power	Brand	Tier Pressure Range	Oil Change Duration	Battery Voltage	Carbon Deposite	Engine Oil Status	Air Filter	Tire Press
Benelli 302R 300CC	240000	15025	3	302	Benelli	22	2	19	Not Present	Fresh	Not Changeable	Low
Benelli TNT 300	210000	21000	6	300	Benelli	49	6	6	Not Present	Dirty	Changeable	High
Benelli TNT 600i	480000	14200	4	600	Benelli	47	0	14	Not Present	Fresh	Not Changeable	High
Benelli TNT 600i ABS	475000	11500	3	600	Benelli	43	6	6	Not Present	Dirty	Not Changeable	High
Ducati 1299 Superleggera	800000	3	3	1299	Ducati	40	6	14	Not Present	Dirty	Not Changeable	Moderate
Ducati Scrambler 1100 Special	1350000	190	1	1100	Ducati	30	1	18	Not Present	Fresh	Not Changeable	Moderate
Harley-Davidson Street 750	300000	3500	6	750	Harley-Davidson	43	6	3	Not Present	Dirty	Not Changeable	High
Hyosung GT650R	400000	1800	4	650	Hyosung	47	3	7	Not Present	Fresh	Not Changeable	High
Kawasaki Ninja 650cc	290000	11350	7	650	Kawasaki	37	2	3	Not Present	Fresh	Not Changeable	Moderate
Kawasaki Z900	935000	2500	2	900	Kawasaki	35	10	10	Not Present	Dirty	Not Changeable	Moderate
mahaya FZ 150cc	40000	35700	8	150	mahaya	42	6	3	Present	Dirty	Changeable	High
mahaya FZ S V 2.0 150cc	60000	15000	5	150	mahaya	29	11	15	Not Present	Dirty	Not Changeable	Moderate
mahaya FZ S V 2.0 150cc-Ltd. Edition	80000	10000	3	150	mahaya	45	11	18	Not Present	Dirty	Not Changeable	High
mahaya FZ V 2.0 150cc	45000	23000	6	150	mahaya	28	1	17	Not Present	Fresh	Changeable	Moderate
mahaya FZ16 150cc	50000	19000	6	150	mahaya	33	0	13	Not Present	Fresh	Not Changeable	Moderate
mahaya FZ25 250cc	95000	9665	4	250	mahaya	46	10	8	Not Present	Dirty	Not Changeable	High
mahaya FZ25 ABS 250cc	146000	3900	2	250	mahaya	29	9	3	Not Present	Dirty	Not Changeable	Moderate
mahaya FZs 150cc	53499	25000	6	150	mahaya	23	10	8	Not Present	Dirty	Changeable	Low
mahaya SZ 150cc	25000	30000	9	150	mahaya	32	7	17	Present	Dirty	Changeable	Moderate
mahaya YZF R6 600cc	500000	285	5	600	mahaya	43	7	6	Not Present	Dirty	Not Changeable	High
mahaya YZF-R15 2.0 150cc	72000	20000	7	150	mahaya	49	11	15	Not Present	Dirty	Changeable	High
mahaya YZF-R15 S 150cc	63000	16000	5	150	mahaya	40	7	12	Not Present	Dirty	Not Changeable	Moderate
Mahindra Centuro NXT 110cc	28000	45000	2	110	Mahindra	24	7	6	Present	Dirty	Changeable	Low
mkt Duke 200cc	94700	32700	4	200	mkt	49	3	12	Present	Fresh	Changeable	High
mkt Duke 250cc	130000	17500	4	250	mkt	25	11	6	Not Present	Dirty	Not Changeable	Low
mkt Duke 390cc	240000	11000	3	390	mkt	49	6	8	Not Present	Dirty	Not Changeable	High
mkt RC 200cc ABS	179000	3400	2	200	mkt	25	3	6	Not Present	Fresh	Not Changeable	Low

Cars dataset-:

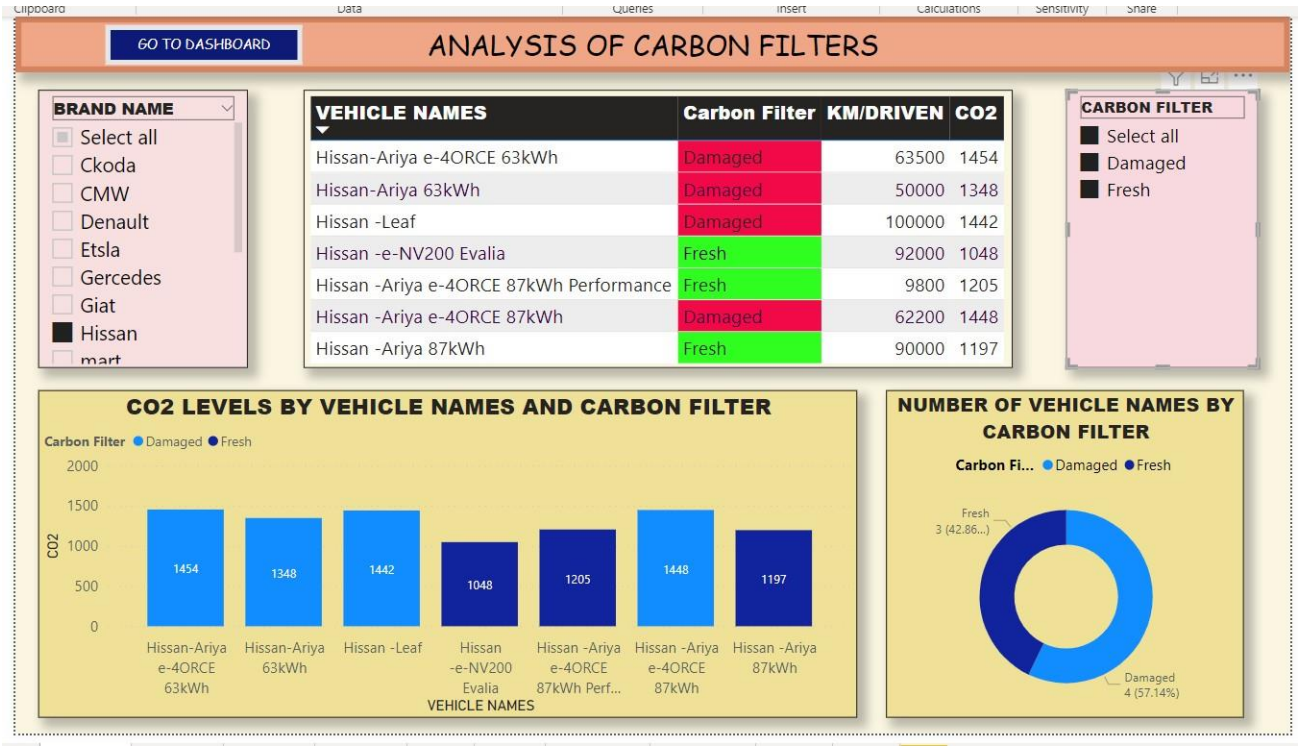
VEHICLE NAMES	ENGINE SURGE TIME	YEAR	SELLING_PRICE	FUEL TYPE	TRANSMISSION	WHEEL-BASE	CITY-MPG	HIGHWAY-MPG	KM/DRIVEN	CAR AGE	CO2	RPM LEVEL	PISTO
Always -U5	9	2012	275000	Petrol	Manual	102	13	17	60000	10	1617	357	
Citroen -e-C4	10	2016	665000	Diesel	Manual	95	16	23	46000	6	1361	1096	
Ckoda -CITIGOe iV	12	2013	1550000	Diesel	Automatic	94	24	29	75800	9	887	1355	
Ckoda -Enyaq iV 50	10	2017	365000	CNG	Manual	93	31	38	78000	5	683	498	
Ckoda -Enyaq iV 60	9	2017	8150000	Diesel	Automatic	94	31	37	6500	5	1457	418	
Ckoda -Enyaq iV 80	9	2006	100000	Petrol	Manual	93	31	38	80000	16	1740	718	
Ckoda -Enyaq iV 80X	7	2017	570000	Diesel	Manual	115	16	18	60000	5	986	304	
Ckoda-Enyaq iV vRS	6	2017	1025000	Petrol	Manual	96	23	30	9000	5	1383	844	
CMW -i3 120 Ah	7	2013	390000	Diesel	Manual	103	24	30	33000	9	575	1400	
CMW -i4	4	2007	60000	Petrol	Manual	101	21	28	70000	15	640	1128	
CMW-i3s 120 Ah	7	2011	350000	Diesel	Manual	115	22	25	230000	11	856	1429	
CUPRA -el-Born	7	2011	450000	Diesel	Automatic	96	27	33	130400	11	1743	798	
Denault -Kangoo Maxi ZE 33	22	2009	140000	Petrol	Manual	110	22	25	100000	13	1955	1295	
Denault -Twingo ZE	13	2018	310000	Petrol	Manual	95	17	23	28000	4	1071	1012	
Denault -Zoe ZE40 R110	11	2012	160000	Petrol	Manual	98	26	32	60000	10	1924	1294	
Denault -Zoe ZE50 R135	10	2016	900000	Petrol	Automatic	96	27	33	50000	6	548	1028	
DS -3 Crossback E-Tense	9	2018	750000	Diesel	Manual	95	17	23	29000	4	1105	502	
Etsla -Cybertruck Single Motor	7	2016	495000	Petrol	Manual	96	25	32	11958	6	579	1052	
Etsla -Model 3 Long Range Dual Motor	5	2007	60000	Petrol	Manual	88	21	27	70000	15	963	370	
Etsla -Model S Long Range	4	2019	1400000	Petrol	Manual	96	27	33	10000	3	1879	766	
Etsla -Model S Performance	3	2014	465000	Diesel	Manual	98	26	32	70000	8	1301	901	
Etsla -Model X Long Range	5	2017	725000	Diesel	Manual	93	31	38	18500	5	1871	797	
Etsla -Model X Performance	3	2014	450000	Diesel	Manual	96	25	32	120000	8	688	1430	
Etsla -Model Y Long Range Performance	4	1996	250000	Diesel	Manual	98	26	32	35000	26	1310	1116	
Etsla -Roadster	2	2009	150000	Petrol	Manual	93	31	38	79000	13	1628	802	
Etsla-Cybertruck Dual Motor	5	2009	151000	Petrol	Manual	110	22	25	66764	13	529	386	
Etsla-Cybertruck Tri Motor	3	2018	930000	Petrol	Manual	93	30	34	14500	4	787	527	

CARS_DATASET (99 rows)

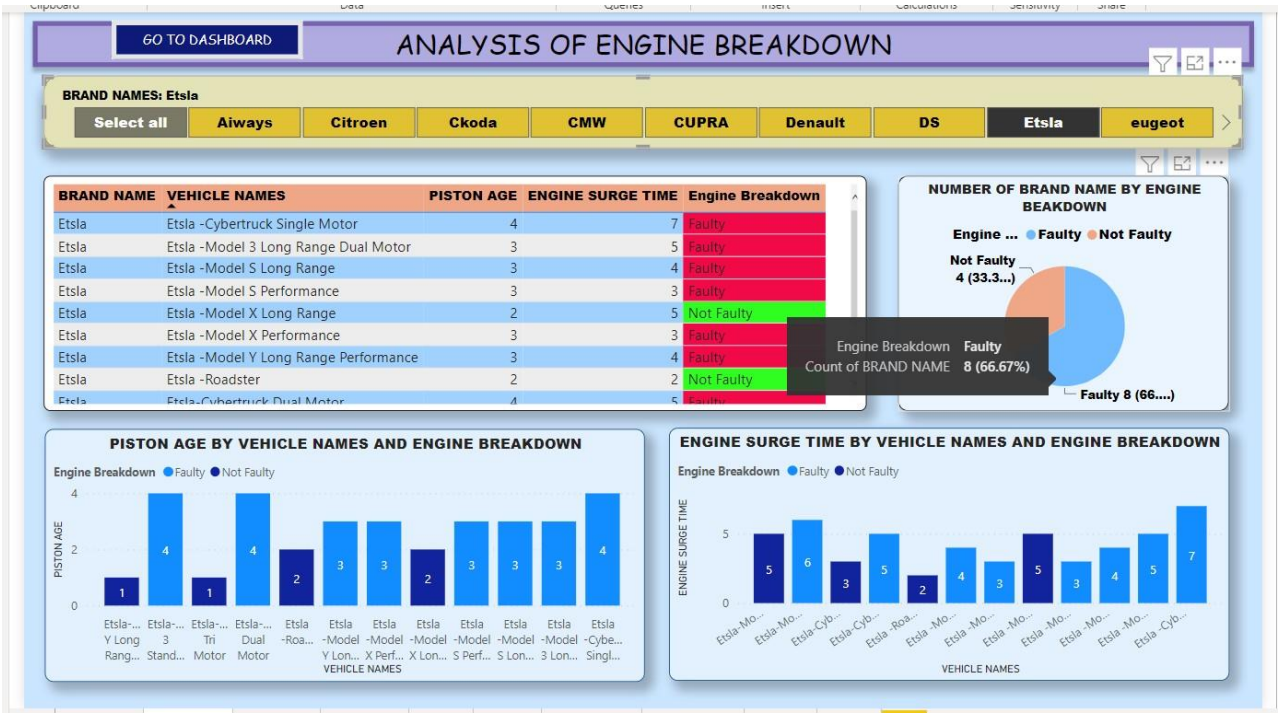
4.1 Results

After applying filters and creating perimeters on dataset the result in form of data visualization are:

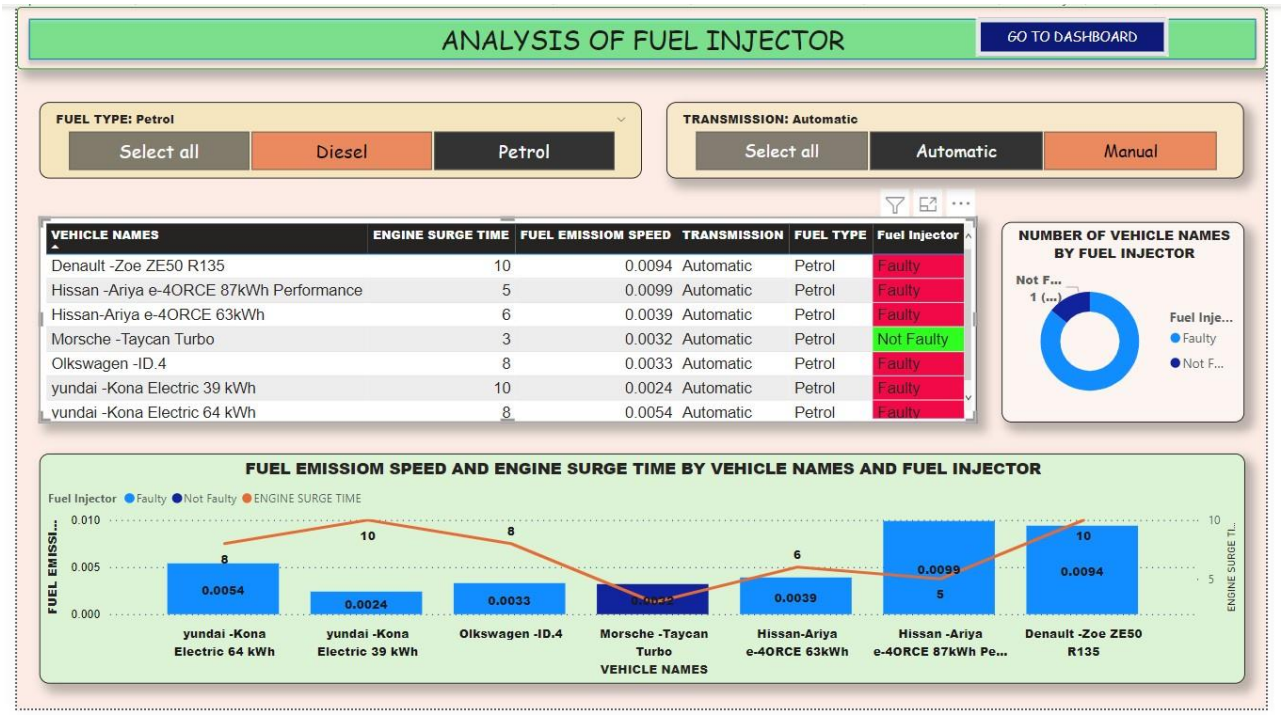
Report 1 (Carbon filters):



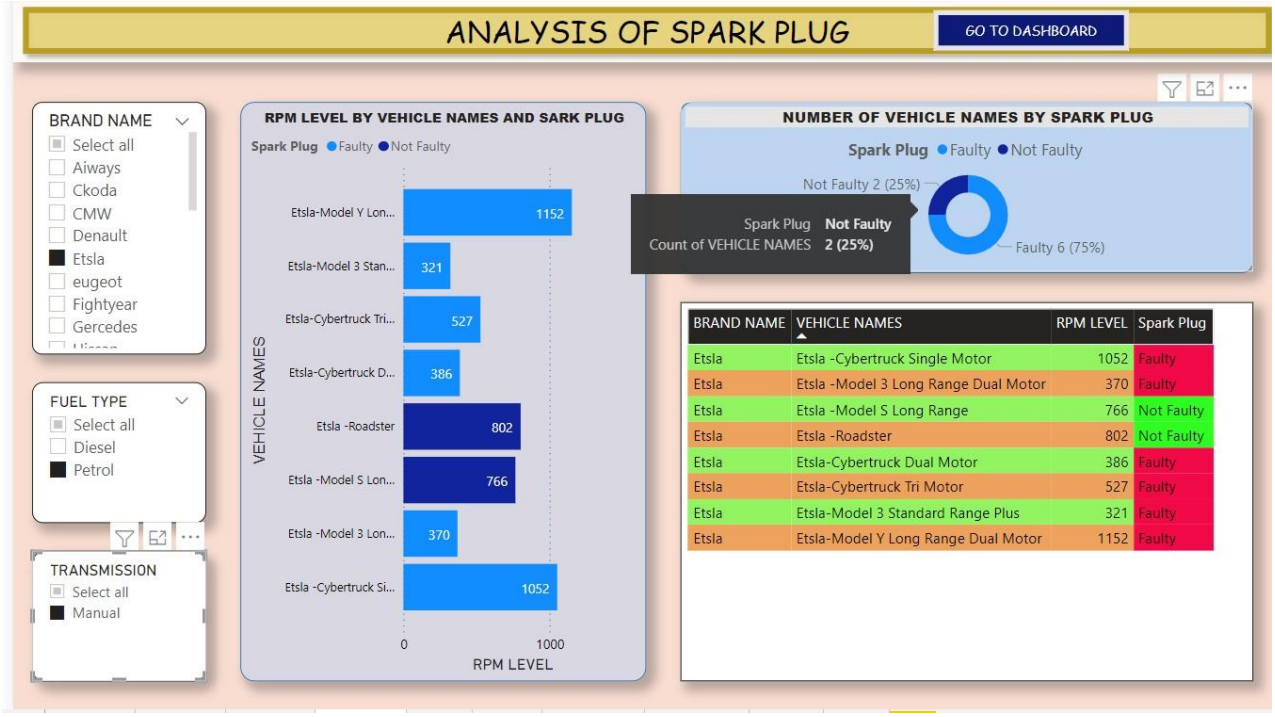
Report 2 (Engine Breakdown):



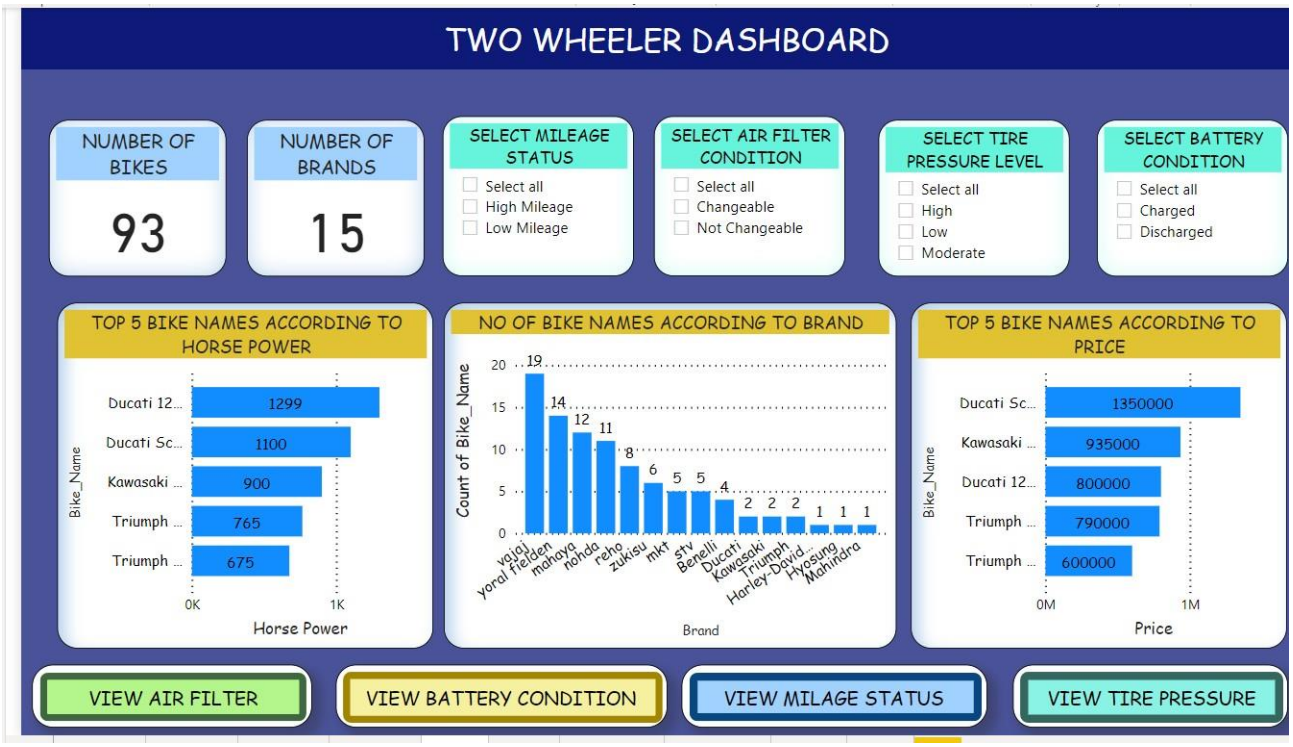
Report 3 (Fuel Injector):



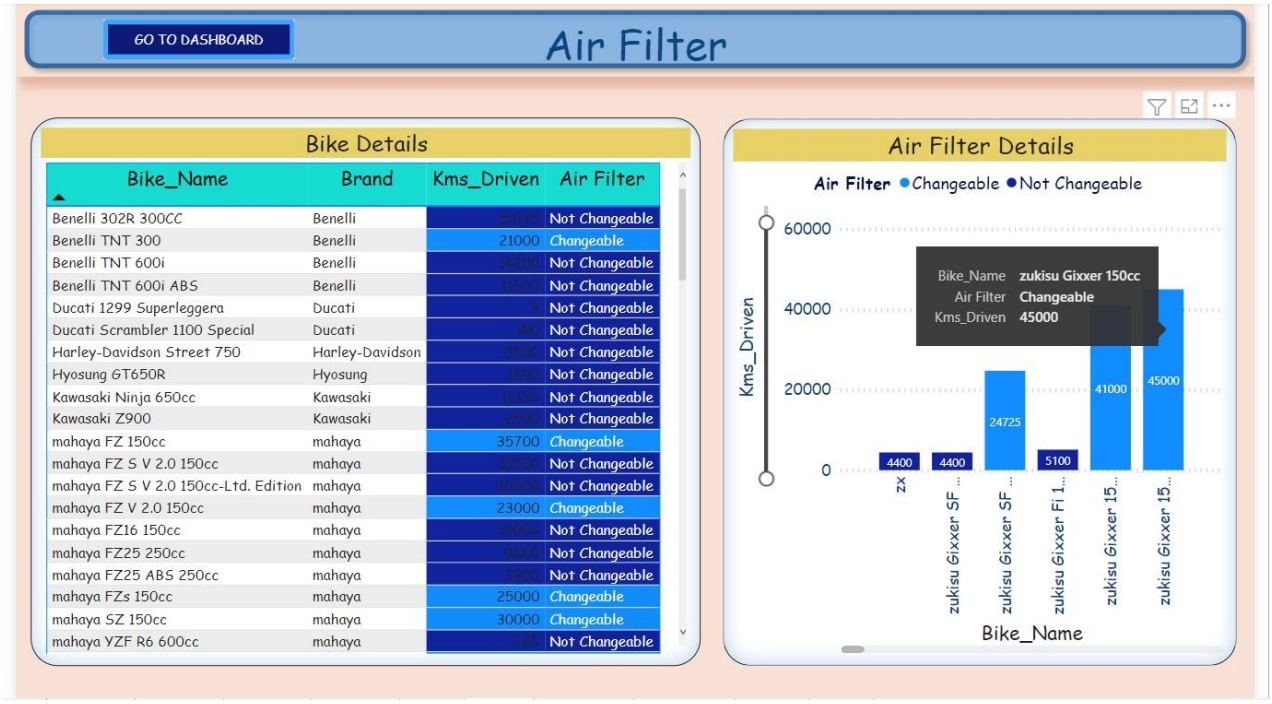
Report 4 (Spark Plug):



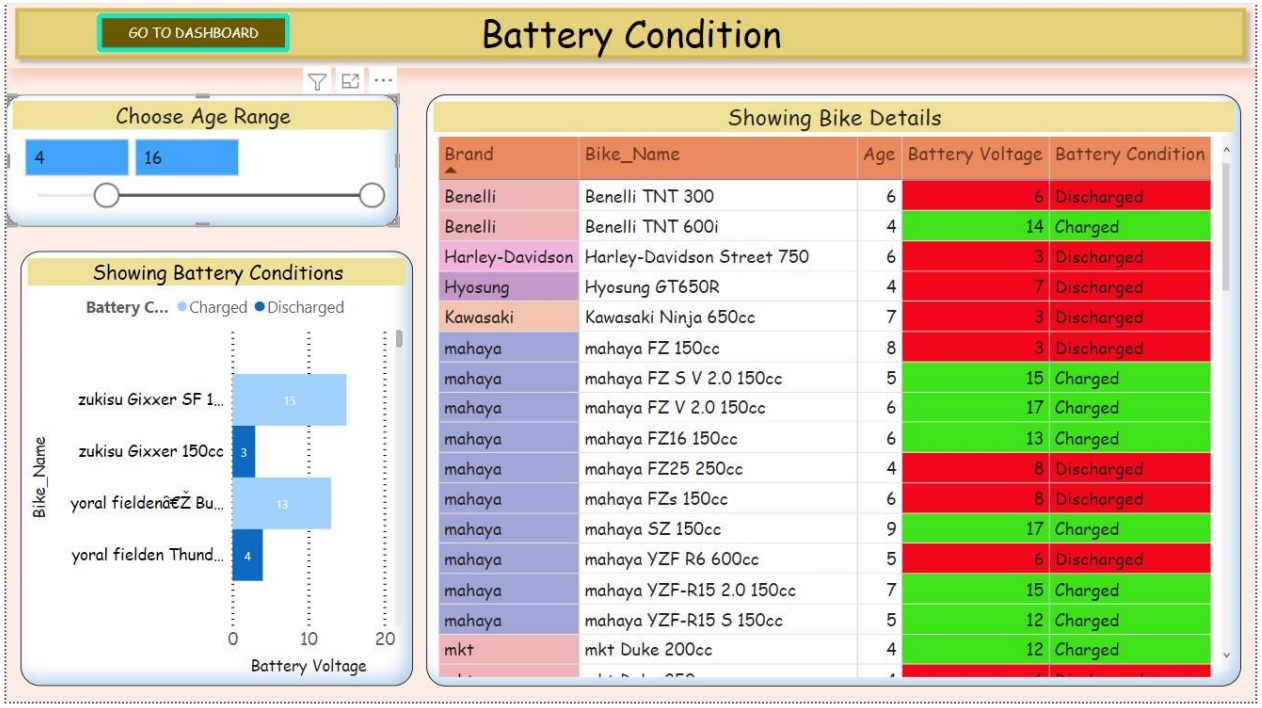
Dashboard 1 (Two wheeler Dashboard):



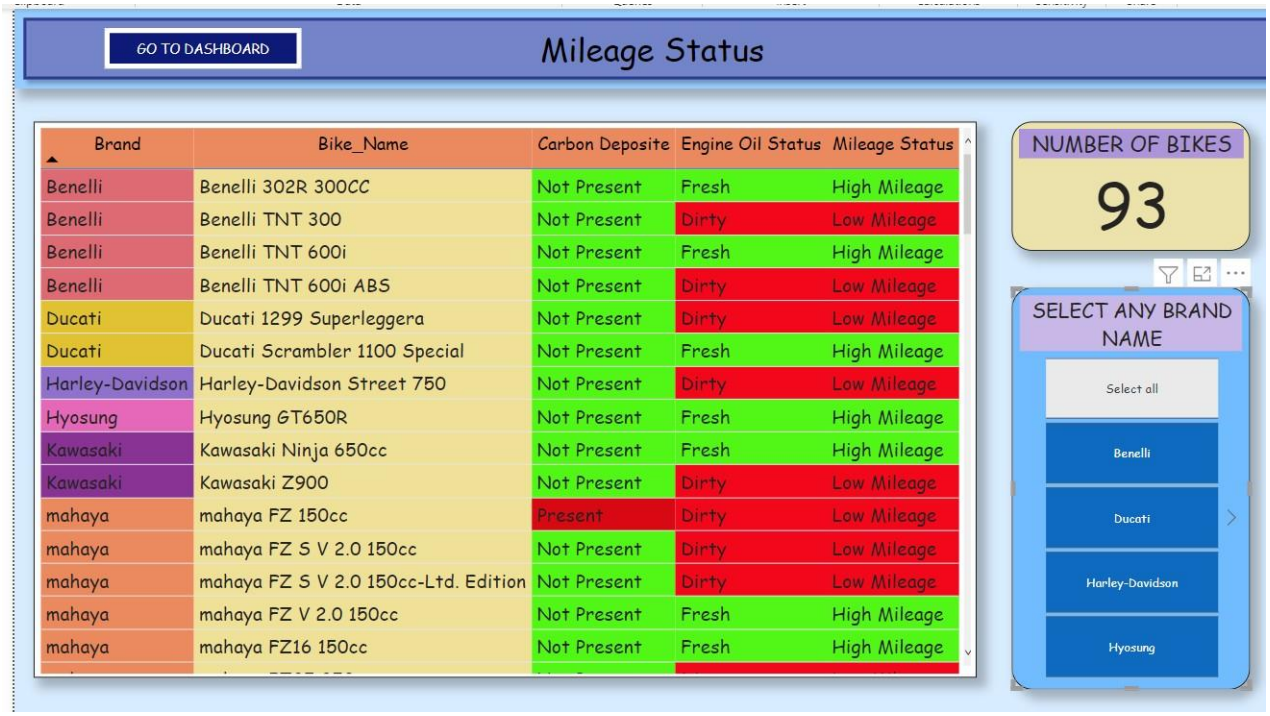
Report 5 (Air Filter):



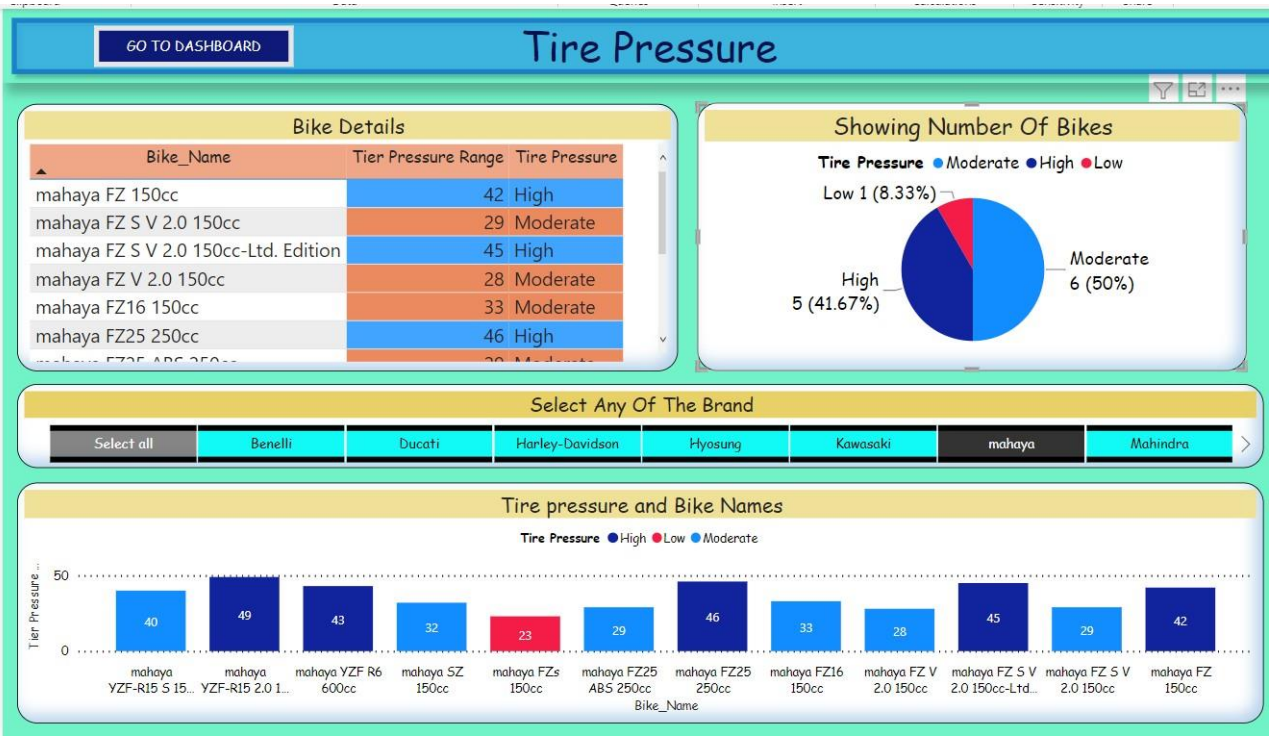
Report 6 (Battery Condition):



Report 7(Mileage Status):



Report 8 (Tier Pressure):



Dashboard 2 (Car dashboard):

4.2 Problems faced:

- Sometime faces the issue of data loss due to VM maintenance.
- Problem in data cleaning.
- Difficulty in conditional formatting of tables due to many perimeters.

4.3 Limitations:

- Unable to access different software except the ones provided by the company.
- Not able to download the files sent through outlook in the working hours.
- Cannot use or access the resources other then provided by the company.
- Cannot use the copyright data files or sources so we have to create everything manually.

4.4 Conclusion:

Through my internship at Infosys, I was able to understand and get a better idea of various aspects of BI influencing the standard of business related decision making directly or indirectly. I also get to learn how BI is proven beneficial to many enterprises/organization by enhancing reporting and analysis via providing fast and better decision making.

To be successful, implacable contribution and determination of the organization's BI is very much needed or required. To compete world wide as well as locally in unfavourable circumstances the BI manager's work has become even more tough in today's dynamic business environment.

Overall, I have taken the business Intelligence internship experience to be positive, and I am sure enough I will be able to use this as one of my strong skills in my career later on and create many more better projects.

4.5 List of References:

- - IBM Analytics
- **https://www.datapine.com/blog/data-warehousing-and-business-intelligence-architecture/**
- Infosys global application ***LEX*** for Education and Training purposes

  URL*: https://lex.infosysapps.com*
- **https://docs.microsoft.com/en-us/sql/ssms/sql-server-management-studio-ssms?view=sql-server-ver16**

4.6 Appendix:

***Note*: As** *per the Infosys Private Limited, Mysore's privacy policies, Industrial mentor cannot give signature on FPR reports.*

FPR report of January month:

FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

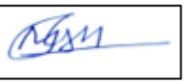
Name of student	GAYATRI JOSHI		Department	COMPUTE SCIENCE & ENGINEERING	
Industry/Organization	INFOSYS		Date/Duration	1 FEB -15 FEB	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/Timely completion of assigned work			GOOD		
Learning capacity/Knowledge up gradation			GOOD		
Performance/Quality of work			GOOD		
Behaviour/Discipline/Team work			GOOD		
Sincerity/Hard work			GOOD		
Comment on nature of work done/Area/Topic	Ongoing training in BI and DW FRAMWORK				
OVERALL GRADE (Any one)	**POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT**				
Name of Industry Mentor	RAJAN KUSHWAHA				
Signature of Industry Mentor	NIL				

Receiving Date	15/02/2022	**Name of Faculty Mentor**	Mahesh Parmar	**Sign**	

FPR report of February month:

FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

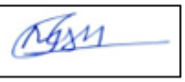
Name of student	GAYATRI JOSHI		Department	COMPUTE SCIENCE & ENGINEERING(CSE)	
Industry/Organization	INFOSYS		Date/Duration	16/02/2022-28/02/2022	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/Timely completion of assigned work			Good		
Learning capacity/Knowledge up gradation			Good		
Performance/Quality of work			Good		
Behaviour/Discipline/Team work			Good		
Sincerity/Hard work			Good		
Comment on nature of work done/Area/Topic					
OVERALL GRADE (Any one)	**POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT**				
Name of Industry Mentor	RAJAN KUSHWAHA				
Signature of Industry Mentor	NIL				

Receiving Date	03/03/2022	**Name of Faculty Mentor**	Mahesh Parmar	**Sign**	

FPR report of march month:

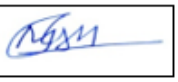
FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	GAYATRI JOSHI		Department	COMPUTE SCIENCE & ENGINEERING	
Industry/Organization	INFOSYS		Date/Duration	01/03/2022-15/03/2022	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/Timely completion of assigned work			GOOD		
Learning capacity/Knowledge up gradation			GOOD		
Performance/Quality of work			GOOD		
Behaviour/Discipline/Team work			GOOD		
Sincerity/Hard work			GOOD		
Comment on nature of work done/Area/Topic					
OVERALL GRADE (Any one)	**POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT**				
Name of Industry Mentor	RAJAN KUSHWAHA				
Signature of Industry Mentor	NIL				

Receiving Date	16/03/2022	**Name of Faculty Mentor**	Mahesh Parmar	**Sign**	

FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

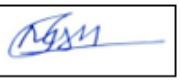
Name of student	GAYATRI JOSHI		Department	COMPUTE SCIENCE & ENGINEERING	
Industry/Organization	INFOSYS		Date/Duration	16/03/2022-30/03/2022	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/Timely completion of assigned work			GOOD		
Learning capacity/Knowledge up gradation			GOOD		
Performance/Quality of work			GOOD		
Behaviour/Discipline/Team work			GOOD		
Sincerity/Hard work			GOOD		
Comment on nature of work done/Area/Topic					
OVERALL GRADE (Any one)	**POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT**				
Name of Industry Mentor	RAJAN KUSHWAHA				
Signature of Industry Mentor	NIL				

Receiving Date	30/03/2022	**Name of Faculty Mentor**	Mahesh Parmar	**Sign**	

FPR report of April month:

FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	GAYATRI JOSHI		Department	COMPUTE SCIENCE & ENGINEERING	
Industry/Organization	INFOSYS		Date/Duration	01/04/2022-15/04/2022	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/Timely completion of assigned work			GOOD		
Learning capacity/Knowledge up gradation			GOOD		
Performance/Quality of work			GOOD		
Behaviour/Discipline/Team work			GOOD		
Sincerity/Hard work			GOOD		
Comment on nature of work done/Area/Topic					
OVERALL GRADE (Any one)	**POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT**				
Name of Industry Mentor	RAJAN KUSHWAHA				
Signature of Industry Mentor	NIL				

Receiving Date	16/04/2022	**Name of Faculty Mentor**	Mahesh Parmar	**Sign**	

FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	GAYATRI JOSHI		Department	COMPUTE SCIENCE & ENGINEERING	
Industry/Organization	INFOSYS		Date/Duration	16/04/2022-30/04/2022	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/Timely completion of assigned work			GOOD		
Learning capacity/Knowledge up gradation			GOOD		
Performance/Quality of work			GOOD		
Behaviour/Discipline/Team work			GOOD		
Sincerity/Hard work			GOOD		
Comment on nature of work done/Area/Topic					
OVERALL GRADE (Any one)	**POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT**				
Name of Industry Mentor	RAJAN KUSHWAHA				
Signature of Industry Mentor	NIL				

Receiving Date	01/05/2022	**Name of Faculty Mentor**	Mahesh Parmar	**Sign**