**Weekly Diary**

**for**

**Industrial Training**

**at**

**Name of Industry : Gatha Technology LLP**

**From 03/06/2023 To 13/07/2023**

**Name of Supervisor : Mr. Rahul Chaudhari**

**Designation of Supervisor : Founder and CEO ( Gatha Technology LLP )**

**Name of the student : Sairaj Patil Enrollment No :2200560393**

**Branch of Engineering : Information Technology ( IF )**

**Name of Polytechnic : Pimpri Chinchwad Polytechnic**

**Special instructions to students :**

**1) Write down the daily activity on the same day.**

**2) Make note of the important actual activity/ies only.**

**3) Summarize at the week – end.**

**4) Add extra sheets if needed for daily or weekly activity report.**

**Week 1 : From \_\_\_\_\_\_03/06/2024\_\_\_\_\_\_\_\_\_\_\_\_\_ To \_\_\_\_\_\_\_\_\_\_08/06/2024\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Expected Work :**

i. Study of organization chart of industry/plant with responsibilities of the different posts.

ii. General Study of industry, its location, its history and its product range, its size, number of employees, its turnover etc.

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| **Day** | **Activities carried out** |
| **1** | * **Study the industry/plant's organization chart and the responsibilities of various posts, along with an overview of the industry, including its location, history, product range, size, employee count, and turnover.** * **Introduction to Python, Features of Python, Installation of Python, Application of Python** * **Interpreter in Python, Execution of Python program** |
| **2** | * **Object Oriented Programming using Python, Concepts of OOPs, Features of OOPs** * **Variables , Types of Variables , Variable declaration in Python** * **Data Abstraction, Data Encapsulation: Differences and Similarities.** |
| **3** | * **Constructors and use of \_\_init\_\_() method in Python** * **Pass by Value and Pass by Reference: Differences and Similarities** * **Inheritance and its types: use of Data Abstraction.** |
| **4** | * **Polymorphism and its types: Function Overloading and Function Overriding** * **Introduction to Frameworks: Functionalities, Packages and endpoints, Basic Methods: POST, GET, PUT, PATCH, DELETE.** |
| **5** | * **What is API ( Application Programming Interface ) types of APIs, types of Parameters** * **Modules in Python, importing modules in Python programs** * **What is PIP ( Package Manager ), Installation of Modules using pip command** |
| **6** | * **Virtual Environment: Creation of Virtual Environment, Commands for creating venv** * **Flask Module in Python, Working and Importance of Flask** * **Programs to Implement Scripts using Flask module,** * **Creating a Flask Project Application to print desired output on the Web Browser** |

**Weekly summarization of the above activities :** In this week we studied Python's features, installation, and applications, along with key OOP concepts like encapsulation, inheritance, and polymorphism. It explains variables, data abstraction, constructors, and parameter passing. Framework functionalities, APIs, module usage, PIP, and virtual environments are discussed. We also focused on web development using Flask, including creating a project to display output in a web browser.

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**Week 2 : From \_\_\_\_\_\_10/06/2024\_\_\_\_\_\_\_ To \_\_\_\_\_\_\_\_15/06/2024\_\_\_\_\_\_\_\_**

**Expected Work :** Study of layout and specifications of major machines, equipment and raw material / components used.

**List the sections of Industry visited and list the major machines, equipment and raw materials etc. studied :**

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| **Day** | **Activities carried out** |
| **1** | * **What are decorators? Types of Decorators (Custom, In-built) and its syntax.** * **Internal Working of decorator. Use of (@).** * **@app.route(“\”). Route: In-built decorator of flask.** |
| **2** | * **Data passing in route decorator to URL using angular brackets.** * **Creation of server on localhost (Port 5000).** * **Introduction to render template.** |
| **3** | * **Rendering of HTML File in flask project.** * **Folder Management for creation of templates and static folder.** * **File Classification of HTML and CSS** |
| **4** | * **Introduction to database in python (flask virtual environment).** * **Installation of SQL-ALCHEMY, FLASK-ALEMBIC, FLASK-MIGRATE.** * **Accessing files from different folders (from, import).** |
| **5** | * **Introduction to ORM (Object Relational Mapping)** * **Introduction of Marshmallow package.** * **Internal Working ORM.** |
| **6** | * **Installation of PostgreSQL and connection to its client (PG ADMIN).** * **Configuration of variables in main file (SQLALCHEMY\_DATABASE\_URI,** **SQLALCHEMY\_TRACK\_MODIFICATIONS)** * **Migration in Database. Creation of Migration scripts (versions) based on Python code.** |

**Weekly summarization of the above activities :** Web development with Python and Flask involves using decorators (@app.route()) for URL routing and function modification. Servers are hosted locally on port 5000 with app.run(), rendering HTML templates via render\_template() from a templates folder. Flask integrates SQLAlchemy for database ORM, Flask-Migrate for migrations, and manages PostgreSQL with PG Admin, alongside data serialization using Marshmallow.

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**Week 3 : From \_\_\_\_\_\_\_\_17/06/2024\_\_\_\_\_\_\_\_\_\_ To \_\_\_\_\_\_\_\_22/06/2024\_\_\_\_\_\_\_\_\_\_**

**Expected Work:** Study of production processes along with production planning and control procedures.

**List the sections of Industry visited and list the major production process and products for which planning and control procedures etc. are studied :**

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| **Day** | **Activities carried out** |
| **1** | * **What is migration process? Generation of migration files.** * **What are Upgrade and Downgrade Functions in migration files** * **Structure of alembic folder and versions folder in it** |
| **2** | * **Creation of API in Endpoints (student.py)** * **What is class decorators? Use of class decorators** * **Installation of flask\_restx and flask\_restful** |
| **3** | * **What is flask\_restx module and flask\_restful module? Difference between them.** * **Classes in module flask\_restx :- Namespace, Resource, API** * **Use of Namespace and Creation of API Blueprints and URLs** * **Inspection of Webpage (localhost) and header, PayLoad in Network tab** |
| **4** | * **Difference between GET and POST method and their implementation** * **Import of pdb (python debugger) , implementation of line wise code** * **Types of arguments of functions :- args ( \*args), kwargs (\*\*kwargs) and its use** |
| **5** | * **Importance of \_\_init\_\_.py file in python** * **How to achieve remote APIs in python, what is Postman API?** * **Type of format to send and receive data (json)** * **Conversion of list of objects in json format** |
| **6** | * **REST API endpoints using Resource class of flask\_restx** * **Creation of custom URL using Namespace class of flask\_restx** * **Creating Blueprints using API class and registering it in our \_\_init\_\_.py of api module** * **Using POST and GET method from inserting and retrieving data from the student schema** |

**Weekly summarization of the above activities :** The migration process involves generating files to manage database schema changes, using Alembic with upgrade and downgrade functions. Flask-RESTX and Flask-RESTful are used for building REST APIs, with enhanced features in Flask-RESTX. APIs are created using Resource, Namespace, and API classes, with POST and GET methods for data operations, and Postman API.



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**Week 4 : From \_\_\_\_\_\_\_\_24/06/2024\_\_\_\_\_\_\_\_\_\_ To \_\_\_\_\_\_\_\_\_\_29/06/2024\_\_\_\_\_\_\_\_\_\_\_\_**

**Expected Work:** Study of testing and Quality Assurance processes.

**List the sections of Industry visited and list the major testing and quality assurance processes studied there.**

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| **Day** | **Activities carried out** |
| **1** | * **What are Query parameters and path parameters? Uses and Difference between them.** * **How to access Query and path parameters? Syntax of it.** * **What is psycopg2? Database connectivity in Postgresql with psycopg2.** |
| **2** | * **Working of SqlAlchemy and Alembic. Individual functioning of each.** * **Use of Resource class of flask-restx to implement POST, GET, PUT, PATCH, DELETE using Postman application** * **Providing namespace APIs and sending methods request like GET, POST, PUT, PATCH, DELETE** |
| **3** | * **Use of POST method to send data to server to create or update resources in our application** * **Use of POST method to handle http POST request with respect to flask** * **GET method is used to retrieve data connected from schema to our web application** * **Retrieval of specific data using Query parameters with GET method** |
| **4** | * **What are PUT and PATCH method?** * **Similarities and differences between PUT and PATCH method.** * **Implementation of PUT and PATCH method using Postman application** * **Partial updation and complete updation of data using PATCH and PUT respectively** |
| **5** | * **Installation of marshmallow module for serialization and deserialization purpose.** * **Implementation of marshmallow module and used for data validation .** * **Adding (strict = True) parameter to enable datatypes constraints .** * **Using EXCLUDE constant to ignore additional attributes apart from schema. (imported from marshmallow)** |
| **6** | * **Use of marshmallow classes (Schema, fields, ValidationError) to create schema of our student table .** * **Creating object of student\_schema to optimize the code and the list of object to dump() method** * **Reception of project of Restaurant management and conversed the ideas.** |

**Weekly summarization of the above activities :** Query parameters and path parameters are used to pass data in web APIs; query parameters are in the URL after ?, and path parameters are part of the URL path. psycopg2 connects Python to PostgreSQL, while SQLAlchemy and Alembic handle ORM and database migrations. Flask-Restx's Resource class and Marshmallow facilitate API handling, serialization, deserialization, and data validation in Flask applications.



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**Week 5 : From \_\_\_\_\_01/07/2024\_\_\_\_\_\_\_\_ To \_\_\_\_\_\_\_\_06/07/2024\_\_\_\_\_\_\_\_\_\_\_\_**

**Expected Work:** Study of preventive and breakdown maintenance & safety Practice adopted in industry.

List the sections of Industry visited and list

i) The major machines/plants whose preventive and breakdown maintenance procedures studied.

ii) The major safety practices adopted in the industry.

iii) Organization chart of the industry with responsibilities of different departments/posts.

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| **Day** | **Activities carried out** |
| **1** | * **What is Web Server and Application Server ?** * **Use of Web server in Flask Framework.** * **What is WSGI Server ( Web Server Gateway Interface ) ?** |
| **2** | * **Types of Web Servers : Gunicorn and Waitress** * **Set up of Flask project ( student registration project ) using Gunicorn.** * **Working of Flask run command with respect to Web Server** |
| **3** | * **What is Proxy and Reverse Proxy Server ? Working of Them with the Example of Facebook** * **Port Optimization of Waitress Web server ( 443, 80 )** * **Second discussion of Restaurant Web Application using Flask framework** |
| **4** |  |
| **5** |  |
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**Weekly summarization of the above activities :**



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**Week 6 : From \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ To \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Expected Work: Report writing**

List the sections of Industry visited and list the major manuals/broachers such as operational manual, safety manual, maintenance manual, quality manuals referred/studied there for preparation of reports.

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| **Day** | **Activities carried out** |
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| **2** |  |
| **3** |  |
| **4** |  |
| **5** |  |
| **6** |  |

**Weekly summarization of the above activities :**



**Signature of Student : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Signature of Industry Supervisor\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**