A

PROJECT REPORT

ON

“IMD Aviation Instrument System”

FOR

“India Meteorological Department (IMD)’s Surface Instrument Division”

IN PARTIAL FULFILLMENT OF

MASTER OF COMPUTER APPLICATION

BY

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MCA –II SEM – IV
(2023-2024)

SUBMITTED TO

SAVITRIBAI PHULE PUNE UNIVERSITY

SINHGAD INSTITUTE OF MANAGEMENT
PUNE-411 041

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Examiner 1

Examiner 2

Date:
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ACKNOWLEDGMENT

It is very difficult task to acknowledge all those who have been of tremendous help in this project. I would like to thank my respected guide **Prof. Punam Chaudhari** for providing me necessary facilities to complete my project and also for their guidance and encouragement in completing my project successfully without which it wouldn't be possible.

I wish to convey my special thanks and immeasurable feelings of gratitude towards **Dr.Chandrani Singh**, Director SIOM-MCA. I wish to convey my special thanks to all teaching and non-teaching staff members of Sinhgad Institute of Management, Pune for their support.

Thank You,

Miss. Samruddhi Sunil Varpe

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CHAPTER NO-1

INTRODUCTION

1.1 Company Profile:

India Meteorological Department:

The India Meteorological Department (IMD) is an agency of the Ministry of Earth Sciences of the Government of India. 11 the principal agency responsible 15 for meteorological observations, weather forecasting and seismology. IMD is headquartered in Delhi and operates hundreds of observation stations across India and Antarctica. Regional offices are at Mumbai, Kolkata, Nagpur and Pune.

IMD is also one of the six Regional Specialised Meteorological Centres of the World Meteorological Organization. It has the responsibility for forecasting, naming and distribution of warnings for tropical cyclones in the Northern Indian Ocean region, including the Malacca Straits, the Bay of Bengal, the Arabian Sea and the Persian Gulf.

IMD is headed by the Director General of Meteorology, currently Dr.Mrutyunjay Mohapatra IMD has six Regional Meteorological Centres, each under a Deputy Director General. There are also Meteorological Centres in every state capital. Other IMD units such as Forecasting Offices, Agrometeorological Advisory Service Centers. Flood Meteorological Offices, Area Cyclone Warning Centers and Cyclone Warning Centers are usually co-located with various observatories or meteorological center,RMC's of The India Meteorological Department:

- Nagpur
- Mumbai
- Delhi
- Chennai
- Guwahati
- Kolkata

Website:http://imd.gov.in

The Workshop of Surface Instrument Division, Pune was established way back in 1920 with the objective of inspection and maintenance of surface meteorological instruments installed at IMD observatories. Since 1947 IMD, Pune Workshop was fully equipped with several shop floors, ranging from foundry to packing units for manufacturing of all types of surface meteorological instruments (IMD website).

1.2 Abstract:

IMD Aviation Instrument Management System is an important aspect of any successful business. It is the process of overseeing and controlling the flow of inventory units a business uses in the production or manufacture of goods for sale or distribution. Inventories are usually made up of a combination of goods, raw materials and finished products, and effective management of these items is essential to ensure optimal stock levels and to maximize the earning potential of the company. It also allows a business to prevent or mitigate any inventory-associated losses: Inventory management software is used by businesses for various reasons: it can track the costs of inventory throughout the manufacture and sales process, tell businesses when to replenish stock, and allow them to track profits. It can also be used to forecast inventory levels and prices, as well as expected product demand.

Effective inventory management is important as not only is inventory one of the most valuable assets to a business; there is a direct link between inventory levels and company profits. Inventory represents an investment that is tied up until either the item is sold, or it is used in the production of another item that is sold. Businesses are reliant on having items in stock, otherwise customers will simply go to a competitor who can provide what they want.

However, holding inventory in stock is not without costs storage, insurance and maintenance all must be considered. When it comes to replenishing stock levels, most management plans seek to strike a balance between having enough units when required, and ensuring supplies are not overstocked. This is why having an inventory management system can be advantageous.

1.3 Existing System and Need for System:

1.3.1 Existing system:

- There is no security provided for data.
- It is very tedious task to maintain information about the items using the existing system.
- It is difficult to maintain and handle paper work.
- The paper may get lost.
- It is very difficult task to recollect the past information about any particular department.
- Excel and Paper work is not user friendly.
- No graphical user interface for existing system.
- Existing system does not provide the accuracy.
- In the existing system, it is difficult to add upgrade or remove information.
- Lack of a centralized Register for all the entries of users and concerned parties.
- Reports cannot be generated to fetch information from various registers.
- Manual maintenance of documents.

1.3.2 Need for system:

- **Demand for Diverse Content:** Existing animation software may not fully cater to the diverse needs of inventory who seek overall item view ways to collect and manage data. There is a growing need for tools that accommodate a wide range of report generation.

- **Complexity of Production:** Inventory management involves intricate processes that require seamless integration of various tools and technologies. Existing systems may lack the flexibility, efficiency, and interoperability needed to streamline production workflows and meet tight deadlines in today's fast-paced industry.

- **Accessibility and Affordability:** Many inventory software packages are expensive and require specialized training, making them inaccessible to inventory managers and independent users with limited resources. There is a need for more affordable, userfriendly inventory tools.

- **Collaboration and Remote Work:** With the rise of remote work and global collaboration, existing inventory software may not adequately support real-time.

1.4 Scope of System:

The main aim of the project is to create inventory management system. This system should be connected to their respective databases and any changes made in the databases should be reflected in the system immediately.

1. User Management:

The software enables administrators to oversee user accounts, access privileges, and roles across the organization. It ensures data security and confidentiality by implementing robust user authentication and authorization mechanisms .User management features allow for efficient collaboration and communication among team members while maintaining accountability and transparency.

2. Report Generation:

The ERP system automates the generation of various reports, including daily status reports, performance analyses, and financial summaries. Users can customize report parameters, formats, and scheduling preferences to meet specific business requirements. The software provides insights into key performance indicators, trends, and areas for improvement, enabling informed decision-making at all levels of the organization.

3. Real-time Monitoring and Insights:

With real-time data processing and analytics capabilities, the ERP software offers stakeholders immediate access to critical information and performance metrics. It allows for monitoring of organizational activities, resource utilization, and project progress in real-time. Real-time insights enable proactive decision-making, rapid response to changing circumstances, and optimization of operational processes.

4. Scalability and Integration:

The scope of the ERP software includes scalability to accommodate the evolving needs and growth of the organization .It supports seamless integration with existing systems, databases, and third-party applications, ensuring interoperability and data consistency across the enterprise. The software adapts to changing business requirements and technological advancements, providing long-term value and sustainability

1.5 Operating Environment - Hardware and Software:

- **Software Requirements:**

  Operating System: windows 11

  Database: Mysql 8.1

  Front End: HTML 5, CSS 4.0, Bootstrap 5, Javascript ES1

  Back End: PHP 8.2

  Software Development Tool: Visual Studio 17.8

  Layout tool: Wireframe

- **Hardware Requirements:**

  RAM: 256 MB or more

  Processor: 11th Gen Intel(R)Core(TM)i5

  Hard disk: Minimum 10 GB

1.6 Brief Description of Technology Used:

HTML, CSS, and JavaScript (JS) are foundational technologies used in web development, including for the Reliance Animation software system. Here's a brief description of each:

1. HTML 5 (Hypertext Markup Language):

HTML is the standard markup language used to create the structure and content of web pages. It provides a set of tags that define the various elements of a webpage, such as headings, paragraphs, images, links, forms, and more. HTML serves as the backbone of web pages, providing the structure that browsers use to render content.

2. CSS 4.0(Cascading Style Sheets):

CSS is a style sheet language used to control the presentation and layout of HTML elements on web pages. It allows developers to define styles, such as colors, fonts, spacing, borders, and positioning, to customize the appearance of web content. CSS enables consistent and visually appealing designs across different devices and screen sizes.

3. JavaScript ES1 (JS):

JavaScript is a high-level programming language used to add interactivity, functionality, and dynamic behavior to web pages. It enables developers to create interactive elements, handle user events, manipulate the DOM (Document Object Model), make AJAX requests, and perform client-side validation. JavaScript is essential for creating responsive and engaging web applications.

In the context of the Reliance Animation software system, HTML, CSS, and JavaScript are likely to be used in various capacities:

- HTML is used to structure the user interface of the software system, defining the layout, components, and elements of the application's interface.
- JavaScript is used to add interactivity and dynamic behavior to the user interface, enabling features such as animation, form validation, user input processing, and real-time updates. Together, HTML, CSS, and JavaScript form the core technologies used to create rich, interactive, and user-friendly interfaces for the Reliance Animation software system, allowing users to navigate, interact with, and leverage the features and functionalities of the application effectively.

4. Bootstrap 5:

Bootstrap 5 is a popular front-end framework used for building responsive and mobile-first websites and web applications. Released in May 2021, it brought several significant changes and improvements over its predecessor, Bootstrap 4. Some key features and changes in Bootstrap 5 include:

No jQuery Dependency: Bootstrap 5 removed its dependency on jQuery, making it more lightweight and modern.

Vanilla JavaScript: It replaces jQuery with vanilla JavaScript for enhanced performance and compatibility with modern web development practices.

5. PHP 8.2 (Hypertext Preprocessor):

- PHP is a server-side scripting language widely used for web development and dynamic content creation.
- It is well-suited for building interactive websites, web applications, and content management systems.
- PHP enables developers to integrate dynamic features into web pages, such as user authentication, database interaction, and content generation.
- For Reliance Animation, PHP could be used to develop and manage the backend infrastructure of their website, handle user interactions, process form submissions, and dynamically generate content based on user preferences and actions.
- PHP is known for its flexibility, ease of use, and compatibility with various web servers and database systems, making it a popular choice for building dynamic and interactive web experiences.

6. Visual Studio Code Editor:

-Visual Studio Code (VS Code) is a lightweight, open-source code editor developed by Microsoft.
- It offers a wide range of features and extensions for coding, debugging, and version control, making it a versatile tool for software development across different platforms and programming languages.
- VS Code provides syntax highlighting, code completion, and intelligent code editing features, helping developers write clean, efficient code with fewer errors.
- It supports integration with various programming languages, frameworks, and tools, including PHP, JavaScript, HTML, CSS, and Git.
- Visual Studio Code's extensibility and customization options make it well-suited for collaborating on large-scale projects, managing code repositories, and integrating with thirdparty services and APIs.

7. ERP:

The ERP website helps optimize resource allocation by providing insights into workforce availability and skill sets.

Administrators can allocate resources efficiently to meet production deadlines and deliver high-quality animation content.

The ERP website provides daily updates on the status of animation production projects. Users can access real-time information on project milestones, deadlines, and any issues or delays affecting production schedules. The platform automates the generation of reports related to animation production.

Users can generate detailed reports on various aspects of production, including project progress, resource utilization, and task completion statuses.

1.6.1 Operating systems used (Windows or Unix):

Linux distributions, Windows, or macOS, depending on the specific requirements of serverside and client-side operations.

1. Windows11:

Better support for virtual desktops. Users will be able to set up virtual desktops in Windows 11 like they can with the macOS. In Windows 11, users will be able to toggle between multiple desktops for work, school, personal or gaming use.

1.6.2 MYSQL used to build database:

Relational database management systems like MySQL for structured data mana

CHAPTER NO-2

PROPOSED SYSTEM

2.1 Study of Similar Systems:

A study of similar systems to the Reliance Animation ERP software website, which manages report generation for inward and outward users, users, and provides daily status reports for animation studios, reveals several comparable solutions in the industry. Here are some examples:

1. Toon Boom Harmony:

Toon Boom Harmony is a leading animation software suite that offers features for animation production, including storyboard creation, character rigging, and scene compositing. While not specifically an ERP system, Toon Boom Harmony does offer project management features that allow teams to track progress, manage assets, and collaborate on animation projects. It provides reporting capabilities for project status updates, asset usage, and production timelines, which can be customized to meet specific reporting needs.

2. Shotgun:

Shotgun is a production management platform designed for visual effects, animation, and gaming industries. It offers features for project tracking, task assignment, asset management, and review and approval workflows. Shotgun provides reporting tools that enable studios to generate custom reports on project status, resource utilization, and productivity metrics.

3. TACTIC:

TACTIC is a production asset management system that provides workflow automation and project tracking for animation and visual effects studios.
It offers features for asset versioning, metadata management, and collaborative project management. TACTIC includes reporting capabilities for tracking project progress, resource allocation, and production costs.

2.2 Feasibility Study:

A feasibility study of IMD Aviation Instrument software system is aimed at providing weather forecasting inventory management etc. would involve assessing various factors to determine the viability and potential success of such a venture. Here is an outline of the key components that would be included in the feasibility study:

1. Technical Feasibility:

- Assess the technical requirements for developing an inventory software system capable of managing high data content.
- Determine the necessary hardware, software, and infrastructure needed to support data storage, access, retrieve, and distribution.
- Evaluate the scalability, reliability, and performance of the software system to accommodate growing user demand and content production needs.

2. Financial Feasibility:

- Estimate the initial investment required to develop the IMD Aviation Instrument software system, including research and development costs, software development expenses, and infrastructure investments.
- Forecast revenue projections based on potential maintenance fees, licensing agreements, and advertising revenue.
- Conduct a cost-benefit analysis to determine the return on investment (ROI) and break-even point for the animation software system.

3. Operational Feasibility:

- Evaluate the operational workflows and processes involved in data storage, access, retrieve, and distribution.
- Assess the availability of skilled personnel, including administrators, forecaster, software developers, and technical support staff.
- Identify potential challenges and bottlenecks in the production pipeline and develop strategies to streamline operations and improve efficiency.

- 2.3 Objectives of Proposed System:

The main aim of the project is to create inventory management system. This system should be connected to their respective databases and any changes made in the databases should be reflected in the system immediately.

The main Objectives of the present research work are:

1. Learn fundamentals of web development with HTML, CSS and JavaScript.

2. Creation of interactive Data Tables which can be modified using Database stored using database management system (DBMS).

3. Creating dynamic dropdown lists where the data in the dropdown lists will be populated from the database and based on the selection of the dropdown lists, display the database tables' data in table format.

2.4 Users of System:

Users of the IMD Aviation Instrument System, which provides weather forecasting, climate update, natural disaster prediction etc. may include a diverse range of individuals and organizations involved in the from citizen of India to specialized authority from level of accessibility. Here are some examples of users who may utilize the IMD Aviation Instrument System**.**

1. **Instrument Management:** Professional forecaster and scientist use the IMD Aviation Instrument System to create, design, and manage aviation instruments, stations, and equipment for forecasting, data visualization, and manufacture instruments. They leverage the software's tools and features to bring their creative visions to life and manage items in inventory.

2. **Storyboard Artists and Writers:** Storyboard artists and writers utilize the IMD Aviation Instrument System to develop story concepts, script dialogues, and visualize scenes through storyboard sketches and layouts. The software enables them to storyboard key moments, plan shot compositions, and sequence narrative beats for animated projects.

3. **Directors and Producers**: Directors and producers rely on the IMD Aviation Instrument System to oversee the production process, manage creative workflows, and collaborate with animation teams and artists. They use the software to review animation drafts, provide feedback, and ensure that the final product meets artistic and storytelling objectives.

4. **Production Studios and Companies:** Animation production studios and companies integrate the IMD Aviation Instrument System into their production pipelines to streamline animation workflows, manage assets, and coordinate team collaboration. The software serves as a central platform for managing animation projects, tracking progress, and delivering final deliverables.

5. **Content Creators and Indie Filmmakers:** Independent content creators and filmmakers utilize the Reliance Animation software system to produce original animated content, including short films, web series, and indie projects. The software offers accessible tools and resources for independent creators to produce professional-quality animation on a smaller scale.

CHAPTER NO-3

ANALYSIS AND DESIGN

3.1 System Requirements (Functional and Non-Functional requirements):

✞ Functional Requirement:

1. Dashboard:

- Main Dashboard
- About dashboard
- Items dashboard
- Stations dashboard
- Daily Status Report dashboard
- Item tracker dashboard

2. Advance Reports:

- DSR(Daily Status Report)
- Stock Report

3. Project Management:

- Stations
- Items

4. Item Revision:

- Item name
- Item Serial number
- Item type
- Manufacture
- Transport
- Station name
- Arrival and dispatch date

5. DSR (daily status report):

- Reports
- Items
- Stations
- Manufacture • Transport

6. Cost and Expenditure

- Instrument Cost
- Transport Cost
- Inventory Cost

7. Resource Management:

- Stations
- Accounts
- Items

8. Setting:

- Profile
- Section
- Account and Permission

✞ Non-functional requirement:

1. Performance:

-The system must load quickly, provide real-time experience, and offer faster services.

2. Security:

-Implement secure user authentication and data encryption to protect user information.

-Secure the system against common security threats like SQL injection and data breaches.

3. Scalability:

-Design the system to handle a growing user base and increasing data.

4. Flexibility:

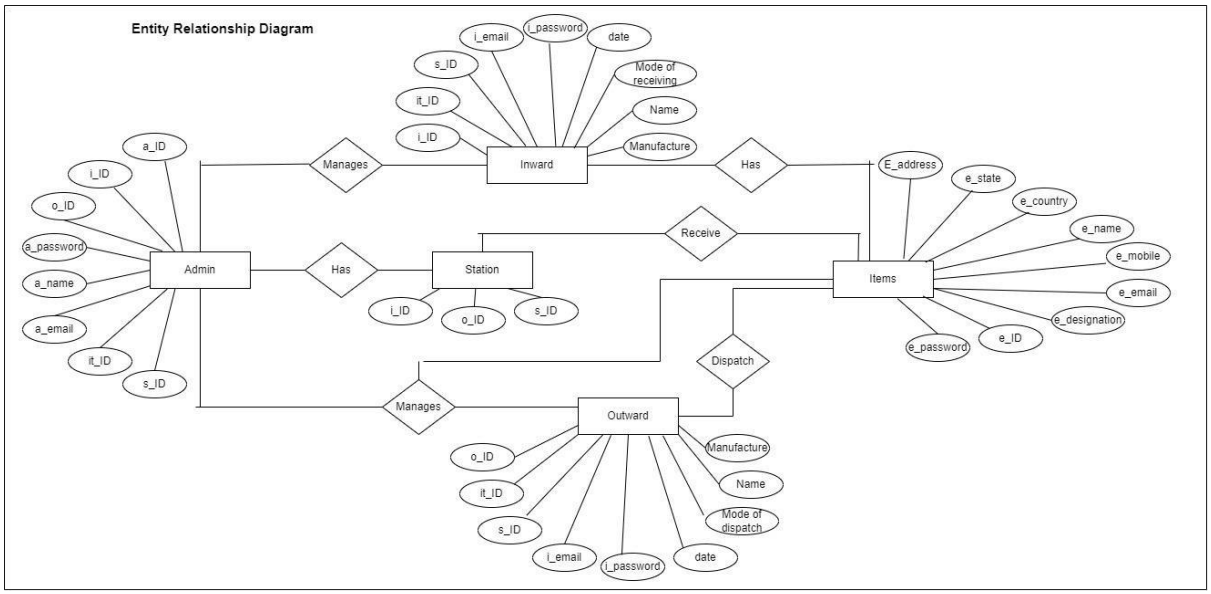
-The system should be available and reliable, with minimal downtime.

5. User Experience:

-Ensure an intuitive and user-friendly interface.

-Optimize the system for various screen sizes and resolutions.

3.2 Entity Relationship Diagram (ERD):



3.3 Table Structure:

3.3.1 Table I:Dispatch Report table

Table Name dispatch reports- It stores the dispatched elements information in the form of text and the reference id of the dispatched item

Field Name	Description
1. fd dispatch_id(Primary Key)	This field stores the dispatch id which is the outward serial id of dispatched element.
2. fd_html	This field stores the text of the dispatch report.
3 . fd dispatched report id.	This field stores the reference id of the dispatch report.
4 . fd_file_name	It stores the name of the file.

3.3.2 Table 2: Inward table

Tabla Name : tb_ inwards:- It stores the information about the elements inwarded in the store.

Field Name	Description
1 .fd inward_id (Primary Key)	It stores the unique identification number to analyse the inwarded item.
2.fd_date	It stores the date on which the items are inwarded in the store
3. fd_station_id	It stores the id of the station from where the item is inwarded.

4.fd_item_id	It stores the id of the items which re inwarded in store.
5 . id item_type_id	It stored the id for the type of item inwarded in store
6 . fd_item_manufacturer_id	It stores the id for manufactured the item inwarded.
7 . fd_quantity	It stores the number inwarde items in the store.
8. fd_rate 9. fd_mode of_receiving	It stores the rate of the item inwarded. It stores how the items are inwarded either post,by speed post or by hand
10. fd remarks	It store the remarks about the items inwarded.

3.3.3 Table 3: Inward Serial Numbers table

Table Name: tb inward _serial number :- This table store the serial number for every items inwarded.

Field Name	**Description**
1. tb inward serial_number(Primary Key)	It stores the serial number id for each item Inwarded
2 . fa inward_id	stored the id for the inwarded item.
3 . fd serial number	It stores the serial number for each item Inwarded

3.3.4 Item Table 4: Item table

Table Name: tb items:- It stores the information about the items in the store.

Field Name	Description
1. fd item_id(Primary Key)	It stores the id of the item in the store.
2 . fd _name	It stores the name of the items.
3 . fd specification	It stores the information about the items.

3.3.5 Table 5: Item Manufacturer table

Table Name: tb_item manutacturer:- it stores the information about the item manufacturers.

Field Name	Description
1. fa_item_manufacturerd(primary	Ii stores the id for the manufacture of
key)	the items.
2. fd_iten id	It stores the id for the items in the store.
3 . fd manufacturer	It stores the name of the manufacturer.
4. id dirty_bit	it stores the status and it id delaut I.

3.3.6 Table 6: Item Types table

Table Name: tb_ item types-lt stores the information about the type of items

Field Name	Description
1. fd_item type_id(primary key)	It stores the id for item type.
2. fd item_id	It stores the id for items in store
3. fd type	It Stores the type of the ite

4. fd_dirty bit	It stores the status of the items.

3.3.7 Table 7:Outward table

Table Name: tb outwards :- It stores the outward information of the items.

Field Name	**Description**
1. fd outward id (Primary Key)	It stores the id for the outward generated.
2 . fd_date	It stores the date on which outward is created.
3 . fd station_id	It stores the station id where outward is created
4. fd item_id	It stores the id for items.
5. fd item type_id 6 . fd quantity	It stores id for type of item It stores the quantity of item outwarded.
7. fd mode of dispatch	It stores the mode of dispatch.
8. fd remarks	It stores the remarks about the outward.
9 . fd is dispatched	It stores boolean value of the dispatched items whether it is dispatched or not.
10 . fd not_working	It stores whether the outwarded item is working or not outwanded
11. fd partial working	It stores the condition whether outwarded item is partially working or boolean value.
12. fd_faults_remarks	It stores the remarks of the faulty item

13. fd_ action_take	It stores the action taken on the fault recognized.

3.3.8 Table 8: Outward serial number table

Table Name: tb outward serial_numbers It stores the outward serial number for the outwards.

Field Name	**Description**
1. fd outward_serial_number_id (Primary)	It stores the id for outward serial number.
2. fd outward id	It stores the outward id to locate outwards.
3. fd_inward serial_number_id	It stores the corresponding inward serial number id for inwards

3.3.9 Table 9: User table

Table Name:tb_users :- It stores the used for the system.

Field Name	**Description**
1. fd_user_id (PrimaryKey)	It stores the id of the user.
2. fd first_name	It stores the first name of the user.
3 . fd last_name	It stores the last name of the user.
4. fd username	It stores the username for the user.
5. fd_password	It stores the password for the user.

6. fd_role	It stores the role of the user which can beAdmin, Inward user, Outward user ,Viewer.

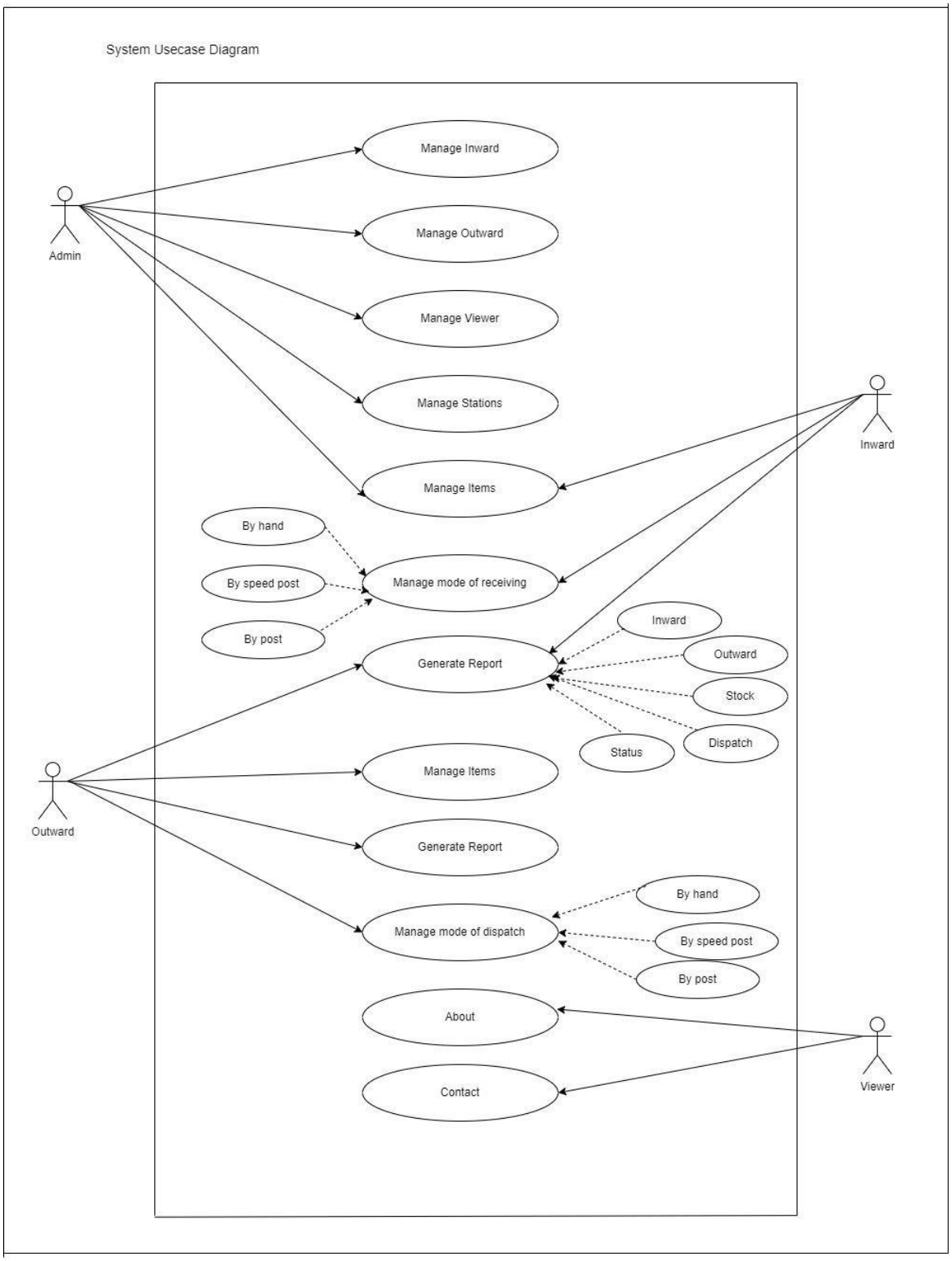
3.3.10 Table 10: Station table

Table Name:tb_stations :- It stores overall information about the stations.

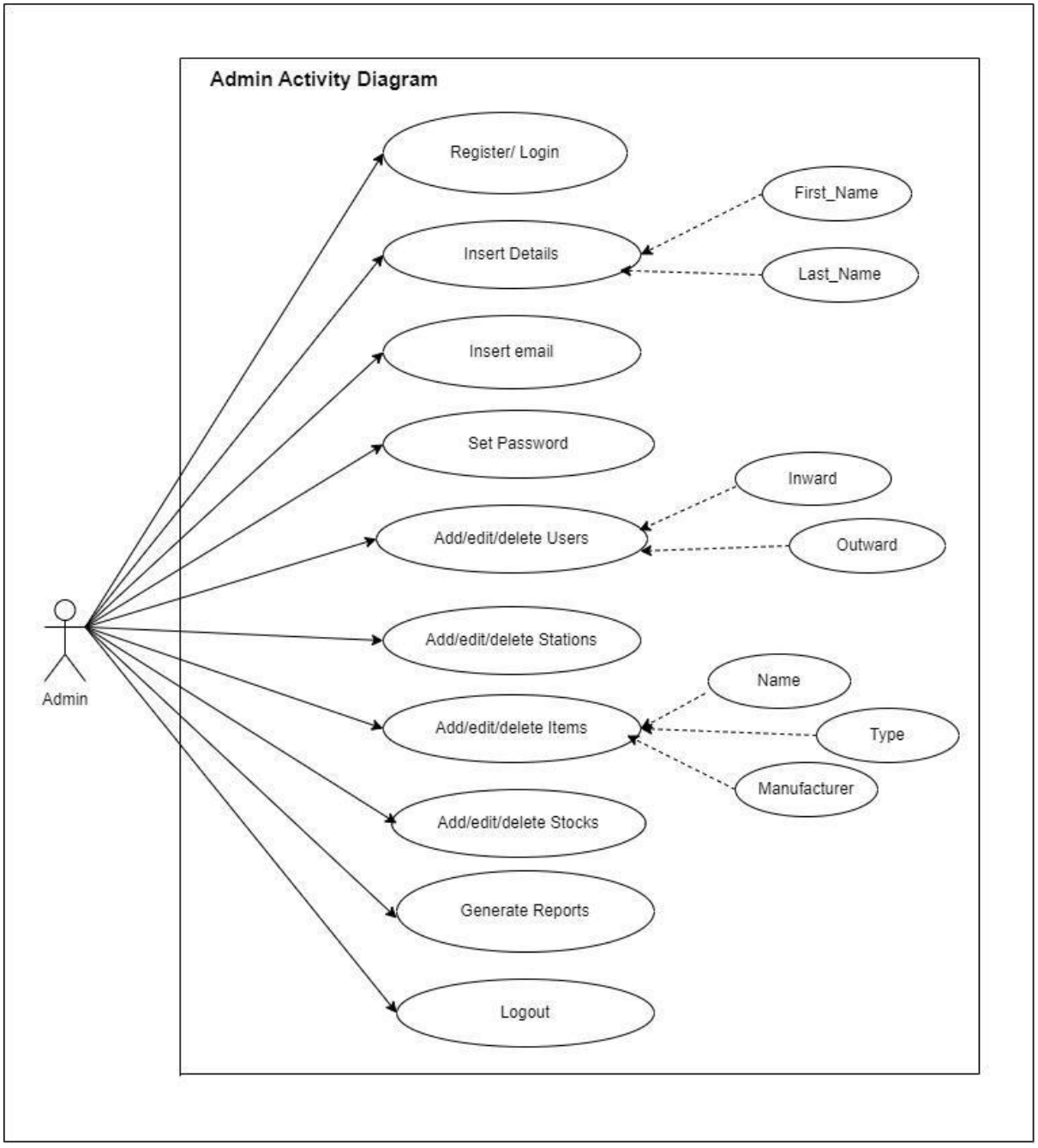
Field Name	**Description**
1. fd station_id (primary key)	It stores the id for stations.
2. fd rme: 3. fd_state	It stores the names of mcs. It stores the state of the station.
4. fd type	It stores the type of station eg. MO,AMO etc.
5. fd icao	It stores icao number of station.
6. fd_name	It stores the name of the station.
7 . fd email	It stores the email id of the authority.
8 . fd phone	It stores the mobile number of the authority
9. fd address	It stores the address of the station.
10. fd_incharge name	It stores the name of authority at a particular station.
11. fd_incharge_mobile	It stores the mobile number of the authority in charge.

3.4 Use Case Diagrams

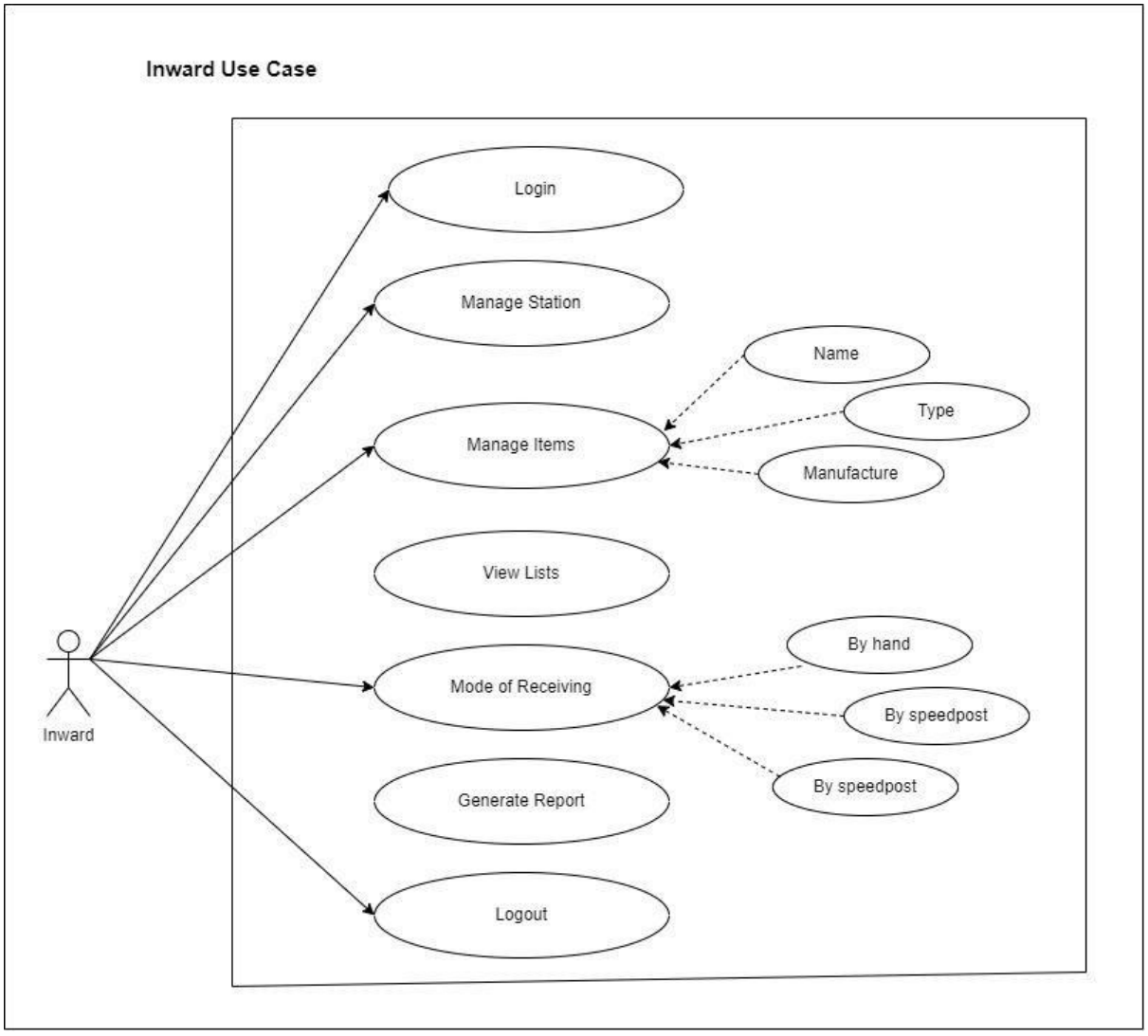
3.4.1 Whole System Use case diagram:



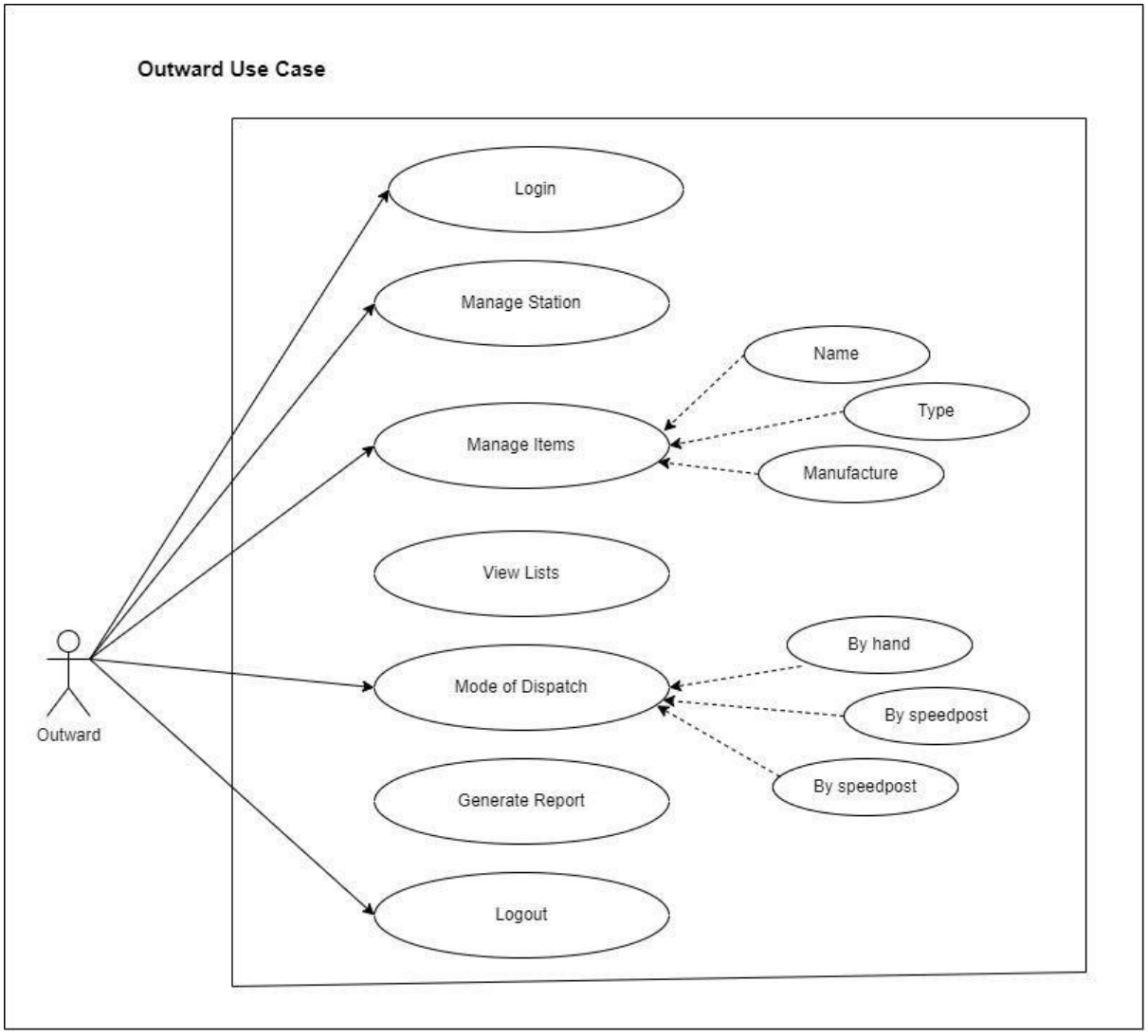
3.4.2 Admin Profile Use case diagram:



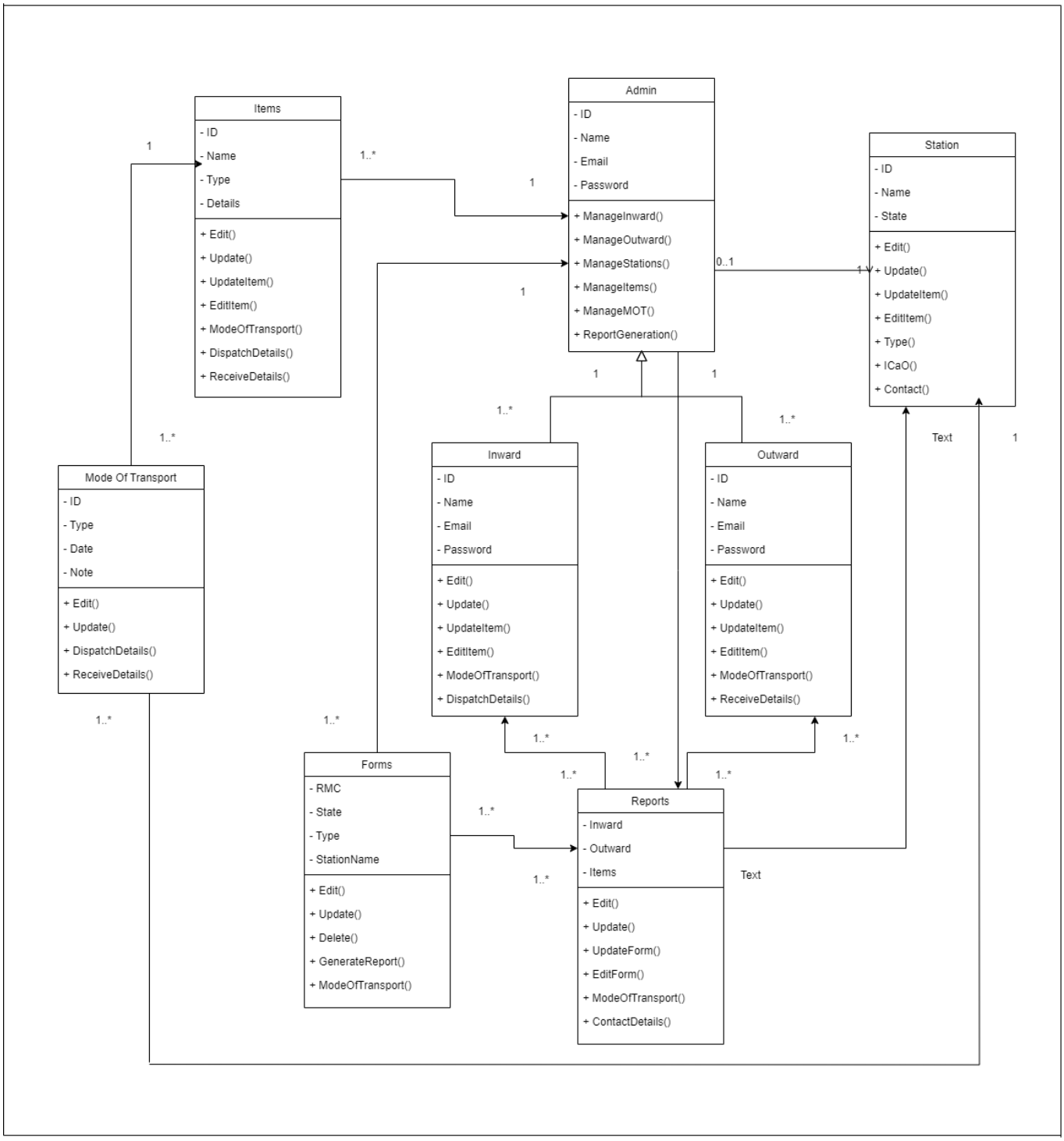
3.4.3 Inward Use Case diagram:



3.4.4 Outward Use Case diagram:

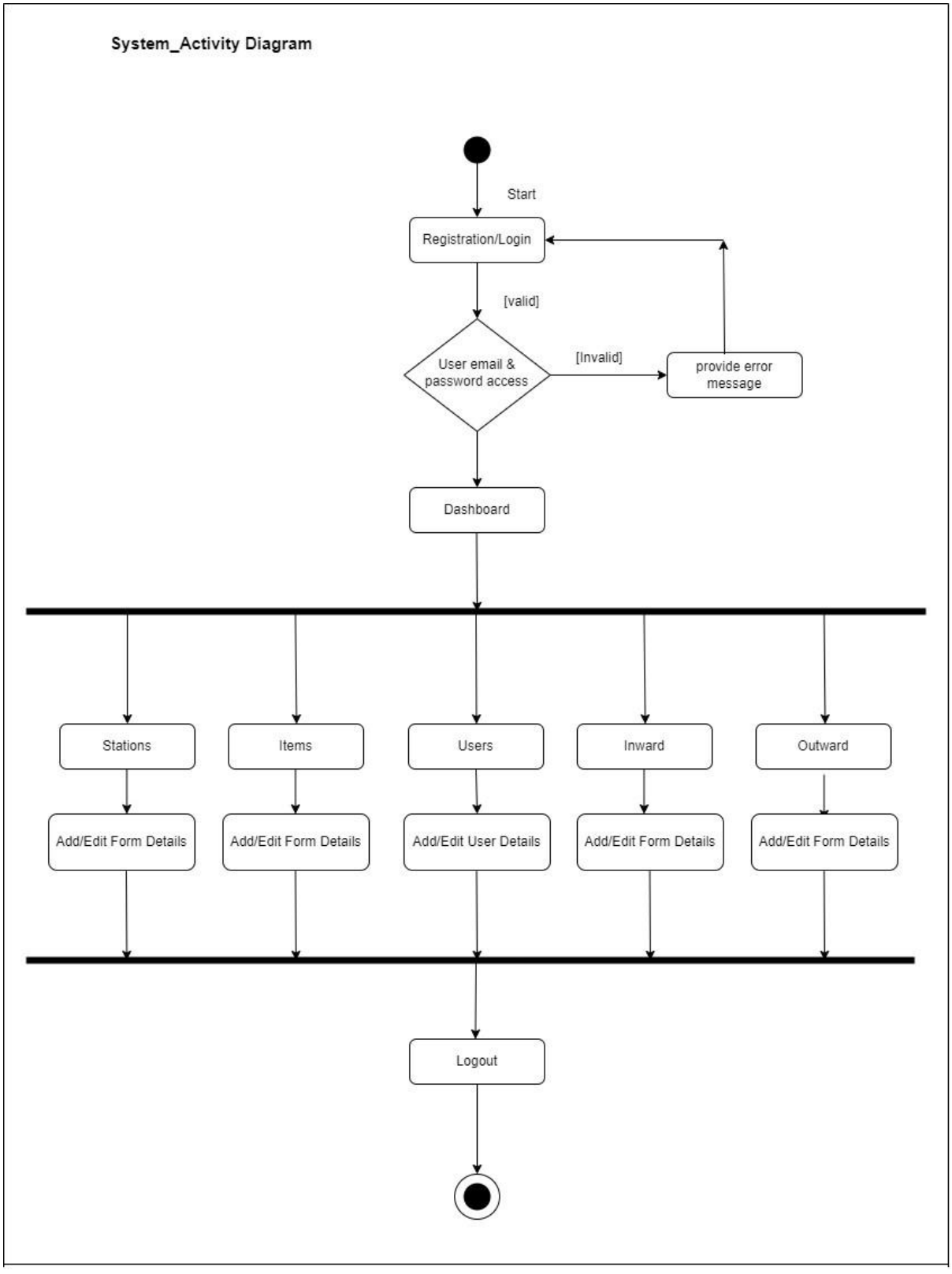


3.5 Class Diagram:

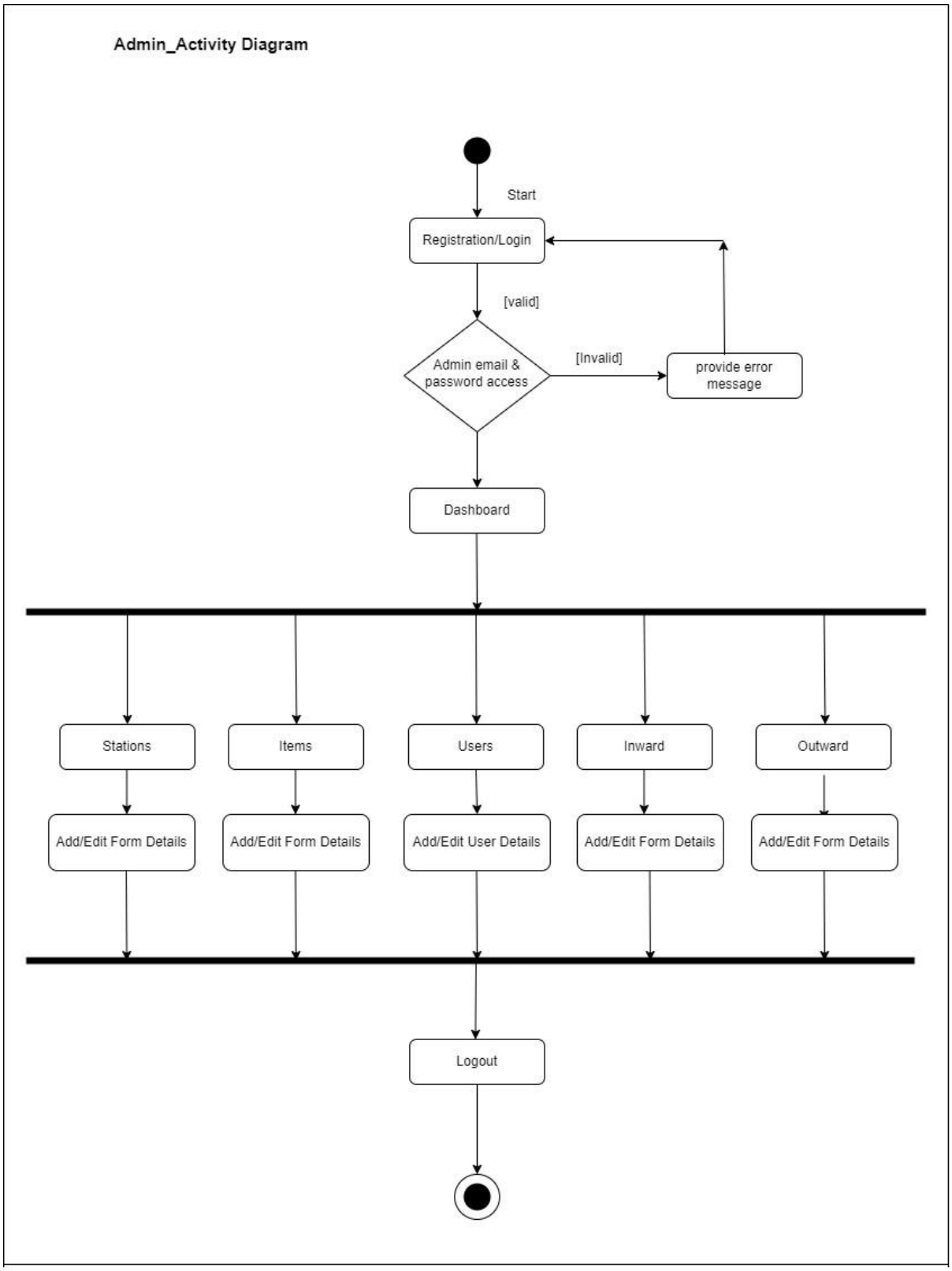


3.6 Activity Diagram:

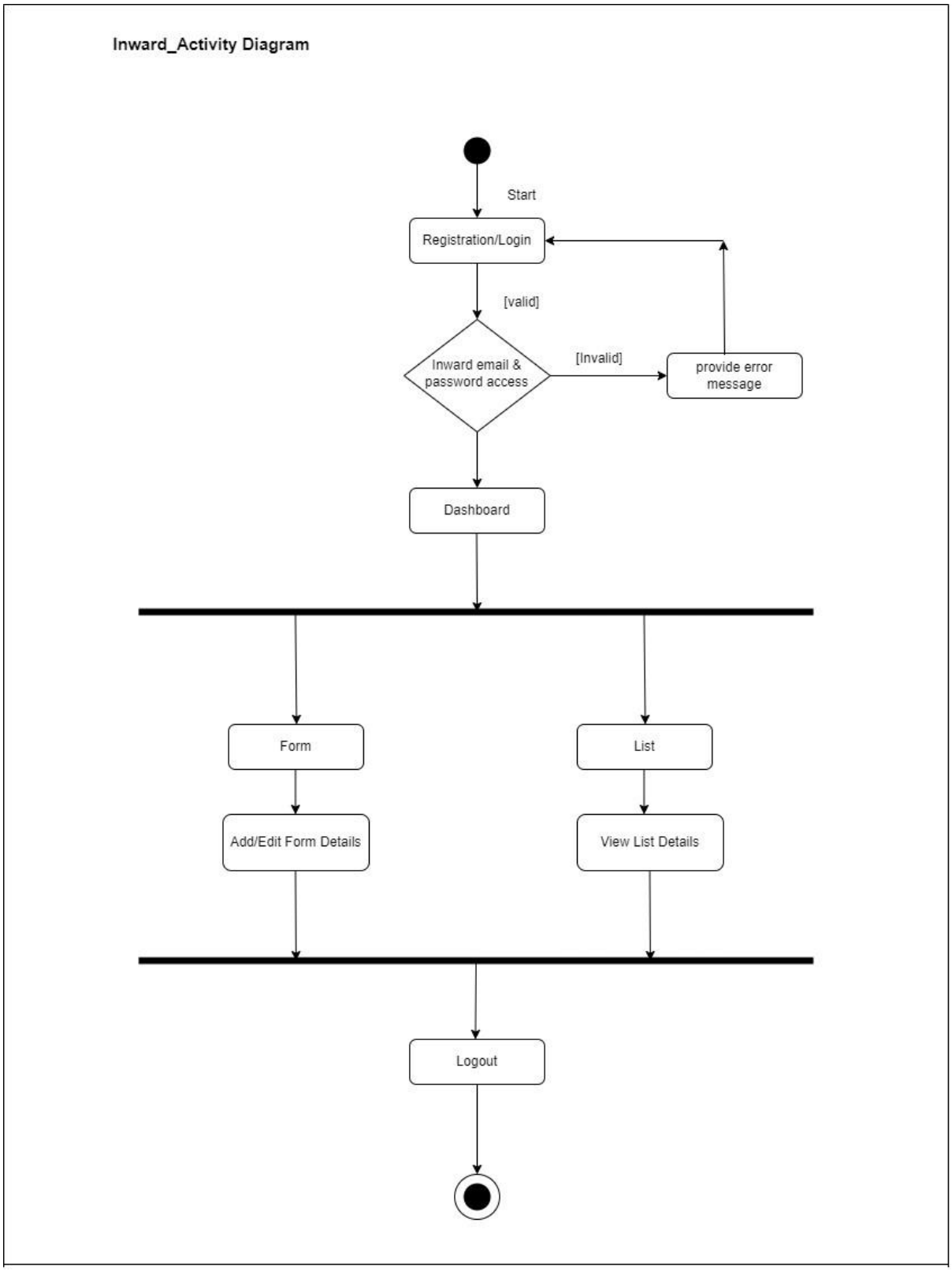
3.6.1 Whole System Activity Diagram:



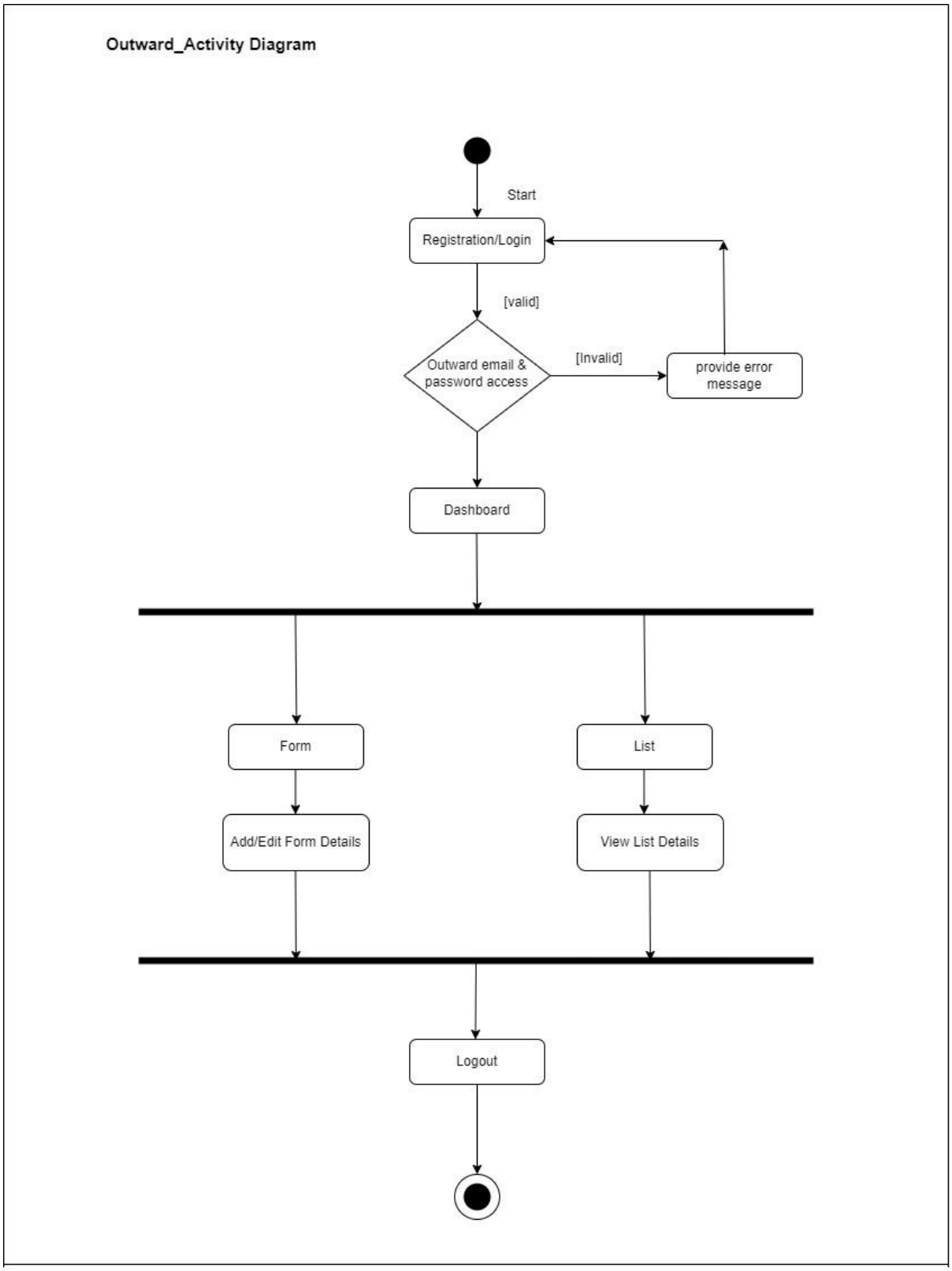
3.6.2 Activity Diagram for Admin:



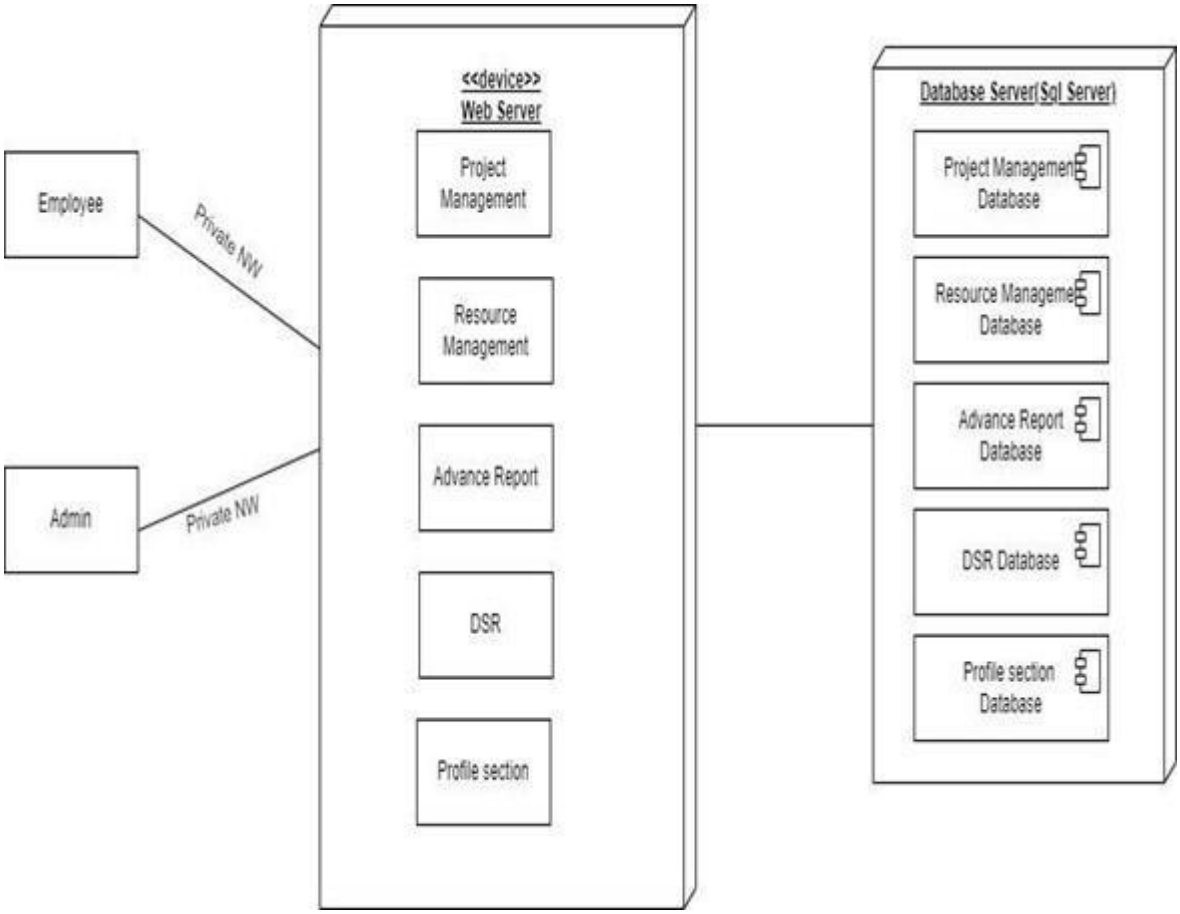
3.6.3 Activity diagram for Inward:



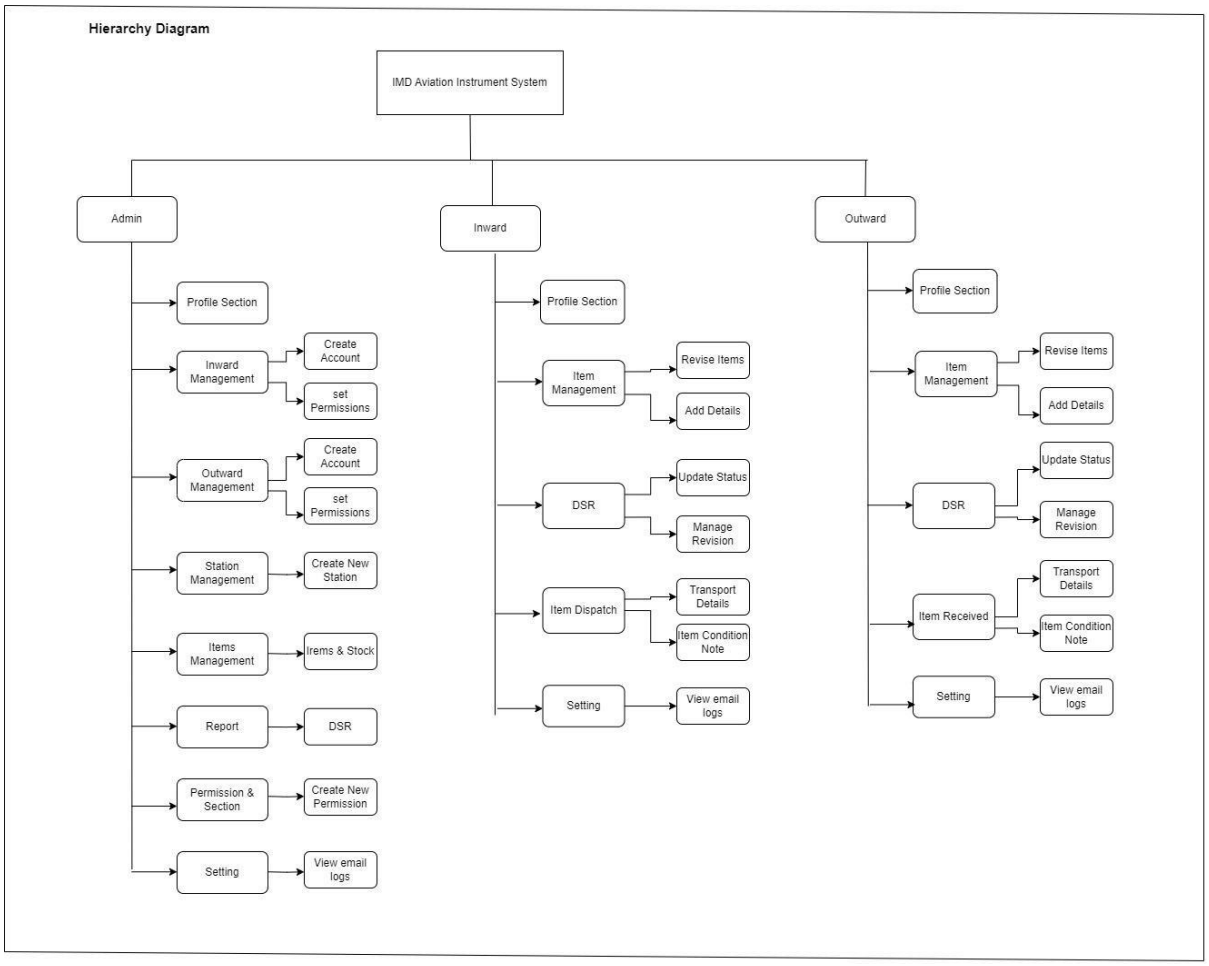
3.6.4 Activity diagram for Outward:



3.7 Deployment Diagram:

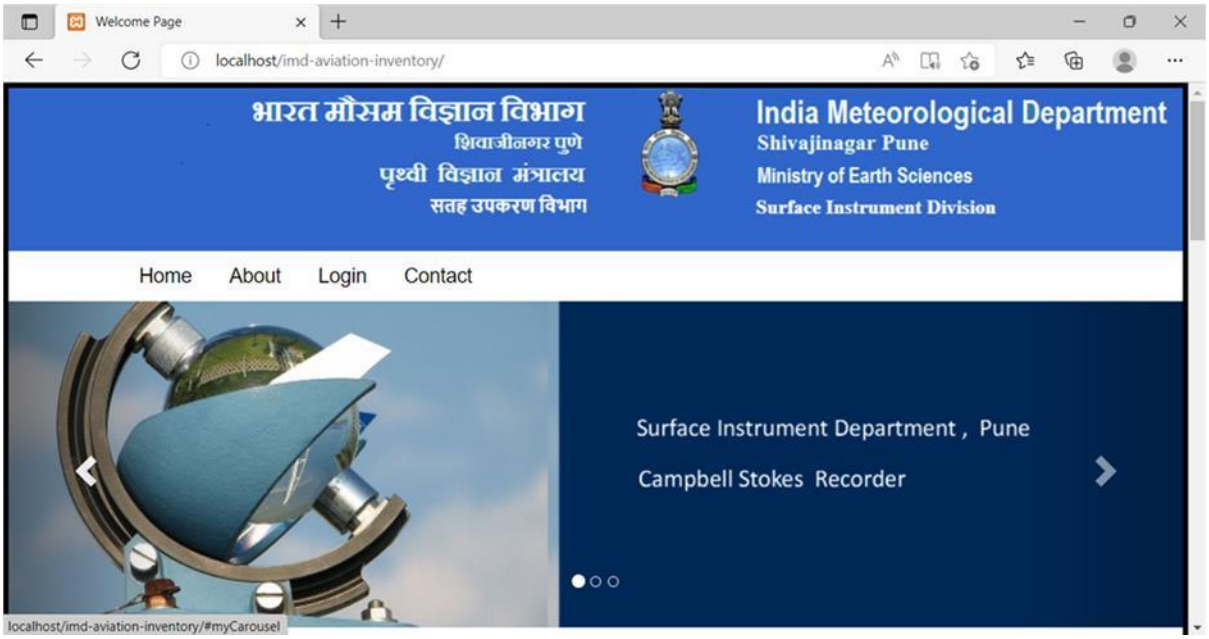


3.8 Module Hierarchy Diagram:

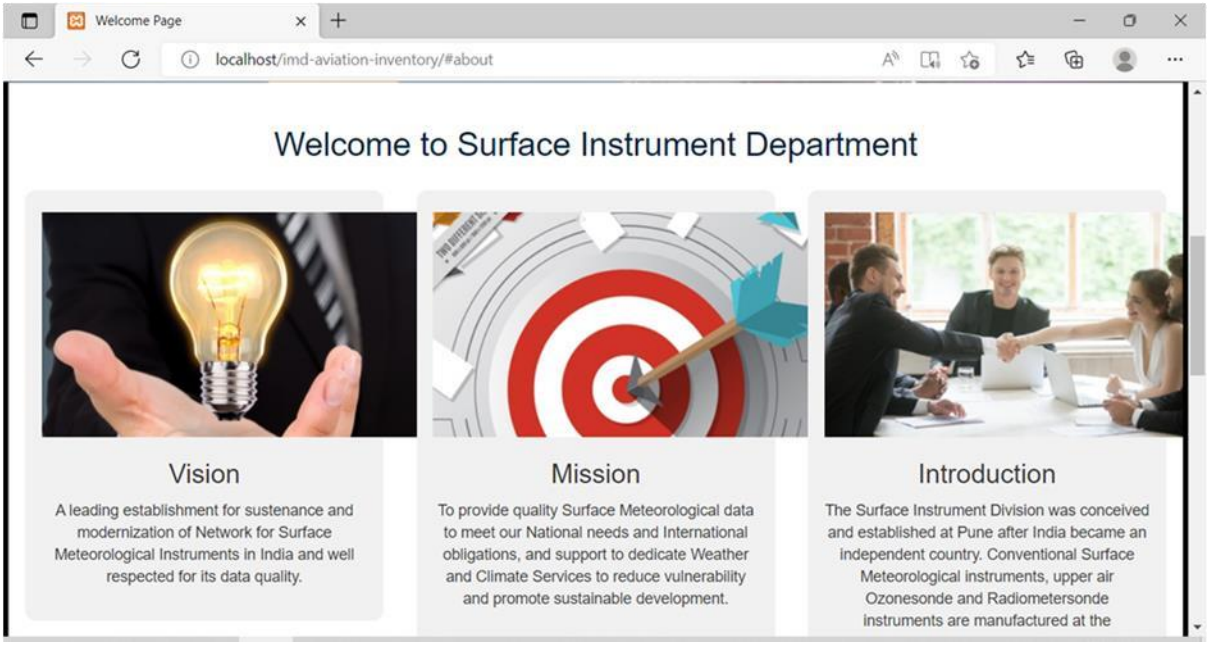


3.9 Sample Input and Output Screens:

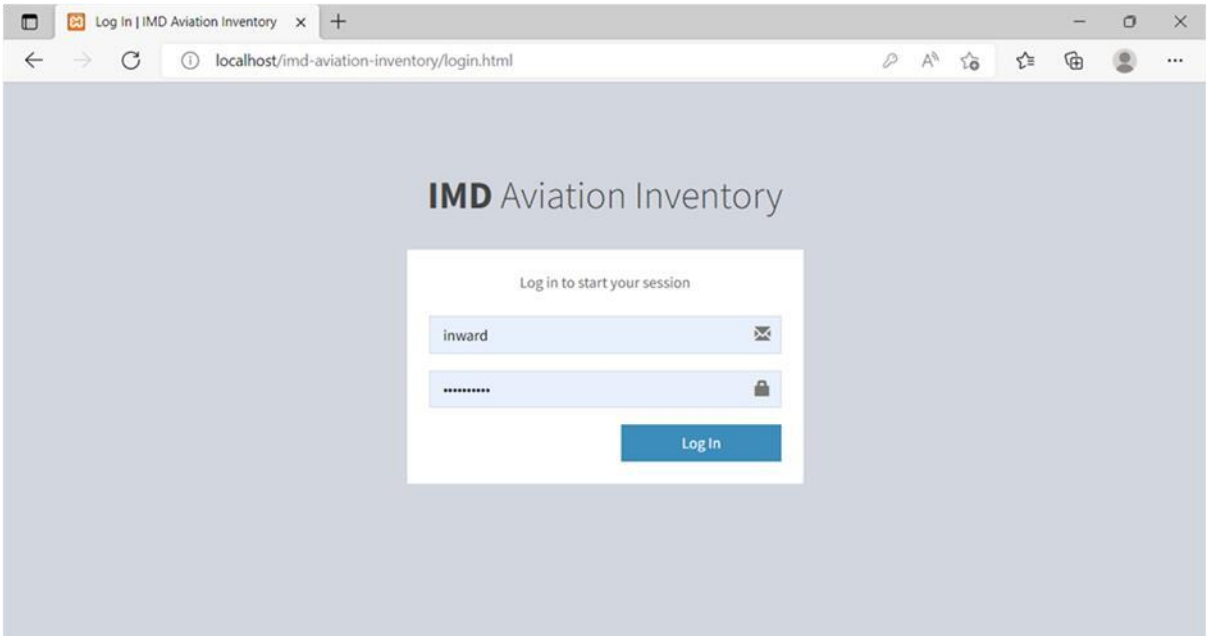
3.9.1 Home page:



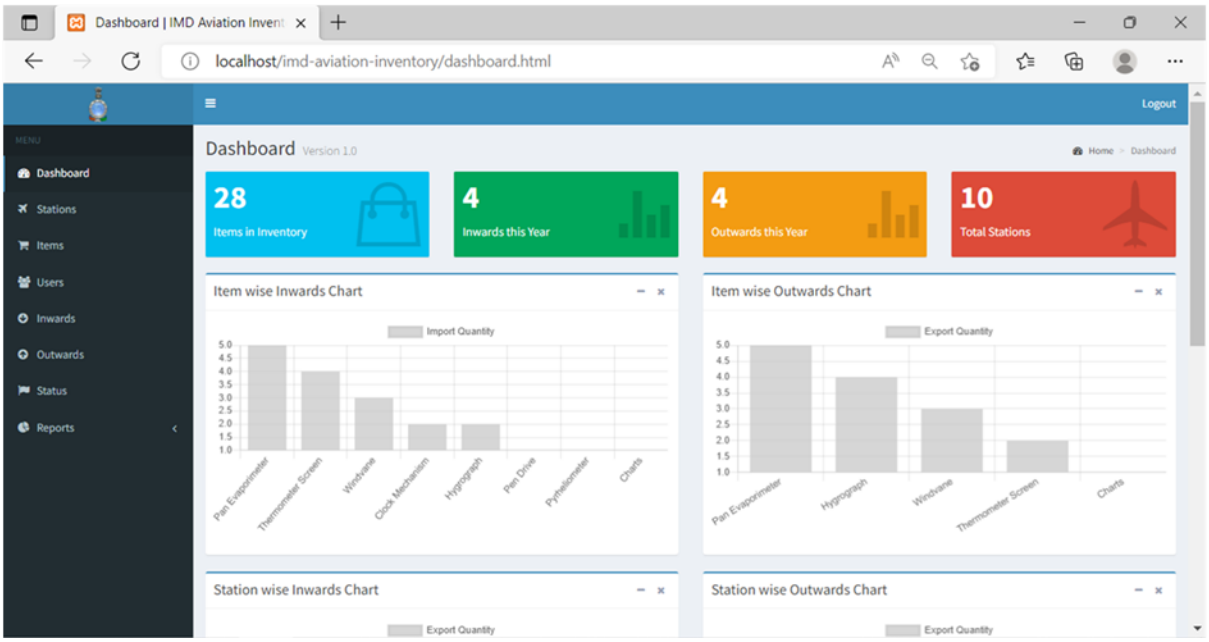
3.9.2 About page:



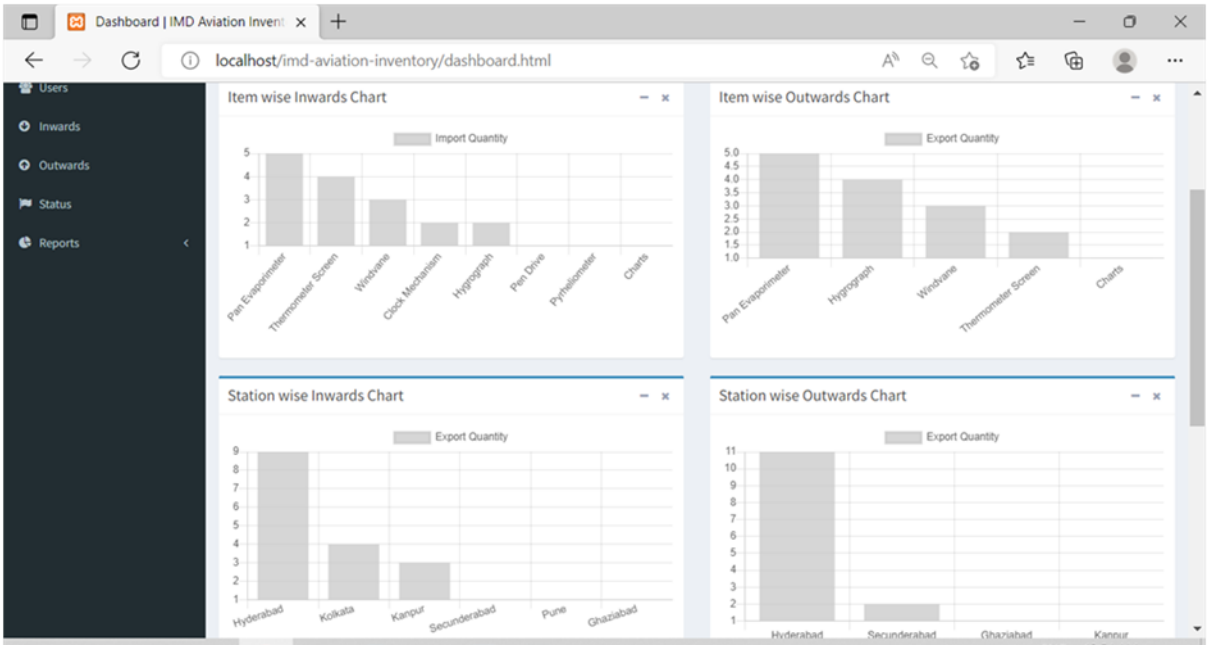
3.9.3 Admin Login page:



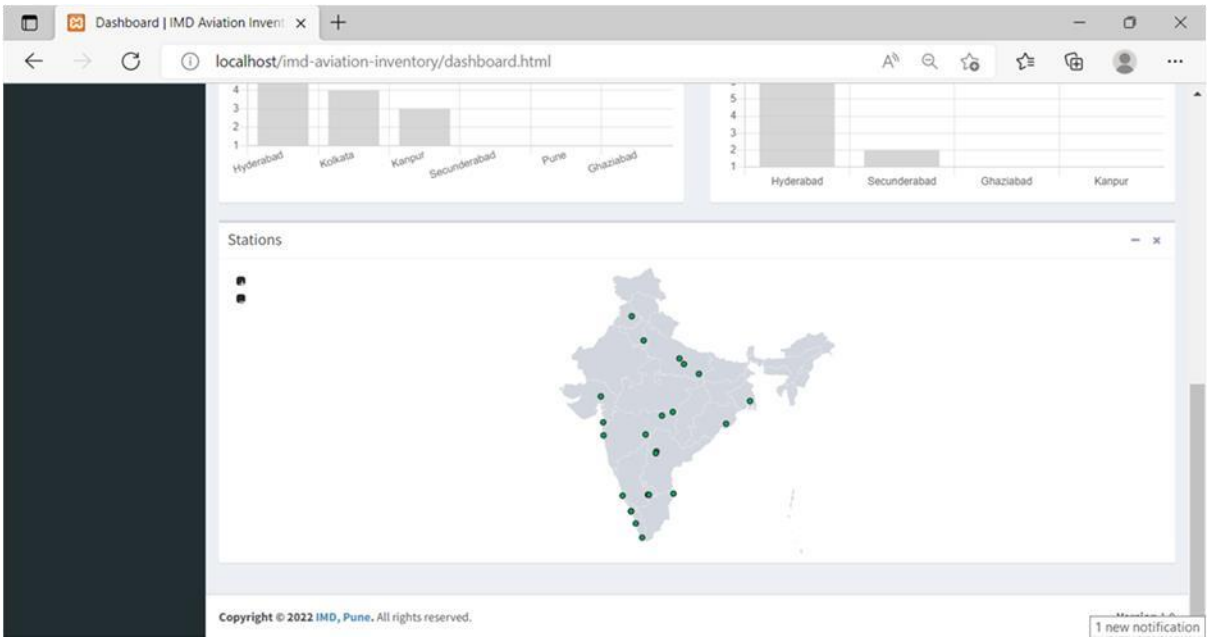
3.9.4 Dashboard:



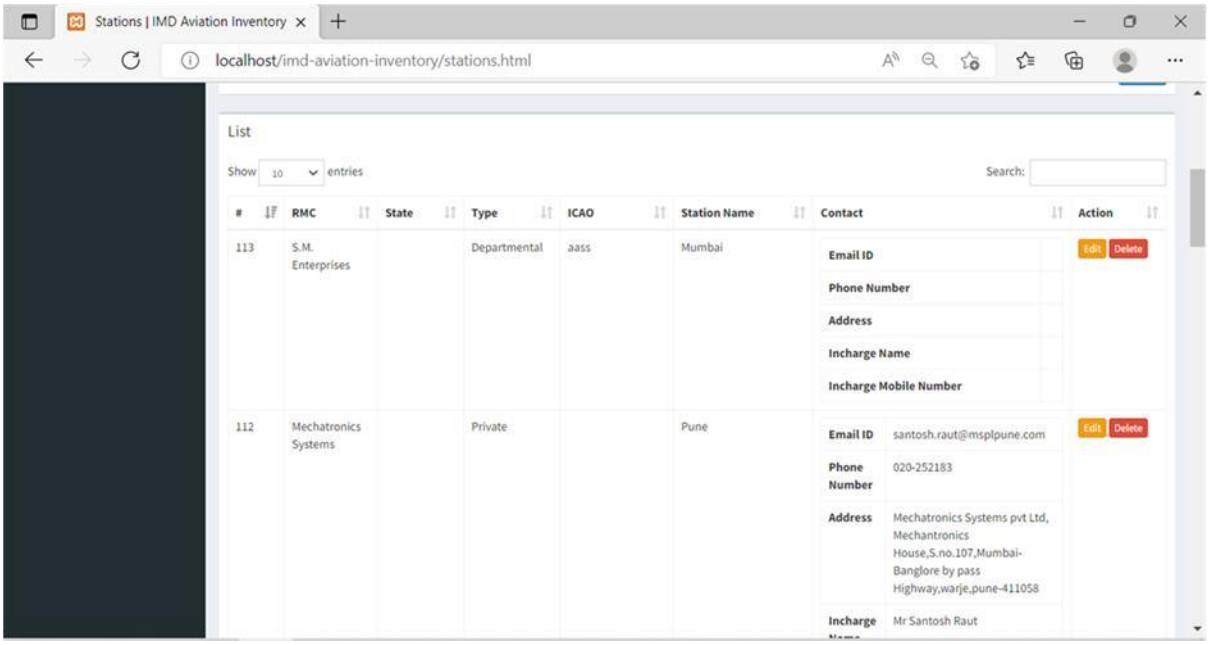
3.9.5 Chart Management:



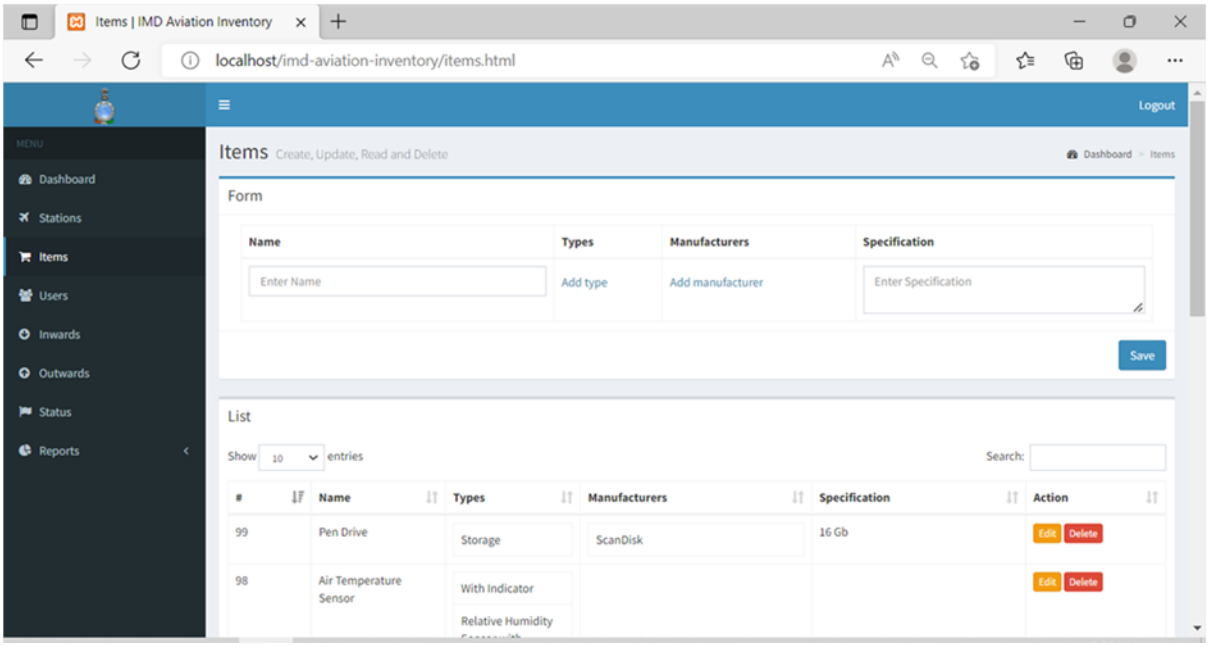
3.9.6 Geographical Station Location:



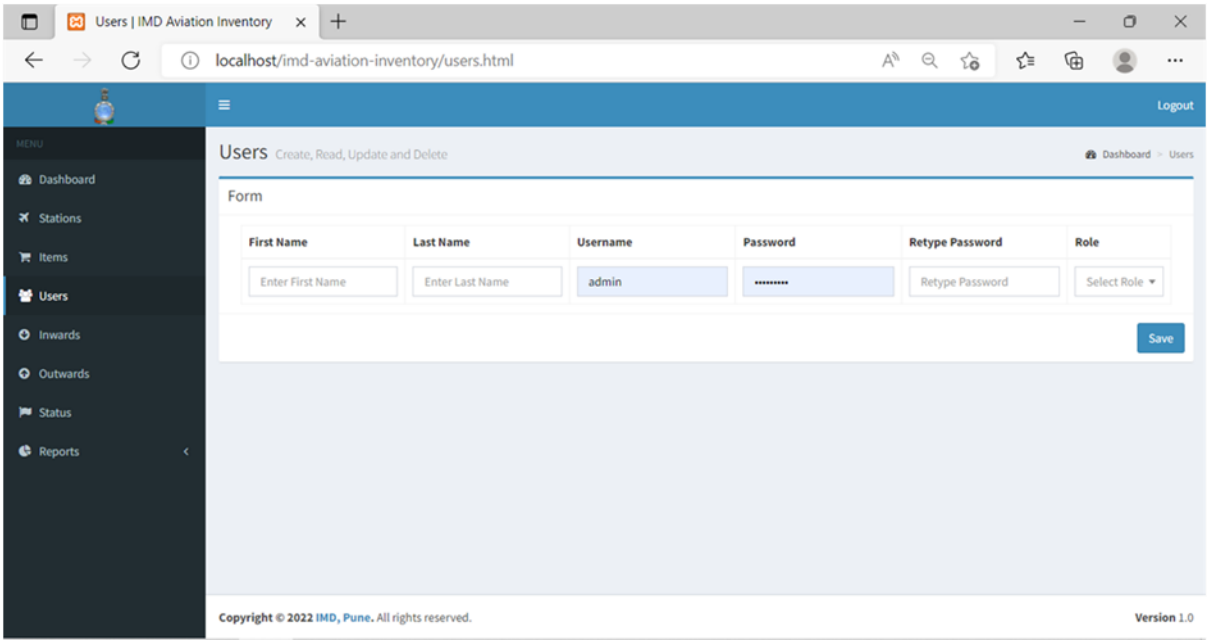
3.9.7 Revision -Stock:



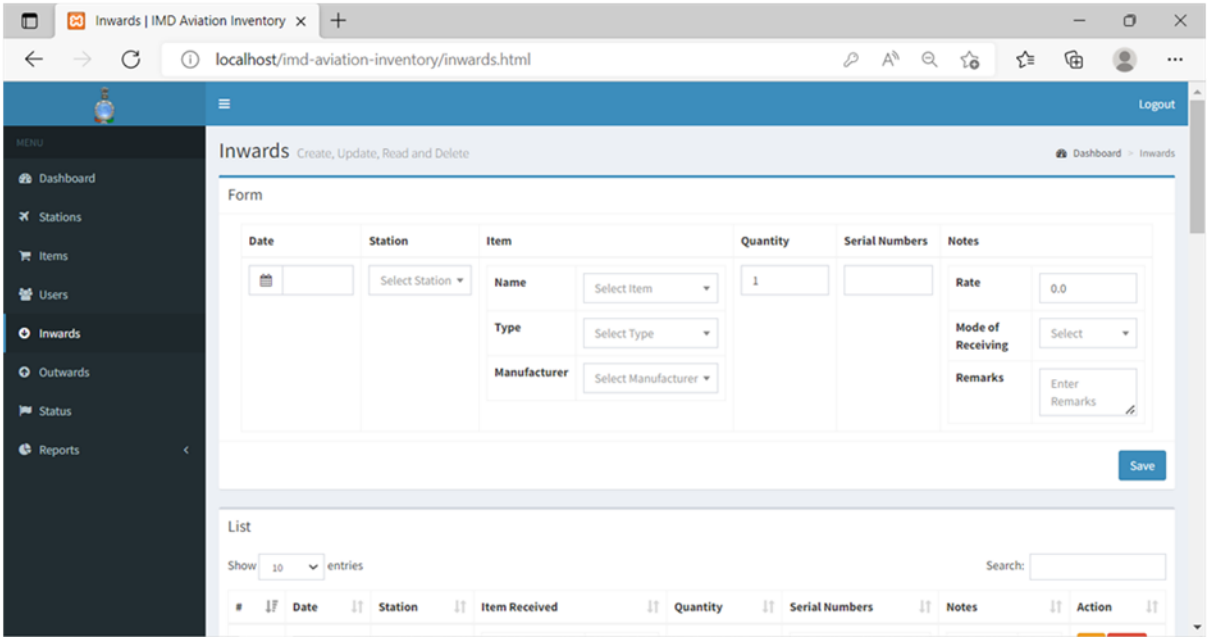
3.9.8 Revision -Background & Layout:



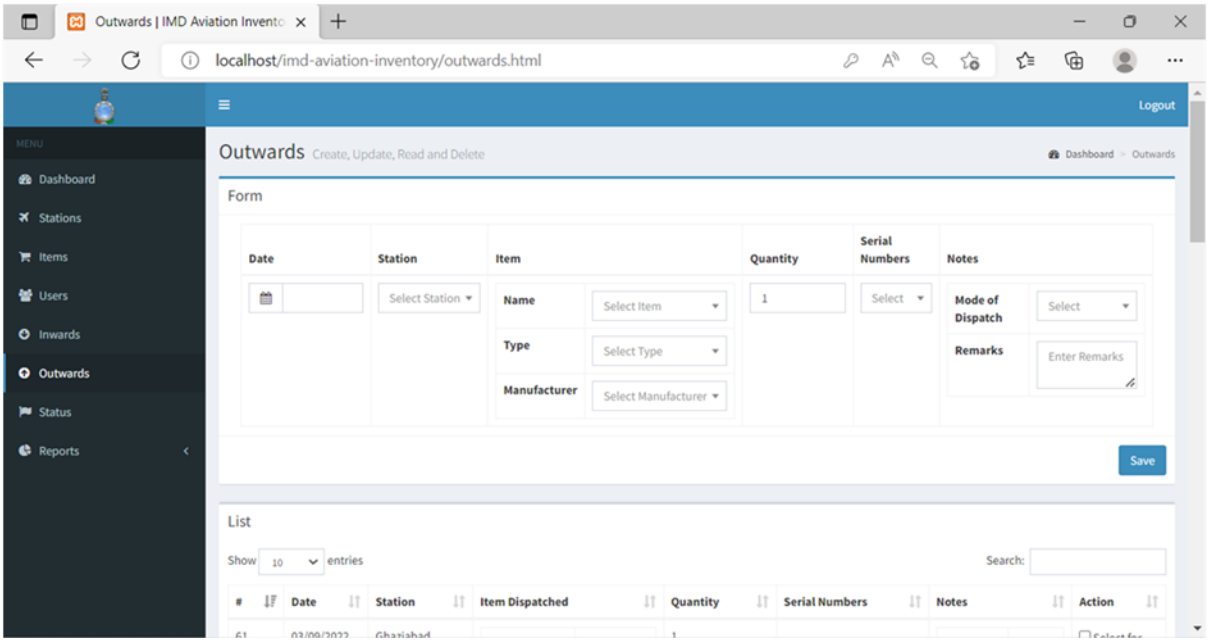
3.9.9 Revision- Details:



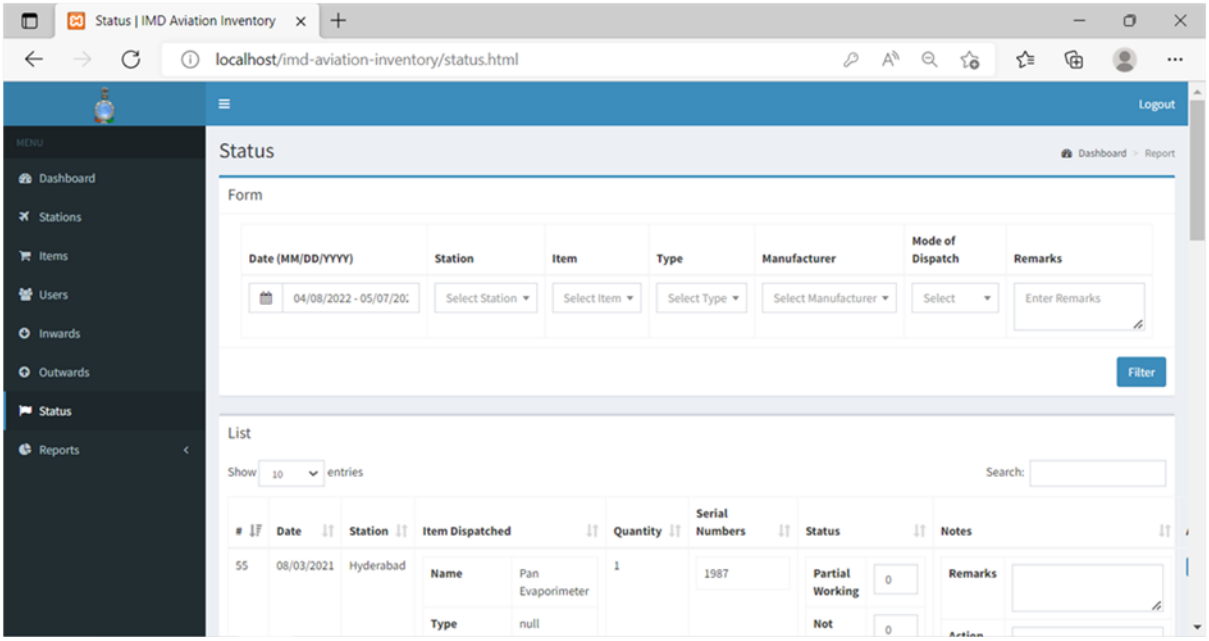
3.9.10 Form- Stocks:



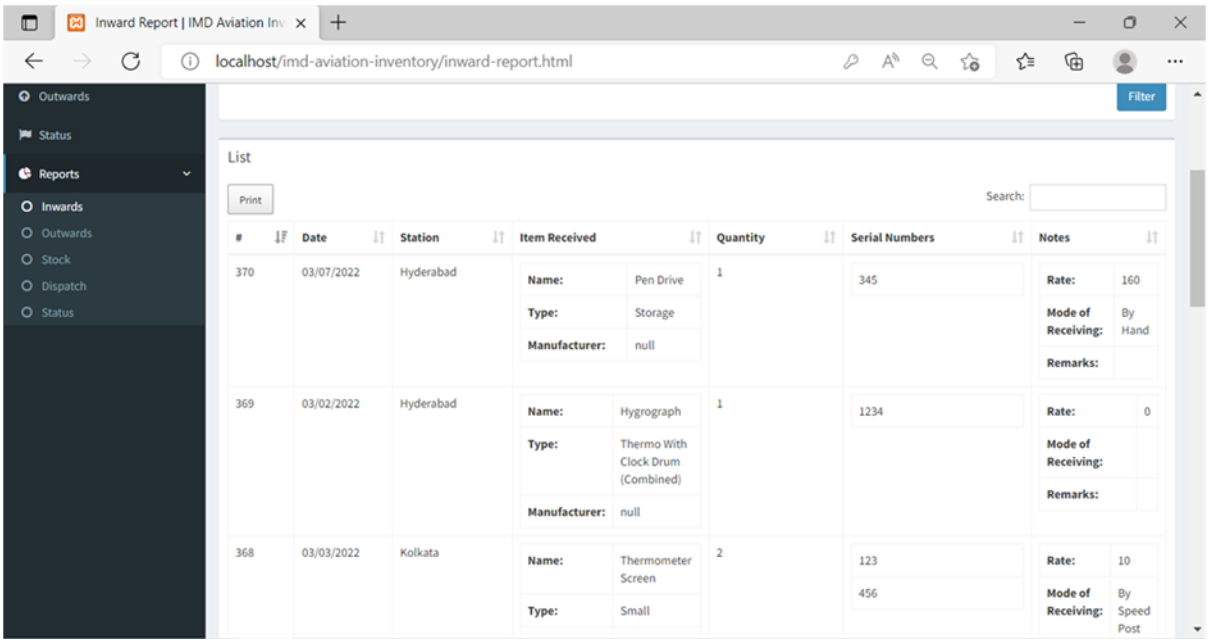
3.9.11 Daily Status- Background & Layout:



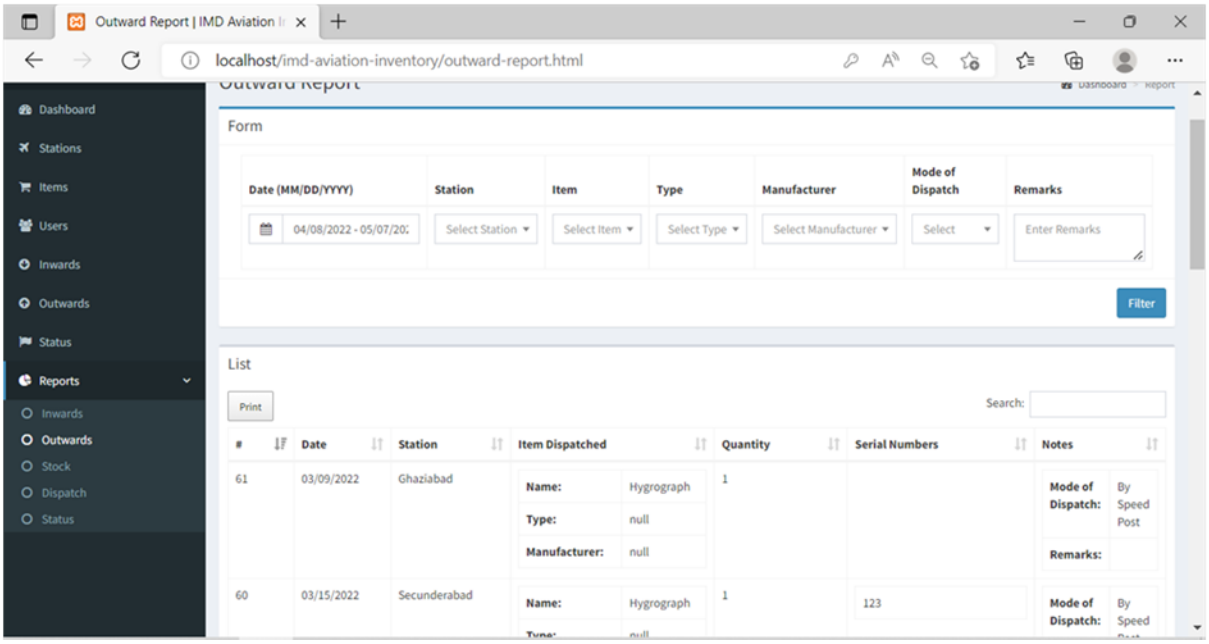
3.9.12 Daily Status- Rigging:



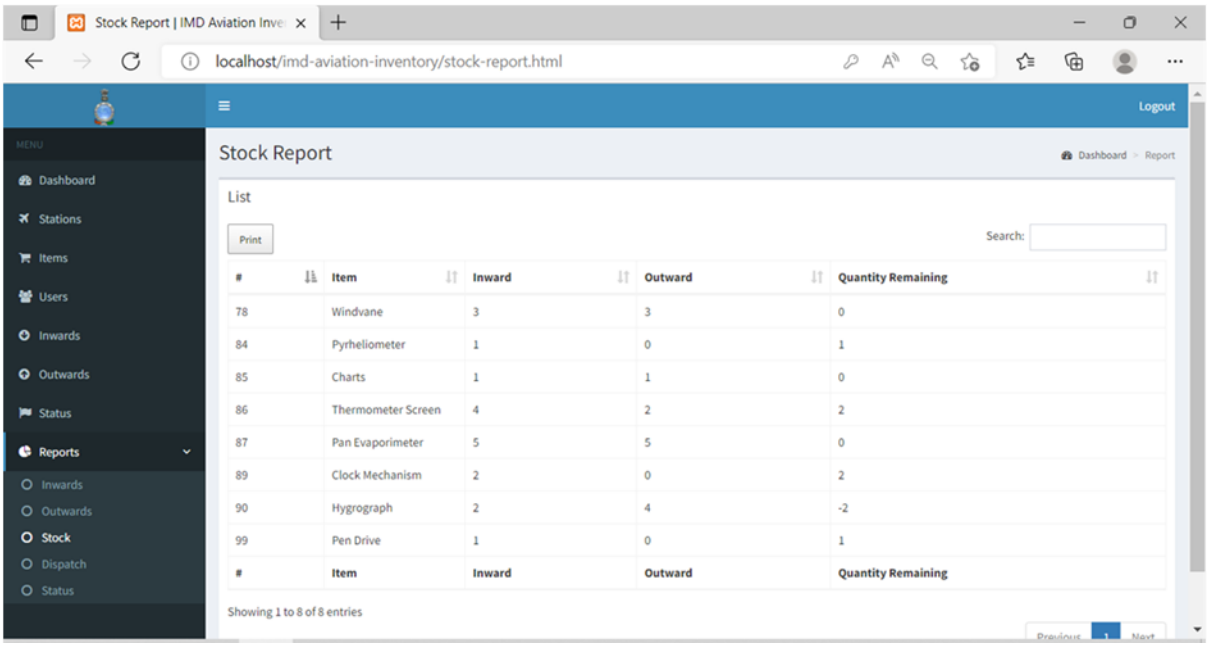
3.9.13 Daily Status- Story board:



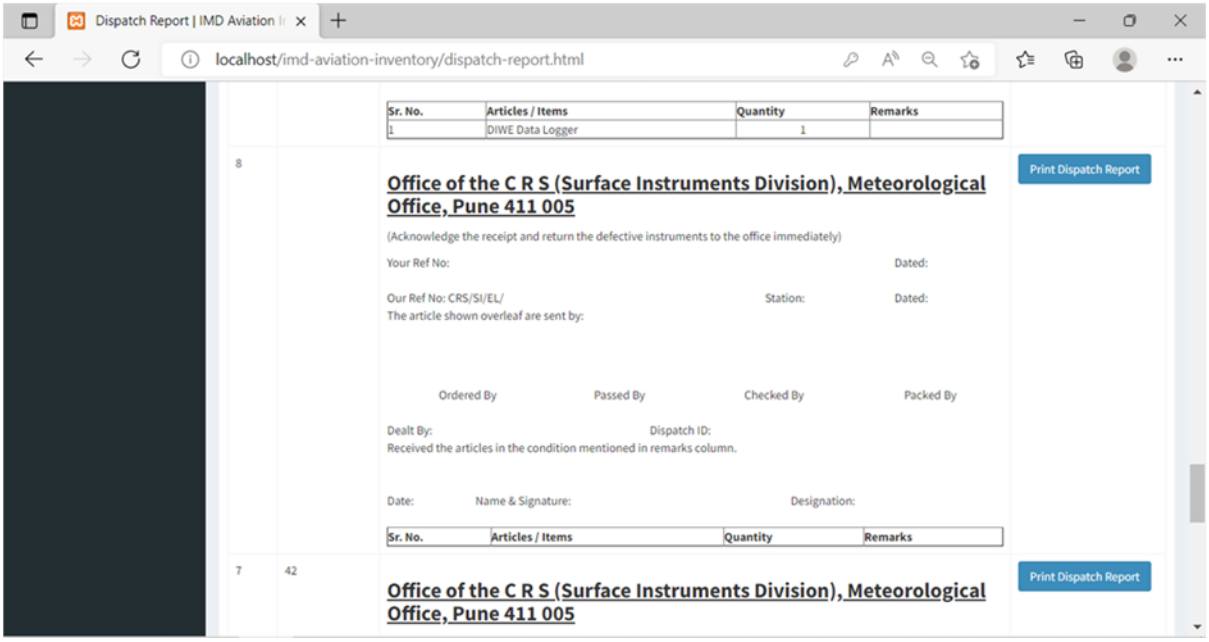
3.9.14 Daily Status- Details:



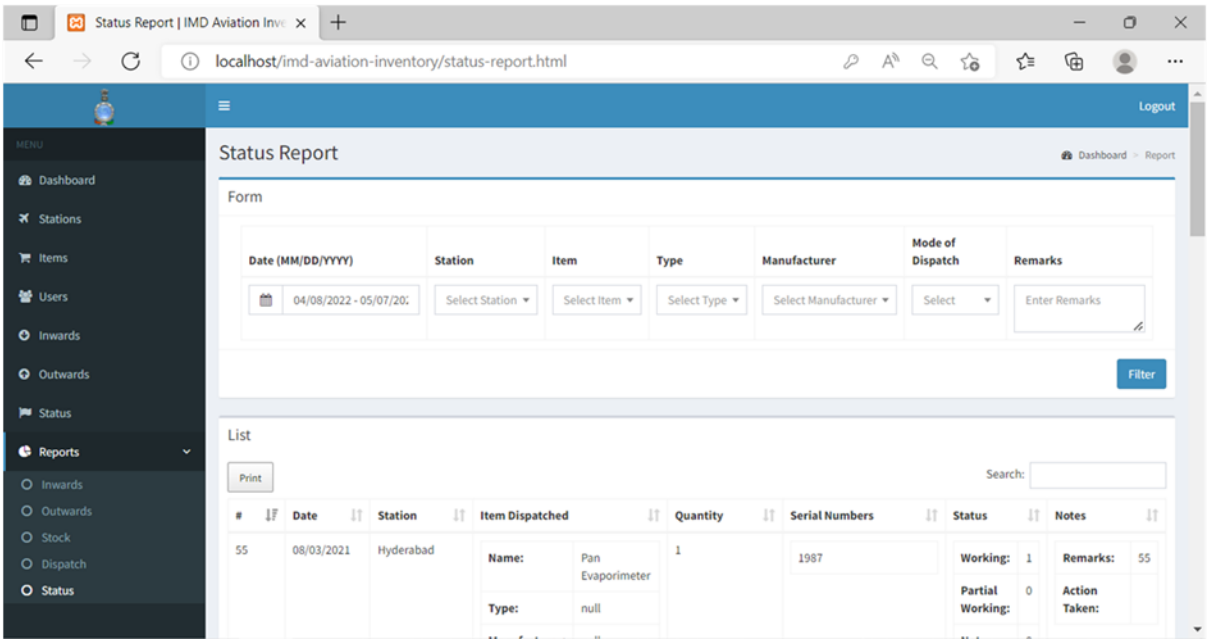
3.9.17 Resource Management- Department:



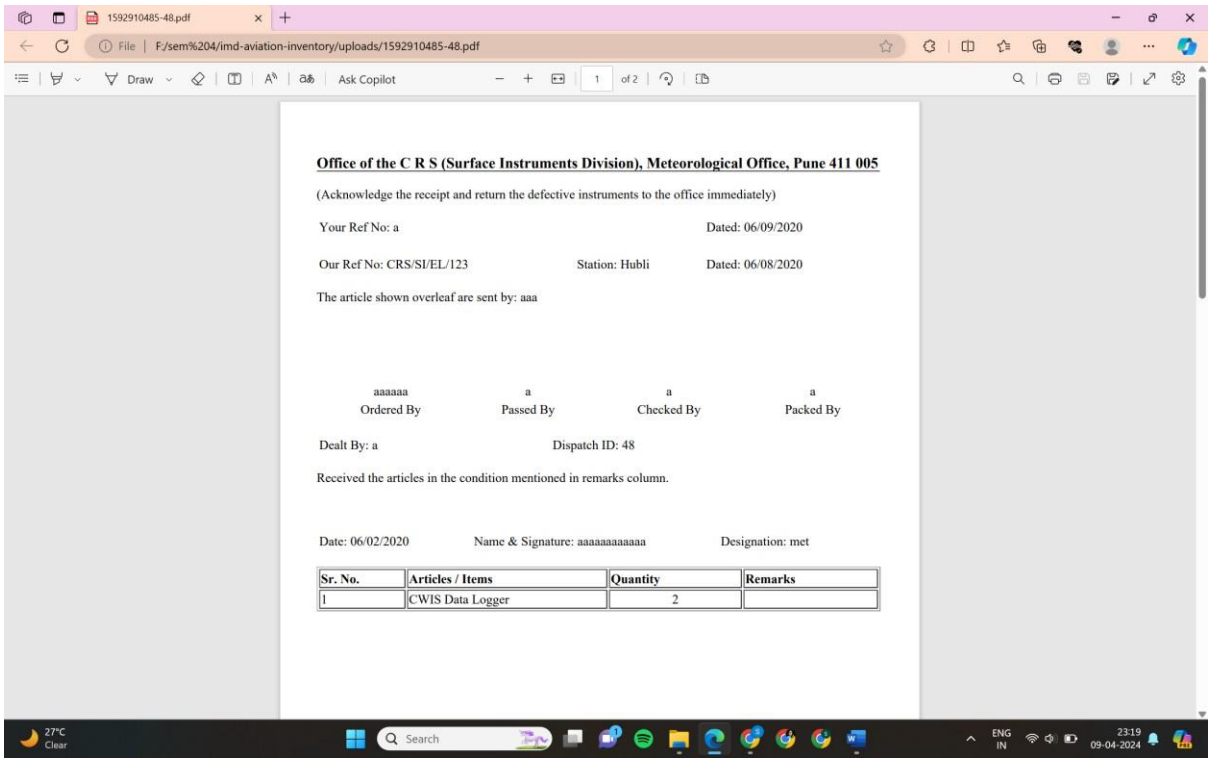
3.9.18 Resource Management- Department details:



3.9.19 Resource Management- Account:



3.9.20 Department- downloaded Report



Office of the C R S (Surface Instruments Division), Meteorological Office, Pune 411 005

(Acknowledge the receipt and return the defective instruments to the office immediately)

Your Ref No: a Dated: 06/09/2020

Our Ref No: CRS/SI/EL/123 Station: Hubli Dated: 06/08/2020

The article shown overleaf are sent by: aaa

aaaaaa	a	a	a
Ordered By	Passed By	Checked By	Packed By

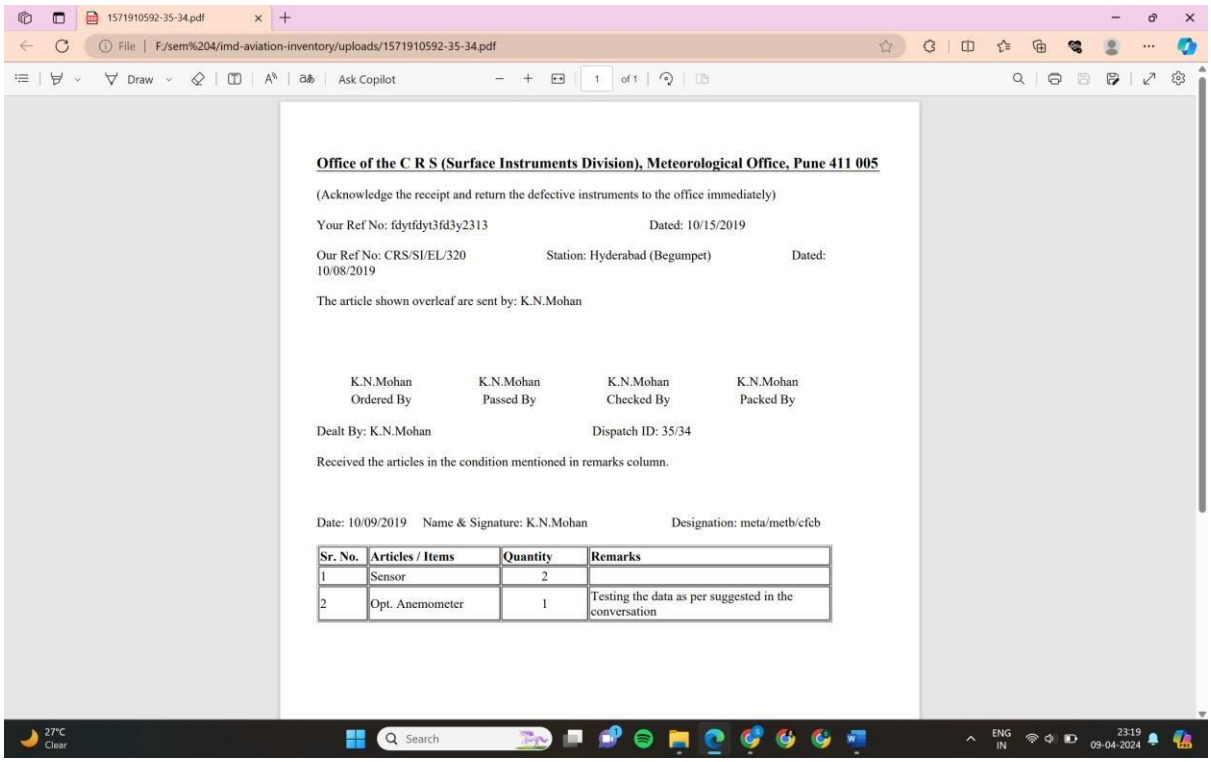
Dealt By: a Dispatch ID: 48

Received the articles in the condition mentioned in remarks column.

Date: 06/02/2020 Name & Signature: aaaaaaaaaaa Designation: met

Sr. No.	Articles / Items	Quantity	Remarks
1	CWIS Data Logger	2	

3.9.21 Projects- downloaded Report



Office of the C R S (Surface Instruments Division), Meteorological Office, Pune 411 005

(Acknowledge the receipt and return the defective instruments to the office immediately)

Your Ref No: fdytfdyt3fd3y2313 Dated: 10/15/2019

Our Ref No: CRS/SI/EL/320 Station: Hyderabad (Begumpet) Dated: 10/08/2019

The article shown overleaf are sent by: K.N.Mohan

K.N.Mohan	K.N.Mohan	K.N.Mohan	K.N.Mohan
Ordered By	Passed By	Checked By	Packed By

Dealt By: K.N.Mohan Dispatch ID: 35/34

Received the articles in the condition mentioned in remarks column.

Date: 10/09/2019 Name & Signature: K.N.Mohan Designation: meta/metb/cfcb

Sr. No.	Articles / Items	Quantity	Remarks
1	Sensor	2	
2	Opt. Anemometer	1	Testing the data as per suggested in the conversation

CHAPTER NO-4

CODING

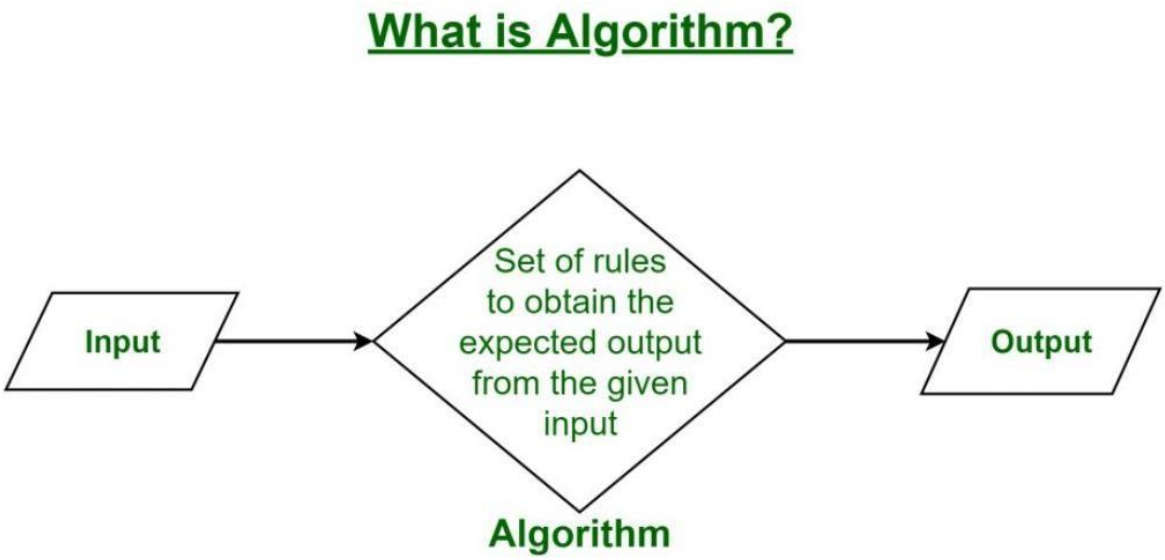
4.1 Algorithms:

What is Algorithms?

The word Algorithm means “A set of finite rules or instructions to be followed in calculations or other problem-solving operations.”

Or

“A procedure for solving a mathematical problem in a finite number of steps that frequently involves recursive operations”.



Use of the Algorithms:

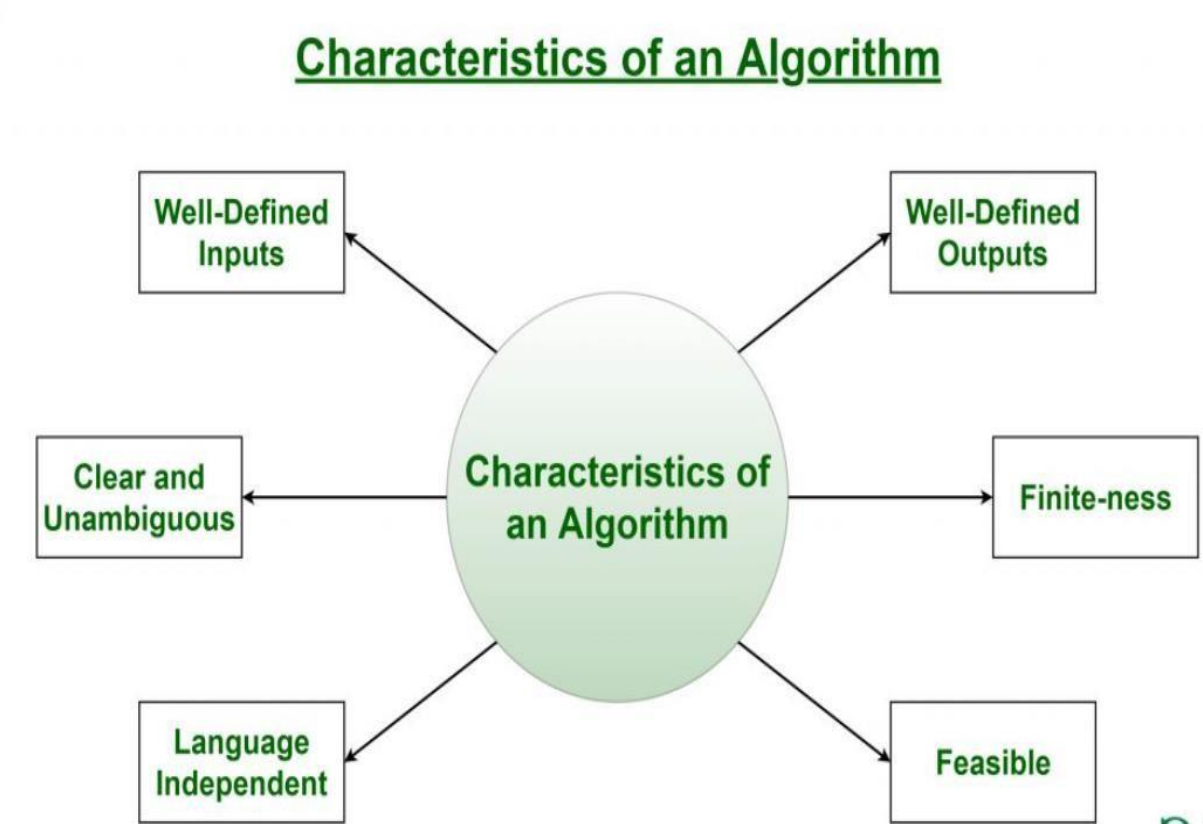
Algorithms play a crucial role in various fields and have many applications. Some of the key areas where algorithms are used include:

Computer Science: Algorithms form the basis of computer programming and are used to solve problems ranging from simple sorting and searching to complex tasks such as artificial intelligence and machine learning.

Mathematics: Algorithms are used to solve mathematical problems, such as finding the optimal solution to a system of linear equations or finding the shortest path in a graph. **Operations Research:** Algorithms are used to optimize and make decisions in fields such as transportation, logistics, and resource allocation.

Artificial Intelligence: Algorithms are the foundation of artificial intelligence and machine learning, and are used to develop intelligent systems that can perform tasks such as image recognition, natural language processing, and decision-making.

Data Science: Algorithms are used to analyze, process, and extract insights from large amounts of data in fields such as marketing, finance, and healthcare.



✞ Characteristics of Algorithms:

Well-Defined Inputs: If an algorithm says to take inputs, it should be well-defined inputs. It may or may not take input.

Well-Defined Outputs: The algorithm must clearly define what output will be yielded and it should be well-defined as well. It should produce at least 1 output.

Finite-ness: The algorithm must be finite, i.e. it should terminate after a finite time.

Feasible: The algorithm must be simple, generic, and practical, such that it can be executed with the available resources. It must not contain some future technology or anything. **Language Independent**: The Algorithm designed must be language-independent, i.e. it must be just plain instructions that can be implemented in any language, and yet the output will be the same, as expected.

Input: An algorithm has zero or more inputs. Each that contains a fundamental operator must accept zero or more inputs.

Output: An algorithm produces at least one output. Every instruction that contains a fundamental operator must accept zero or more inputs.

Definiteness: All instructions in an algorithm must be unambiguous, precise, and easy to interpret. By referring to any of the instructions in an algorithm one can clearly understand what is to be done. Every fundamental operator in instruction must be defined without any ambiguity.

Finiteness: An algorithm must terminate after a finite number of steps in all test cases. Every instruction which contains a fundamental operator must be terminated within a finite amount of time. Infinite loops or recursive functions without base conditions do not possess finiteness.

Effectiveness: An algorithm must be developed by using very basic, simple, and feasible operations so that one can trace it out by using just paper and pencil.

Properties of Algorithms:

- It should terminate after a finite time.
- It should produce at least one output.
- It should take zero or more input.
- It should be deterministic means giving the same output for the same input case.
- Every step in the algorithm must be effective i.e. every step should do some work.

4.2 Code Snippets:

```
<!DOCTYPE html>
<html lang="en">
<head>
<!-- Title -->
<title>IMD - | IMD Surface Instrument Division</title>
<!-- Stylesheet Loading -->
<!-- META Tags -->
<meta charset="UTF-8">
<meta http-equiv="X-UA-Compatible" content="ie=edge">
<meta name="viewport" content="width=device-width, initial-scale=1.0"> <!--
Tab Icon -->
<link rel="icon" href="dist/images/CO2.png" type="image/png" sizes="32x32"> <!--
Bootstrap CSS -->
<link rel="stylesheet"
 href="https://relprod.in/dist/css/bootstrap/bootstrapmin.css?v=1712299945">          <!--
Datatable CSS --> <link rel="stylesheet"
href="https://relprod.in/dist/plugins/datatables/css/dataTables.bootstrap4.min.css"> <!-- SelectPicker
CSS -->
<link rel="stylesheet" href="https://relprod.in/dist/plugins/selectpicker/selectpicker-min.css">
<!-- Ripple JS -->
<link rel="stylesheet" href="https://relprod.in/dist/plugins/ripple/ripple.css?v=1712299945">
<!-- Font Awesome CSS -->
<link rel="stylesheet"
href="https://relprod.in/dist/plugins/fontawesome/css/fa.min.css?v=1712299945"> <!-- Main CSS -->
<link rel="stylesheet" href="https://relprod.in/dist/css/mainmin.css?v=1712299945">     <!--
Section Script -->
<link rel="stylesheet" href="section/daily-status/dsr-common/dsr-commonstyle.css">
</head>
<body>
<div class="wrapper">
```

```
<!-- Sidebar -->
<div class="left-sidebar border-right" id="left_sidebar">
<div class="brand-flex d-flex justify-content-start">
<a class="navbar-brand p-0 m-0" href="#">
<img class="navbar-brand-center" src="dist/images.jpg" height="50px" alt="| IMD Surface Instrument Division Logo" />
</a>
</div>
<!-- Sidebar Search -->
<div class="w-100 d-flex flex-column justify-content-center align-items-center borderbottom pb4">
<div class="form-group mb-0">
<div class="input-group input-group-sm mb-0">
<input type="text" id="sidebar_search" class="form-control bg-light border-0" placeholder="Search...">
</div>
</div>
</div>
<div class="menu-list">
<ul class="menu d-flex flex-column justify-content-center">
<!-- Dashboards -->
<li class="has-submenu" data-id="lsdb-dashboard">
<a href="#">
<div class="icon"><span class="fas fa-chart-pie fa-fw"></span></div>
<span class="link">Dashboards <i class="fas fa-chevron-right fafw fa-sm mt-1 floatright"></i></span>
</a>
<ul>
<li>
<a href="https://relprod.in/projects.php">
<i class="far fa-circle mr-3 ml-1"></i>Main Dashboard </a>
```

```
</li>
<li>
<a href="https://relprod.in/projects.php">
<i class="far fa-circle mr-3 ml-1"></i>Inward Dashboard  </a>
</li>
<li>
<a href="https://relprod.in/trailers.php">
<i class="far fa-circle mr-3 ml-1"></i>Outward Dashboard
</a>
</li>
<li>
<a href="https://relprod.in/posters.php">
<i class="far fa-circle mr-3 ml-1"></i>Stations Dashboard
</a>
</li>
<li>
<a href="https://relprod.in/episodes.php">
<i class="far fa-circle mr-3 ml-1"></i>Daily Status Dashboard
</a>
</li>
<li>
<a href="https://relprod.in/movies.php">
<i class="far fa-circle mr-3 ml-1"></i>Admin Dashboard
</a>
</li>
</ul>
</li>
<!-- Reports -->
<li class="has-submenu" data-id="lsdb-reports">
<a href="#">
<div class="icon"><span class="fas fa-chart-bar fa-fw"></span></div>
```

Advance Reports

<li data-id="lsdb-rep-dsr">

Daily Status Report

<li data-id="lsdb-rep-atn">

Attendance Report

<!-- Stock Management -->

<li class="has-submenu" data-id="lsdb-projectmanagement">

Project Management

<li data-id="lsdb-pm-projects"><a

hrefhttps://relprod.imdpune.in/projects.php">

Projects

<li data-id="lsdb-pm-episodes">

<a href="https://relprod.in/stations.php">

Episodes

```
</a>
</li>
</ul>
</li>
<!-- Revision Section -->
<li class="has-submenu" data-id="lsdb-atn">
<a href="#" id="sidebar_ ">
<div class="icon"><span class="fas fa-fingerprint fa-fw"></span></div>
<span class="link"> <i class="fas fa-chevron-right fafw fa-sm mt-1 floatright"></i></span>
</a>
<ul data-id="lsdb-atn-sub">
<li data-id="lsdb-atn-animation">
<a href="https://relprod.in/atn-animation.php">
<i class="far fa-circle mr-3 ml-1"></i>
</a>
</li>
<li data-id="lsdb-atn-bglayout">
<a href="https://relprod.in/atn-bglayout.php">
<i class="far fa-circle mr-3 ml-1"></i>Background &amp;amp; Layout </a>
</li>
<li data-id="lsdb-atn-postproduction">
<a href="https://relprod.in/atn-postproduction.php"> <i class="far fa-circle mr-3 ml-1"></i>Post - Production </a>
</li>
<li data-id="lsdb-atn-preproduction">
<a href="https://relprod.in/atn-preproduction.php"> <i class="far fa-circle mr-3 ml-1"></i>Pre - Production </a>
```

```
<!-- Overline section starts -->
<section class="overline">
<div class="container">
<h4 class="sub-heading white">Section overline</h4>

<h2 class="heading white">
Best Insurance Policies
</h2>

<img src="img/imd pune.jpg" alt=" imd pune " title=" imd pune " class=" imd pune ">

<div class="overlines">
<div class="row">
<div class="col">
<ion-icon name="analytics-outline" class="white"></ion-icon>
<h2 class="overline-heading">About</h2>
<p class="para-line white">
</p>
</div>
<div class="col">
<ion-icon name="briefcase-outline" class="white"></ion-icon>
<h2 class="overline-heading">Inward</h2>
<p class="para-line white">
</p>
</div>
<div class="col">
<ion-icon name="trophy-outline" class="white"></ion-icon>
<h2 class="overline-heading">Outward</h2>
<p class="para-line white">
</p>
</div>
<div class="col">
<ion-icon name="planet-outline" class="white"></ion-icon>
<h2 class="overline-heading">Instruments</h2>
<p class="para-line white">
</p>
</div>
</div>
</div>

<button class="btn btn-yellow">
<a href="#">Services</a>
</button>
</div>
</section>
<!-- Overline section ends -->


<!-- About section starts -->
<section class="about">
<div class="container">
```

```
<div class="row">
<div class="col">
<h4 class="sub-heading">About the Company</h4>
<h2 class="heading">Our Story</h2>
<p class="para-line">
</p>

<div class="about-highlights">
<div class="about-highlight-line">
<ion-icon name="chevron-forward-outline"></ion-icon>
<h5 class="highlight-line-heading">about</h5>
</div>
<div class="about-highlight-line">
<ion-icon name="chevron-forward-outline"></ion-icon>
<h5 class="highlight-line-heading">Online services</h5>
</div>
<div class="about-highlight-line">
<ion-icon name="chevron-forward-outline"></ion-icon>
<h5 class="highlight-line-heading"> imd inward </h5>
</div>
</div>

<button class="btn btn-blue btn-full-w">
<a href="#">Read More</a>
</button>
</div>
<div class="col">
<img src="img/about-img.jpg" alt="About imd pune " title="About imd pune "
class="about-img">
</div>
</div>

<div class="partners">
<div class="row">
<div class="col">
<h4 class="sub-heading">Companies we work with</h4>
<h2 class="heading"> Partners</h2>
</div>
<div class="col partners-grid">
<img src="img/partner-1.png" alt="Partner" title="Partner" class="partner-img">
<img src="img/partner-2.png" alt="Partner" title="Partner" class="partner-img">
<img src="img/partner-3.png" alt="Partner" title="Partner" class="partner-img">
<img src="img/partner-4.png" alt="Partner" title="Partner" class="partner-img">
<img src="img/partner-5.png" alt="Partner" title="Partner" class="partner-img">
<img src="img/partner-6.png" alt="Partner" title="Partner" class="partner-img">
</div>
</div>
</div>
</div>
</section>
<!-- About section ends -->
```

```
<!-- Testimonial section starts -->
<section class="testimonial">
<div class="container">
<h4 class="sub-heading white">Testimonials</h4>
<h2 class="heading white">What Our Customers Say</h2>
<p class="para-line white">
</p>
<div class="testimonial-profile">
<img src="img/client.jpg" alt="Client" title="Client" class="profile-img">
<span>
<h6 class="client-name white">Ana Marie Dow</h6>
<p class="client-location white">Pasodena</p>
</span>
</div>

<div class="stars">
<ion-icon name="star-outline"></ion-icon>
<ion-icon name="star-outline"></ion-icon>
<ion-icon name="star-outline"></ion-icon>
<ion-icon name="star-outline"></ion-icon>
<ion-icon name="star-outline"></ion-icon>
</div>
</div>
</section>
<!-- Testimonial section ends -->


<section class="consultancy">
<div class="container">
<div class="row">
<div class="col">
<div class="lead-form">
<h2>Free 1 Session</h2>
<form action="">
<div class="input-field">
<label for="name">Full Name</label>
<input type="text" id="name" placeholder="Your Name">
</div>

<div class="input-field">
<label for="email">Email Address</label>
<input type="email" id="email" placeholder="Your email address">
</div>

<button class="btn btn-blue">
<a href="#">Get A Quote</a>
</button>
</form>
</div>
</div>
</div>
```

```
<div class="col">
<div class="lead-form admin -card">
<img src="img/admin.jpg" alt=" admin " title="Admin" class="admin-img">
<h3 class=" admin -name">Mr vikas Mehata</h3>
<p class="para-line">Senior Insurance Agent</p>
<h6 class="admin-number">
<ion-icon name="call-outline"></ion-icon> (081) 1149-5421-2315
</h6>
<h6 class=" admin -email">
<ion-icon name="mail-unread-outline"></ion-icon>vikas@insuranceportal.com
</h6>
</div>
</div>
</div>
</div>
</section>


<!--------------- Footer ------------------>
<footer>
<div class="footer-container">
<p class="para-line white">Copyright © 2024</p>
</div>
</footer>
<!--------------- Footer ------------------>




<!-------------- Importing JS file -------------->
<script src="js/script.js"></script>


<script>
// ------------------------ Scroll to top button --------------------
$(document).ready(function(){
$(window).scroll(function(){
if($(this).scrollTop() > 40)
{
$('#topBtn').fadeIn();
}
else
{
$('#topBtn').fadeOut();
}
});

$("#topBtn").click(function(){
$('html, body').animate({scrollTop: 0},800);
});
});
```

```
// ------------------------ Scroll to top button --------------------
</script>
</body>
</html>
```

CHAPTER NO. 5

TESTING

5.1 Testing Strategy:

Understand the functional and non-functional requirements related to DSR report generation, stocks revise, information updating, stations and inward and outward management, permission settings, and status monitoring.

Document these requirements comprehensively to serve as a reference throughout the testing process. Develop a test plan outlining the scope, objectives, resources, timelines, and responsibilities for each testing phase. Define test scenarios and test cases covering all the functionalities mentioned in the requirements.

DSR Report Generation:

Verify that the system accurately generates DSR reports according to specified parameters.

Test various scenarios such as different date ranges, filtering options, and export formats.

Item Revise:

Validate the functionality to update stocks for inward and outward management.

Test different scenarios including manual entry, bulk entry, and integration with biometric systems (if applicable).

Station and Inventory Management:

Verify that administrators can create, modify, and delete stations and users records.

Test functionality related to users role assignments, reporting structures, and station hierarchies.

Permission Settings:

Validate the system's capability to set granular permissions based on user roles and responsibilities.
Test access control for various modules and features within the ERP.

Status Monitoring:

Confirm that administrators can view real-time status updates related to user activities, project progress, and system health.

5.2 Unit Test Plan:

1. DSR Report Generation:

Test to ensure that DSR (Daily Sales Report) can be generated accurately.

Test different scenarios such as empty data, large data sets, and edge cases.

2. Inward and Outward Account Creation:

Test to verify that employee accounts can be created successfully.

Verify that all required fields are properly validated.

3. Item and station Management:

Test to ensure that items and stations can be created, updated, and deleted.

Verify proper handling of dependencies between items and stations.

Test edge cases such as invalid input and concurrent updates.

4. Resource Management:

Test resource allocation and de-allocation functionalities.

Verify that resources can be assigned to items and stations accurately.

Test for conflicts in resource allocation.

5. Advance Report Generation:

Test to verify that advance reports can be generated correctly.

Test different parameters and filters for generating reports.

Verify the accuracy of data presented in the report.

6. Stock Revise:

Test to ensure that stock can be revised for inward and outward users.

Verify that stock logs are updated accurately.

Test for handling of exceptions such as revising stock for future dates.

7. Email Logs Download:

Test to verify that email logs can be downloaded successfully.

Verify the integrity of the downloaded logs.

Test for proper handling of large log files.

5.3 Acceptance Test Plan:

DSR Report Generation

Objective: To ensure that the ERP system can accurately generate Daily Status Report (DSR) reports.

Test Steps:

Log in to the ERP system using valid credentials.

Navigate to the DSR report generation module.

Input required parameters such as date range, item details.

Generate the DSR report.

Verify that the generated report includes accurate information about daily stock status progress.

Expected Result: The DSR report should be generated accurately without any errors.

Inward or Outward Account Creation

Objective: To verify that the ERP system can successfully create inward or outward accounts.

Test Steps:

Log in to the ERP system using administrative credentials.

Navigate to the inward and outward management module.

Create a new inward or outward account by providing necessary details such as name, contact information, role, etc.

Save the inward or outward account information.

Verify that the new inward or outward account is successfully created and appears in the inward or outward list.

Expected Result: The new inward or outward account should be created without any errors and should be accessible in the system.

Item and station Management

Objective: To ensure that the ERP system effectively manages items and stations.

Test Steps:

Log in to the ERP system using valid credentials.

Navigate to the item and station management module.

Create a new item by providing necessary details such as name, description, start/end dates, etc.

Save the item information.

Verify that the new item is successfully created and listed in the system.

Expected Result: The new item should be created without any errors and should be visible in the system.

Resource Management

Objective: To confirm that the ERP system efficiently manages resources.

Test Steps:

Log in to the ERP system using valid credentials.

Navigate to the resource management module.

Allocate resources to specific items/stations.

Verify that the allocated resources are correctly assigned and reflected in the system.

Expected Result: Resources should be allocated accurately to items/stations without any discrepancies.

Advance Report Generation

Objective: To validate the ERP system's capability to generate advance reports.

Test Steps:

Log in to the ERP system using valid credentials.

Navigate to the advance report generation module.

Input required parameters such as date range, item details.

Generate the advance report.

Verify that the generated report includes accurate information about item advancements.

Expected Result: The advance report should be generated accurately without any errors.

Attendance Marking

Objective: To ensure that the ERP system allows revising items in stock for inward and outward users.

Test Steps:

Log in to the ERP system using valid credentials.

Navigate to the revising stocks module.

Revise items for selected inward and outward users for a specific date.

Save the revised stocks.

Verify that the item records are accurately updated in the system.

Expected Result: Item should be revised accurately for inward and outward users without any discrepancies.

5.4 Test Case:

Test Case ID	Description	Test Steps	Expected Result	Actual Result	Pass/Fail
TC001	Admin Login	1. Open the ERP system. 2. Enter admin username and password. 3. Click on the login button.	Admin should be logged in successfully.	Admin logged in successfully.	Pass
TC002	Inward or Outward user Registration	1. Inward or Outward user logs into the ERP system. 2. Navigate to the profile section. 3. Click on "Register". 4. Fill in the required details. 5. Save the profile.	Inward or Outward user should be able to register successfully.	Registration successful.	Pass
TC003	Inward or Outward user Login	1. Open the ERP system. 2. Enter Inward or Outward user username and password. 3. Click on the login button.	Inward or Outward user should be logged in successfully.	Inward or Outward user logged in successfully.	Pass

TC004	Admin Creates Inward or Outward user Account	1. Admin logs into the ERP system. 2. Navigate to the Inward or Outward user management section. 3. Click on "Create New Inward or Outward user ". 4. Fill in the Inward or Outward user details. 5. Save the account.	Admin should be able to create an Inward or Outward user account successfully.	Inward or Outward user account created successfully.	Pass
TC005	Admin Creates Departments	1. Admin logs into the ERP system. 2. Navigate to the department management section.	Admin should be able to create departments successfully.	Departments created successfully.	Pass
TC006	Both Create New Projects	1. Admin/ Employee logs into the ERP system. 2. Navigate to the projects section. 3. Click on "Create New Project".	Project should be created successfully.	New project created successfully.	Pass

		4. Fill in the project details. 5. Save the project.			
TC007	Both Create New Episodes	1. Admin/ Employee logs into the ERP system. 2. Navigate to the episodes section. 3. Click on "Create New Episode". 4. Fill in the episode details. Save the episode.	Episode should be created successfully.	New episode created successfully.	Pass
TC008	Employee Marks Attendance	1. Employee logs into the ERP system. Navigate to the attendance section. 3. Click on "Mark Attendance". 4. Select date and mark attendance. 5. Save the attendance.	Attendance should be marked successfully.	Attendance marked successfully.	Pass

TC009	Employee Makes Daily Status Report	1. Employee logs into the ERP system. 2. Navigate to the daily status report section. **4.** Click on "Create New Report". **5.** Fill in the report details. **6.** Save the report. **7.** Fill in the report details. **8.** Save the report.	Daily status report should be created successfully.	Daily status report created successfully.	Pass
TC010	Admin Gets Daily Status Report	1. Admin logs into the ERP system. 2. Navigate to the daily status report section. View the latest reports.	Admin should be able to view daily status reports.	Daily status report viewed successfully.	Pass
TC011	Admin Generates Advance Report	1. Admin logs into the ERP system. 2. Navigate to the advance report section. 3. 3. Select appropriate parameters.	Advance report should be generated successfully.	Advance report generated successfully.	Pass

		3. Generate the report.			
TC012	Admin Creates Teams	1. Admin logs into the ERP system. 2. Navigate to the team management section. 3. Click on "Create New Team". 4. Fill in the team details. 4. Save the team.	Admin should be able to create teams successfully.	Teams created successfully.	Pass
TC013	Admin Sets Permissions to Teams	**1.** Admin logs into the ERP system. **2.** Navigate to the permissions management section. **3.** Select a team. **4.** Assign appropriate permissions. 5. **5.** Save changes.	Permissions should be assigned to the team successfully.	Permissions assigned successfully.	Pass

TC014	Admin Manages Email Logs of Inward and outward users	1. Admin logs into the ERP system. 2. Navigate to the email logs section. **4.** View email logs of inward and outward users.	Admin should be able to view and manage email logs.	Email logs managed successfully.	Pass

5.5 Defect report / Test Log:

Defect ID: 1

Functionality: DSR Report Generation

Issue Description: When attempting to generate the DSR report, the system consistently throws an error message stating "Data retrieval failed." This issue occurs across multiple user accounts and stations.

Steps to Reproduce:

Log in to the IMD Aviation Instrument System ERP system with valid credentials.

Navigate to the Reports section.

Select DSR Report.

Choose the month.

Click on the "Generate" button.

Expected Result: The DSR report should be generated successfully, displaying relevant data regarding items in stock, resources utilized, and other relevant metrics.

Actual Result: An error message is displayed, indicating that data retrieval failed. The DSR report is not generated.

Severity: High

Priority: Medium

Assigned To: Development Team

Status: Open

Defect ID: 2

Functionality: Item and station Management

Issue Description: When attempting to create a new station or item, the system intermittently crashes, leading to loss of unsaved data and disruption of workflow.

Steps to Reproduce:

Log in to the IMD Aviation Instrument System Navigate to
the Stationsection.
Click on the "Add New Station" or "Add New Item" button.

Fill out the necessary details for the station or item.

Click on the "Save" button.

Expected Result: The new station or item should be successfully created and added to the system database without any system crashes or errors.

Actual Result: In some instances, the system crashes upon clicking the "Save" button, leading to loss of unsaved data and disruption of workflow.

Severity: High

Priority: High

Assigned To: Development Team

Status: Open

Defect ID: 3

Functionality: Inward or Outward Account Creation

Issue Description: After filling out the required fields for creating a new inward or outward account, clicking on the "Save" button does not initiate any action. The inward or outward account remains uncreated, and no confirmation message is displayed.

Steps to Reproduce:

Log in to the IMD Aviation Instrument System with valid administrative credentials. Navigate to the Inward or Outward Management section.

Click on the "Add New Employee" button.

Fill out all required fields, including name, email, role, etc. Click on the "Save" button.

Expected Result: A new inward or outward account should be successfully created, and a confirmation message should be displayed indicating the successful creation of the account.

Actual Result: Clicking on the "Save" button does not result in the creation of the inward or outward account. No confirmation message is displayed.

Severity: Medium

Priority: High

Assigned To: Development Team

Status: Open

Actual Result: In some instances, the system crashes upon clicking the "Save" button, leading to loss of unsaved data and disruption of workflow.

Severity: High

Priority: High

Assigned To: Development Team

Status: Open

CHAPTER NO-6

LIMITATIONS OF PROPOSED SYSTEM

6. Limitations of Proposed System:

- Databased used is SQL Server and every database have a stack limit.

- Manual Errors at the time of entering the data can't be check, only the validation required w.r.t proposed system is checked.

- Depending on the architecture and design choices made during development, the ERP system may face challenges in scaling up to accommodate a growing number of users, items, and data volumes. This could lead to performance degradation and decreased responsiveness over time.

- ERP systems often come with predefined modules and functionalities. However, if the IMD Aviation Instrument System ERP lacks flexibility for customization, it may not fully meet the unique requirements and workflows of the inventory or specific organizational needs. Limited customization options could hinder user adoption and productivity.

- ERP systems typically handle sensitive business data, including items records, station details, and users information. If the IMD Aviation Instrument System_ERP has vulnerabilities in its security measures, such as inadequate data encryption, access controls, or vulnerability to cyber-attacks, it could expose the organization to data breaches and compliance risks.

CHAPTER NO-7

PROPOSED ENHANCEMENTS

7. Proposed Enhancements:

- Proposed enhancements for the IMD Aviation Instrument System_ERP aim to streamline and optimize various functionalities, including generating DSR (Daily Status Report) reports, creating inward or outward accounts, managing items and stations, resource management, generating advanced reports, revising stocks, and downloading email logs.
- To begin with, in the context of generating DSR reports, the enhancement would involve implementing automated templates and customizable formats to efficiently compile and present daily items in stock, tasks completed, and pending actions. This would offer greater clarity and insight into inventory dynamics.

- The proposed system provides the automated generation of LPP reference that includes the LPP Rate and the reference date. LPP is used at the time of Worksheet preparation along with the tender price, which helps to obtain the overall and annual escalation. Escalation is related to the number of months, calculated by the LPP reference date and the worksheet preparation date of the particular financial year.

- The "Inventory Management System" software is being developed as an accurate and efficient system for the user. In this system the record of the each request details are preserved along with their transaction related to them. The system is also made secured as all the updating and transaction can be done by the authorized person.

- For creating employee accounts, the ERP would introduce an intuitive interface allowing for swift onboarding of new inward and outward users with personalized access levels, facilitating seamless integration into the system.
- In managing items and stations, enhancements would focus on enhancing project tracking capabilities, enabling real-time monitoring of milestones, deadlines, and resource allocation. This would involve features such as Gantt charts, task dependencies, and budget tracking to ensure efficient project management.
- Resource management enhancements would involve optimizing resource allocation, scheduling, and utilization. This could include features such as resource forecasting, skill matching, and workload balancing to ensure optimal utilization of available resources.
- Advanced reporting capabilities would be enhanced to provide comprehensive insights into various aspects of operations, including financial performance, item in stock, and

resource utilization. This would involve implementing customizable dashboards, data visualization tools, and predictive analytics to facilitate informed decision-making.

- Revising items functionalities would be improved to offer multiple options such as biometric integration, mobile app-based check-ins, and automated attendance tracking, ensuring accuracy and efficiency in recording inward and outward users real time working status.
- Lastly, enhancements in downloading email logs would involve implementing an integrated email management system within the ERP, enabling users to archive, search, and download email correspondence related to specific projects or episodes, thereby ensuring transparency and accountability in communications.

CHAPTER NO-8

CONCLUSION

8. Conclusion:

In conclusion, the proposed enhancements for the IMD Aviation Instrument System_ERP project signify a significant stride towards optimizing operational efficiency, enhancing project management capabilities, and fostering seamless collaboration within the organization. By integrating advanced features such as automated DSR report generation, streamlined inward and outward onboarding, enhanced item and station management, resource optimization tools, advanced reporting capabilities, improved items tracking, and integrated email management, the ERP system promises to revolutionize the way operations are conducted.

The objective of this project was to build a program for maintaining the details of all Supply Order The system developed is able to meet all the basic requirements. It will provide the facility to the user so that they can keep tracks of all the equipment being supplied. The management of the Inventory will be also benefited by the proposed system, as it will automate the whole supply procedure, which will reduce the workload. The security of the system is also one of the prime concerns.There is always a room for improvement in any software, however efficient the system may be. The important thing is that the system should be flexible enough for future modifications. The system has been factored into different modules to make system adapt to the further changes. Every effort has been made to cover all user requirements and make it user friendly.

The culmination of these enhancements not only empowers users with a comprehensive suite of tools but also lays the foundation for improved decision-making, transparency, and accountability across all levels of the organization. With a focus on user-centric reports and functionality, the enhanced IMD Aviation Instrument ERP is poised to streamline workflows, mitigate operational challenges, and drive productivity gains.

CHAPTER NO-9

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Books:

1. PHP : the complete reference by Holzner, Steven.
2. "Learning PHP, MySQL & JavaScript: With CSS & HTML5" by Robin Nixon1
3. MySQL for Beginners Kindle Edition by Ganofins (Author)
4. HTML & CSS: THE COMPLETE REFERENCE Paperback by Thomas Powell
5. Design Patterns: Elements of Reusable Object-Oriented Software by Erich Gamma
6. Software Testing and Quality Assurance: Theory and Practice by Kshirasagar Naik, Priyadarshi Tripathy

Websites:

1. www.google.com
2. dev.mysql.com/doc/
3. www.tutorialpoints.com/mysql
4. www.w3Schools.com
5. www.getbootstrap.com

CHAPTER NO-10

APPENDIX-COST SHEET, DATA SHEET

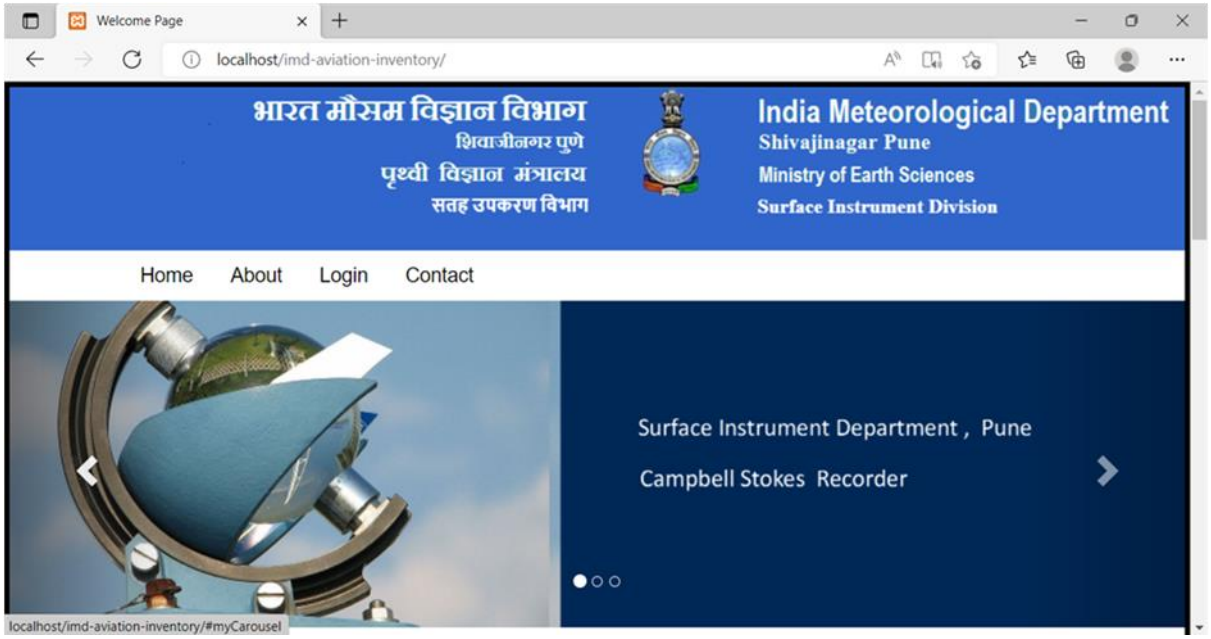
10. Appendix: Cost Sheet

Category	Description	Estimated Cost (in INR)
Development Costs	- Software development team salaries	₹3,00,000
	- Software development tools and licenses	₹1,00,000
	- Infrastructure costs (servers, cloud services)	₹2,00,000
Deployment Costs	- Training and onboarding costs for inward and outward users	₹50,000
	- Setup and configuration of the ERP system	₹1,50,000
Maintenance Costs	- Ongoing support and maintenance fees	₹1,00,000 per year
Miscellaneous Costs	- Testing and quality assurance	₹1,00,000
	- Documentation and user manuals	₹5,000
	- Contingency and unforeseen expenses	₹50,000
Total Cost		₹10,05,000 (initial cost)

CHAPTER NO-11

USER MANUAL

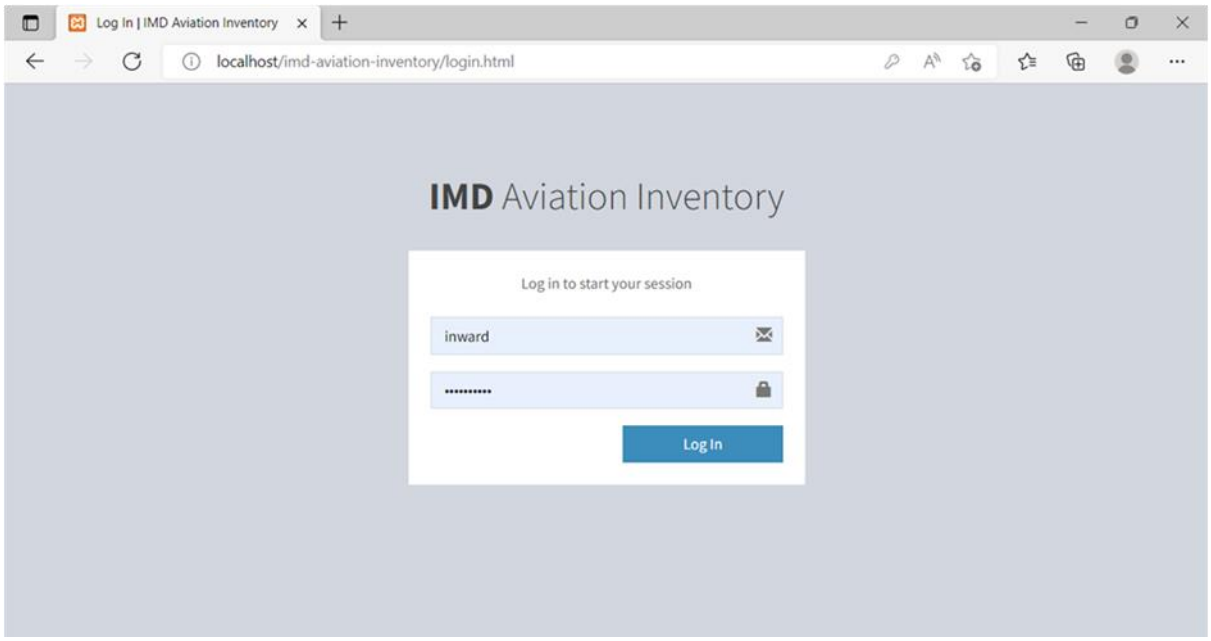
11.1 Dashboard



Description:

User visit this page for general overview and to learn about the website. Which includes home page, about section, contact and login section which directs to sign in into the system.

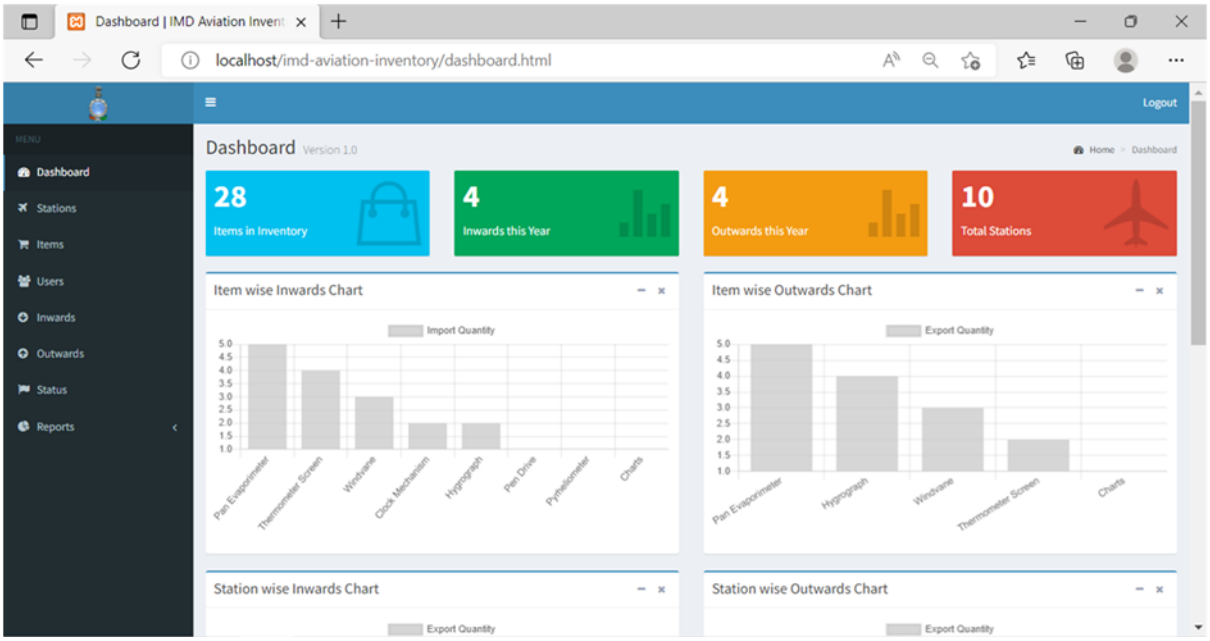
11.2 Login



Description:

In this page admin, inward and outward user sign in with valid unique username and password.

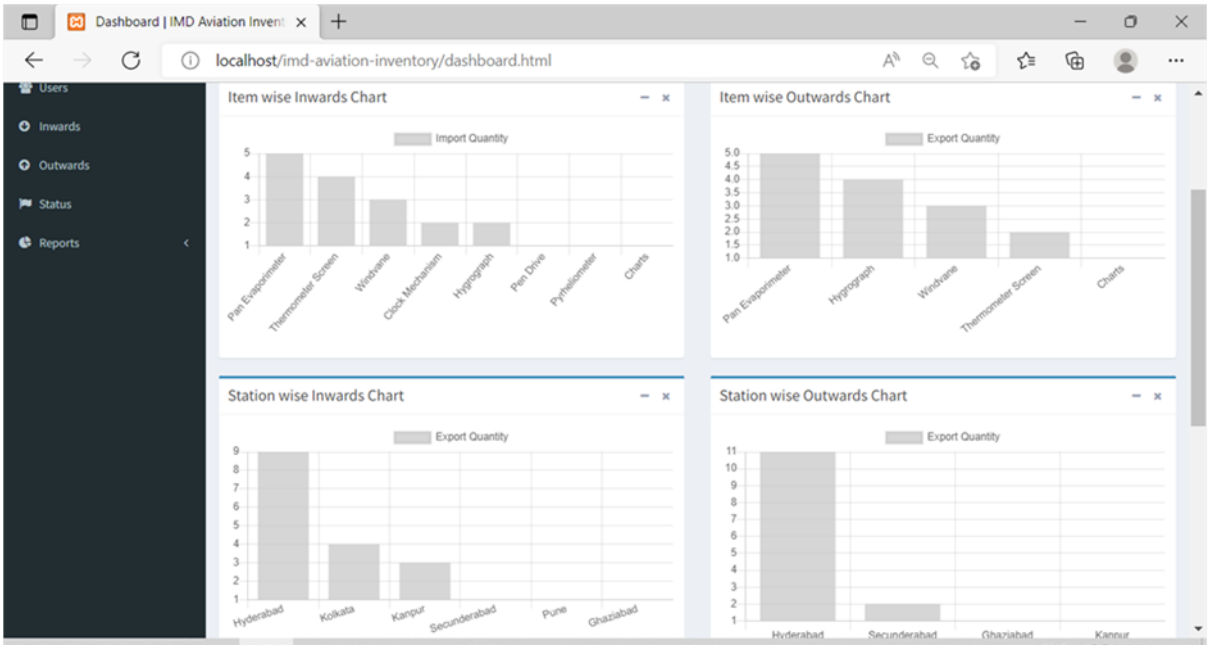
11.3 Admin Dashboard



Description:

In this page user has generalized view in the form of dashboard. User can analyse each section..

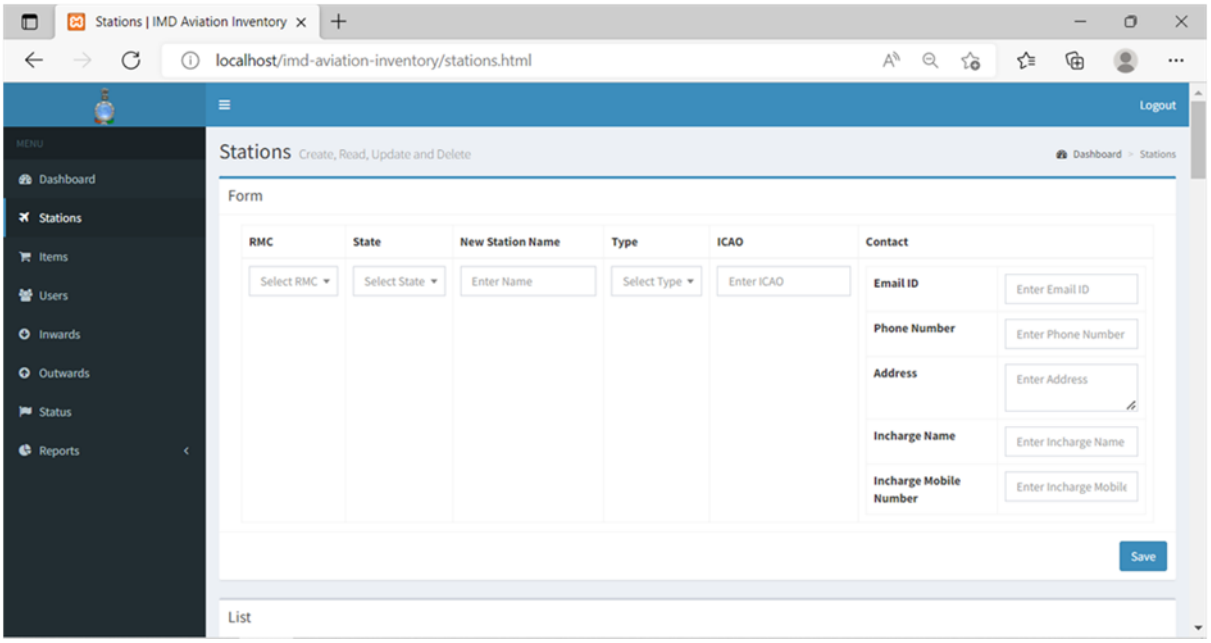
11.4 Report View



Description:

In this page user can view the graphical representation of all the stock details categorized within each items.

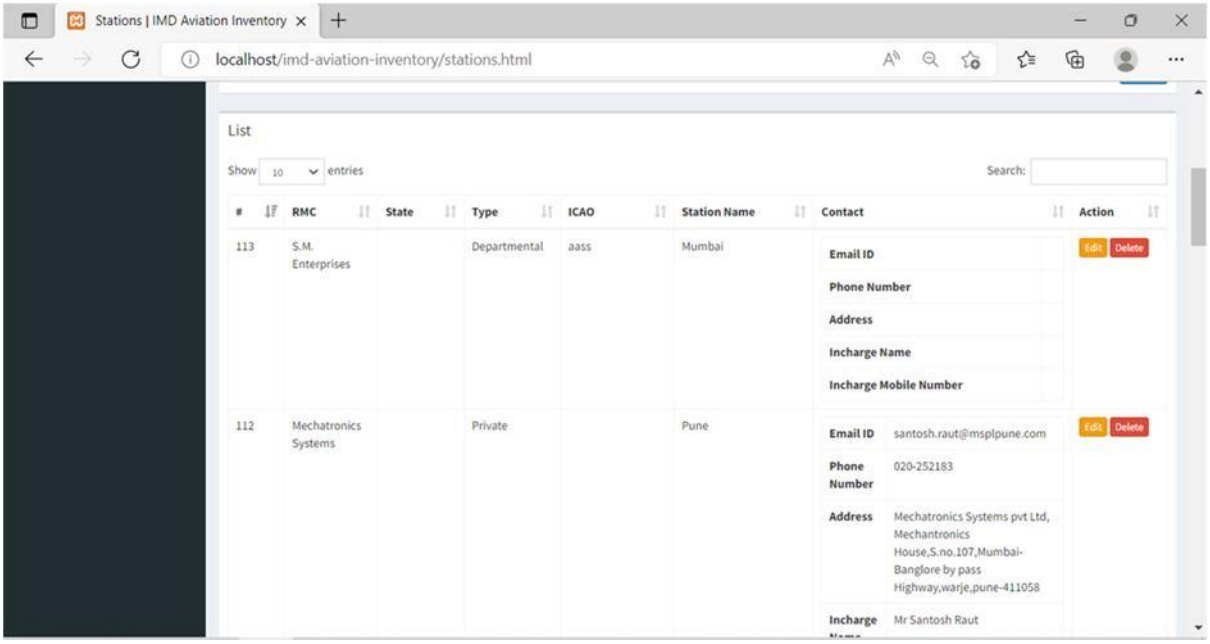
11.5 Station Revision- Stock:



Description:

In this page user has to manage station details by updating the give sections by filling in appropriate details to generate a form for a specific station.

11.6 Daily Form-Stock:



Description:

In this page all the stock list is available by each user for each items with all the details regarding items, stations, mode of transportation and manufacturer. Here user can download each item from the list to generate report.