	COLLEGE OF COMMUNICATION AND INFORMATION TECHNOLOGY	

Chapter 1
INTRODUCTION

Project Context

Today, technology plays a crucial role in our lives, and few people can imagine doing without it. The admin, and flight instructors requires weathering forecasts through links, websites, and applications. There are a lot of weathering forecasts that is available online but one website is not enough to be able to check the accuracy. Nowadays, members of All Asia Aviation Academy use android application and sites to be able to monitor the forecasts based on its category, volcanic, winds, typhoons, etc.

The school scheduling process is designed to provide a plan for the operating patterns of the school's aircraft and resources in order to meet expected demand. The plans for the schedules are usually based on the weather that day and what will be the forecast tomorrow.

In the All Asia Aviation Academy, due to extensive flight plans every day, they usually come up with manually inputting the schedule of the flights of the students through Microsoft Excel. Poor scheduling practices would result in double-assignments of lecturers and long wait times. By using only E-mail in their mobile phones, it allows them to send the copy of the flight scheduling plan to the students to be able to let them know about their coming flight schedules. Whenever a flight is rescheduled, it is the role of the flight instructor to update the students that their flight being rescheduled due to some reasons.

Scheduling of flights and cancellations, as well as inefficient use of time and resources. This technique will follow a set of logic rules and an algorithm to meet the

optimization criteria. This study's findings will be a webs application for scheduling flights that is created by the members of AAA Academy.

The proposed system performs admirably in terms of accuracy, data handling, and adaptability in assisting the faculty. Organize the flight plans easily by being able to check the weather forecast for today and not manually checking it using the mobile phone or other websites, produce a more reliable record by providing a database to store the information that has been saved, added, edited, or deleted, and increase resource efficiency.

Purpose and Description

The researchers will focus on developing a scheduling web application system for the flight and scheduling presentations on the All-Asia Aviation Academy (AAA). The web application will benefit the members of the academy to schedule flights with the help of other features including the information database, and license expiration notification.

The researchers will create a system that will allow the members of the AAA to schedule a flight through a web application that automatically checks the weather forecast for the day. It will also allow them to encode the information of the students, mechanics and flight instructors, check the validity of their licenses, and their flight schedules and then save it to the database. The system provides a log in page where the system identifies whether the user is an admin, an instructor, mechanic or a student since the system limits the functions of the web application to the members of the AAA Academy of Iba, Zambales only.

The dashboard will show the functions of the system, including the daily weather forecast by integrating the Windy Application on the web application, and the categories of the information of the flight and the students including the date, time, name of the student and captain, type of aircraft, registration number, and the validity of their licenses. It also helps the mechanic to check the schedules of aircraft and create the pre-flight and post-flight inspections of aircraft to ensure the safety of students and flight instructors on their flights.

The proposed system is critically analyzed and planned to reduce or even eliminate the common errors and hassles in scheduling flights in AAA. With this system, it will be able to create schedules with a few clicks rather than typing the information one by one. It will be more efficient for the academy to have this system.

Admin of All Asia Aviation Academy. For admin, they will benefit using the system as they will easily finish their tasks and easy access of information.

Employees. For employees of the AAA, with the use of the flight scheduling system it may lessen their work, save time to other works to be finished, and the system will notify them, days before the expiration of their licenses.

Mechanics. For mechanics of the AAA, they will easily be able to check which aircrafts need to be inspected, and they will also see the schedules of the aircraft easily.

Students of AAA. For the Students, they will be able to see their schedules easily and the system will notify them, days before the expiration of their licenses that will help them to remember to renew their licenses.

Future Researchers. they will be benefited by their project design because this study can be used for their further studies.

Objectives

This study aims to provide a web- based scheduling system that allows the members of the AAA Academy to view daily weather, check the validity of students, flight instructors and mechanics' licenses, and create flight schedules. The researchers will provide the web application of the study to the instructors of All Asia Aviation Academy. The link will provide the web- based scheduling system that includes functions such as the Dashboard, Aircraft, Instructors, Flight Schedule, and Accounts for the admin, instructors, mechanics and students. The web application will also allow the students to view their schedules and other functions such as Dashboard, Aircraft, Pilot Instructors, and Calendar. The web application will also allow the mechanic to view the schedules of aircrafts and create the pre-flight and post flight inspections of every aircraft.

The study to create a flight scheduling system with AI support to have an easier process in All Asia Aviation Academy.

Specifically, it seeks to answer the following objectives:

1. To evaluate the software quality of the system using the ISO/ IEC 25010: 2011 metrics as to:

    1.1 Functional Suitability;

    1.2 Performance Efficiency;

    1.3 Compatibility;

    1.4 Usability;

1.5 Reliability;

1.6 Security;

1.7 Maintainability; and

1.8 Portability.

2. To evaluate the level of acceptability of the All Asia Aviation Academy Flight Scheduling System with AI Support in terms of:

2.1 Functionality; and

2.2 Performance.

3. Is there significant difference on the software quality, level of acceptability, and level of readiness, as rated by the Employees?

4. Is there significant difference on the software quality, level of acceptability, and level of readiness, as rated by the Students?

Scope and Limitations

The researchers focus in providing a system for All Asia Aviation Academy of Iba, Zambales that will greatly help the members of the Academy and students to have an easy access in their everyday flight schedule. The web-based system is compatible to use for scheduling, storing information, and viewing the schedules for the instructors and students of All Asia Aviation Academy.

It is only available to people who have a smartphone, desktop, an internet connection and availability of signal in certain location.

The system needs the admin to encode the flight details, and student, mechanic and flight instructors' personal information into the system. Encoding is the process of

converting a series of characters (letters, numbers, symbols, and some characters) into a particular format for transmission or storage in the web application. This system is web-based, which means it allows the users to use the system using internet. It limits the instructors from editing, saving, adding, and deleting the information that has been created by the admin, they can also view the flight schedules and the validity of the student licenses. As for the students, the program only allows them to view their flight schedules, current weather, calendar, aircraft, and instructors. And for the mechanic, they can only see the aircraft's schedule and create the pre-flight and post-flight inspections.

Chapter 2
REVIEW OF RELATED LITERATURE & RELATED STUDIES

Technical Background

Currently, there are different approaches that All Asia Aviation Academy use in terms of scheduling and that is by manually checking different websites and applications to check the weather condition every day, and the instructors need to check the five valid licenses of the students to be allow them to fly. There are variety of weather conditions websites and applications available, which shows the different weather and climate updates for the current day or the next day. These websites or applications caters the time and date, weather condition updates. Despite of such websites or systems that should be installed or used when scheduling flights, some aviation schools still manually check and schedule flights of their students or pilots and consumes time when they manually check the valid licenses of the students before the flight.

For All Asia Aviation Academy, the use of Excel and Email are in use. All Asia Aviation Academy has no website to use for scheduling the flights of the students. According to the Captain, it was always a problem for the school whenever they schedule the flights every day, and whenever the instructors check the licenses of the students since they need to have five valid licenses to be able to fly. To create the website and scheduling flights, computer is necessary. The computer will be used to schedule the flights and to check the validity of the licenses of every student enrolled in the flight school.

The researchers used the following technology: Visual Studio Code for IDE; MySQL for the Database; HTML, CSS, Bootstrap, JavaScript for frontend; PHP, AJAX, jQuery for backend; and a computer.

The researchers used PHP because PHP is an open-source language, it is one of the best programming languages, especially when using a database, it is also one of the common programming languages. Researchers also used Bootstrap to speed up system creation and responsiveness, and its user friendly. MySQL is faster and more efficient to use unlike other RDBMS, Ajax used for when inputting data from system to database, the system does not need to be reloaded to see the newly inputted data, JavaScript is also used for the smooth responsiveness of the system, and there are features implemented using JavaScript.

Details of the technologies to be used:

Ajax - Allows the web application user to interact with a web page without being interrupted by continual page reloading.

Bootstrap - Allows the web application to recognize the user's screen size and orientation, and automatically adjust the presentation is called responsive design.

Computer – A machine that allows the users to access the system with the use of internet.

CSS – CSS was used to style and layout web pages, such as changing the font, color, size, and spacing of text, dividing it into numerous columns, and adding animations and other ornamental elements.

HTML - Hypertext Markup Language was used to create web documents that include headings, text, tables, lists, images, etc.

JavaScript – JavaScript was used to build dynamically updating information, employ animations, pop-up menus, clickable buttons, and control multimedia elements.

jQuery - jQuery was used to make it much easier to use JavaScript on the system. jQuery wraps many typical operations that require multiple lines of JavaScript code into methods that was called with a single line of code.

MySQL - MySQL was used to quickly load items on site and to quickly access stored data.

PHP – PHP was used to create dynamic content and interface with databases and for its ease of use, speed, and versatility.

Visual Studio Code - Visual Studio Code is a tool that helps the user to manage and modify code on computer efficiently and safely.

Review of Related Literature & Related Studies

Schedules represent one of the primary products of an airline and certainly the leading factor in a passenger's choice of a particular carrier. Scheduling may also be one of the most difficult jobs in any airline. Scheduling is one of the most vital functions in the business as important as forecasting, pricing, fleet planning, or financing. The schedule planner must take advantage of traffic flow opportunities but cannot wave a magic wand to create such opportunities. Ground service can be arranged in any conceivable schedule pattern, provided that there is no limitation on the gate positions, ground equipment, passenger service facilities, and personnel. The primary purpose of the maintenance organization of an airline is, of course, to provide a safe, salable aircraft for every schedule. The main advantage of the highly developed airline hub-and-spoke operation is that it provides an enormous "multiplier" effect as

to the number of city-pairs an airline can serve with a given amount of flight mileage (Wensveen, 2015).

The flight schedule is the central element of an airline's planning process, aimed at optimizing the deployment of the airline's resources in order to meet demands and maximize profits. In this paper, we present an overview of contributions to airline scheduling made by operations research professionals during the past 20 years or so. The overview follows the development of airline scheduling methodology from an early emphasis on standard quantitative optimization techniques to the recent trends toward a structured planning process in which all parts of the airline participate in the "construction" and "evaluation" of schedules, combining exact mathematical programming algorithms and heuristics (Abdelghany, Abdelghany, & Azadian , 2017).

Botangen & Khal, (2014) stated that this work designed and developed a class-scheduling system that will allow collaborative preparation of schedules among several users. The system integrated five components: the data management module, course assignment module, scheduling module, result storage module, and the report module. It has an engine that uses the greedy algorithm for creating schedules and detecting conflicts. The algorithm mainly executes this sequence of processes; selecting available time, finding available room, and looking for an appropriate faculty while considering different constraints and preferences set by users.

Flight scheduling and fleet assignment are the two most prominent decisions in airline planning as they contribute toward a majority of the costs and revenues of an airline company. Moreover, these decisions have to be made 10–12 weeks prior to the flight date

as mandated by labor unions in order to accommodate cabin crew scheduling requirements. Since demand and fares are highly uncertain, a two-stage stochastic programming model was developed for flight scheduling and fleet assignment where the fleet family assigned to each scheduled flight leg is decided at the first-stage. Then, the fleet type to assign to each flight leg is decided at the second-stage based on demand and fare realization. Sample average approximation (SAA) algorithm is then used to solve the problem and provide information on the quality of the solution. To the extent of our knowledge, this work is the first to apply the SAA algorithm to the airline industry. Experiments conducted on a case study based on a flight network of a legacy airline company show that modeling the stochastic problem with 100 scenarios is sufficient to capture the effect of demand and fare uncertainty and to provide a solution with an optimality gap less than 1% within a reasonable computational time. A sensitivity analysis on different parameters of the model was also carried out and points out the applicability of the proposed model and solution in practice (Kenan, 2018).

Eltoukhy, Chan, and Chung (2017) stated that first to carry out a comprehensive literature review for state of the art regarding airline schedule planning and second to identify some new research directions that might help academic researchers and practitioners. On the other hand, identifying future research opportunities should help academic researchers and practitioners to develop new models and improve the performance of the existing models. Practical implications This study proposed some considerations in order to enhance the efficiency of the schedule planning process practically, for example, using the dynamic Stackelberg game strategy for market

competition in flight scheduling, considering re-fleeting mechanism under heterogeneous fleet for fleet assignment, and considering the stochastic departure and arrival times for AMR. In the literature, all the review papers focused only on one category of the five categories. Then, this category was classified according to the model formulation and solution methodology. However, in this work, the authors attempted to propose a comprehensive review for all categories for the first time and develop new classifications for each category. The proposed classifications are hence novel and significant.

Bazargan (2015) stated that different studies point to a growing and chronic delays with airline flights. The airlines constantly readjust their flight block times and ground times to reduce delays based on their most recent flight and ground times at different airports. In this paper, we propose mathematical models aimed at more reliable schedules by making modest changes to flight departure times within short time windows. The models utilize historical data to minimize total expected delays by simultaneously determining flight block and ground times. The model is first developed for one daily aircraft routing and applied to three US airlines. The model is then expanded to address an entire fleet of aircraft in an airline with individual aircraft daily routing and potentials for crew or passengers' connections. The application of this model to a fleet of a US airline is presented, identifying flight block and ground times, with encouraging results. These results imply that more schedule reliability and significant reduction in delays can be achieved through realistic and more synchronized flight block and ground times.

Labuanan, Tapaoan, and Ricardo (2021) stated that this paper introduced aimed to solve the poor management of schedule, one of the major problems at Isabela State

University-Main Campus. Scheduling is a process conducted before a certain event would be executed. Results showed that the representation and fitness methods of the genetic algorithm make the scheduling process more accurate and reliable schedules, lessen the time-consumed and lessen the time-conflicts in the plotted schedules.

AnadoluJet, a leading Turkish domestic airline carrier provides high-service, low-price flights to 28 locations within Turkey. Each winter and summer, AnadoluJet typically generates a new flight schedule. The company's primary scheduling concerns are aircraft fleet utilization and the waiting times of transfer passengers. Balancing the trade-off between these two criteria in a flight schedule is crucial for Anadolu Jet's profitability. In this paper, we present the results of our study of Anadolu Jet's flight-scheduling process. We provide a mathematical model that addresses this problem and then extend our studies and implement a heuristic algorithm for the development of a decision support system for the company. The objectives of the models we generated are to maximize fleet utilization, minimize waiting times for the majority of transfer passengers, and generate flight schedules subject to various constraints. The schedules that result from our models are superior to those that Anadolu Jet's generated using its previous manual process. Anadolu Jet currently uses our decision support system in its flight-scheduling process (Kepir, et.al, 2016).

Aeroplanes preserve an expense during their flight as well as in standby circumstance in the airport. Each and every flight operated is a multi-thousand-dollar gamble on whether or not passengers will purchase tickets. Aside from the expense, the total time of flight is a noteworthy issue for passengers who need to board a flight. So,

airlines put tremendous effort into properly assembling their puzzle flights so they can provide the shortest connection time possible. It's just natural that most routes require connections so airways need to attract connecting passengers in order to stay in business. The company's work will assist to maintain their flights and make maximum use of their flights. Max flow Algorithm helps us to find out the best possible solution to tackle this problem. With Max flow Algorithm, this work ensures suitable time maintenance. The fundamental goal is to preserve an airline schedule in such a way so that the airplanes continue to be in flight mode for a maximum period of time making use of the max flow algorithm (Iqbal, Hossain, and Harun, 2018).

(Botangen and Khal, 2014) stated that this work designed and developed a class-scheduling system that will allow collaborative preparation of schedules among several users. The system integrated five components: the data management module, course assignment module, scheduling module, result storage module, and the report module. It has an engine that uses the greedy algorithm for creating schedules and detecting conflicts. The algorithm mainly executes this sequence of processes; selecting available time, finding available room, and looking for an appropriate faculty while considering different constraints and preferences set by users.

Synthesis

Similarities might be noticed if the researcher's compared with the related study, may it be foreign or local, for it may take some features or modules from the systems mentioned before. The researchers will take advantage of the features that are relevant and useful for the proposed system.

According to Wensveen (2015), scheduling may also be one of the most difficult jobs in any airline. This system will help the instructors to schedule flights by providing the flight schedule through a web application that also features the current weather status and will help them check the validity of the students' licenses.

Al-Sultan, Ishioka, and Kurihara (2013) stated that the rapid development of airlines, has made airports busier and more complicated. The researchers created a system that will help the instructors by creating a straightforward web application and will also lessen the workload by providing students easy access of their schedules.

All Asia Aviation Academy Flight Scheduling System with AI Support, in terms of speed, data handling, accuracy, security, stability and adaptability in making class schedules, includes a search feature that allows students and instructors to easily schedule and monitor the weather. It will also produce a more reliable record by providing a database to store the information that has been saved, added, edited, or deleted, as well as increase resource efficiency by the piloting school and needed information by the Captains of All Asia Aviation, who could only manually check it using their mobile phones or other websites.

Chapter 3
METHODOLOGY

Requirement Analysis

The proponents gathered all the information needed to create the system and record of the flight plan from the All Asia Aviation Academy, after asking permission from the OIC of Iba Airport, the proponents asked for an interview from Chief Capt. Kazuya Katayama to gather the necessary information to determine the process of recording of the flight plans that the proponents can work on. Using the data gathered from the interview, the proponents came up with Flight Scheduling System with AI Support. It is a system that will store and manage the schedule of the students in All Asia aviation Academy. The students, flight instructors, mechanics and administrators in All Asia Aviation Academy will be benefit in terms of easier access of their schedules.

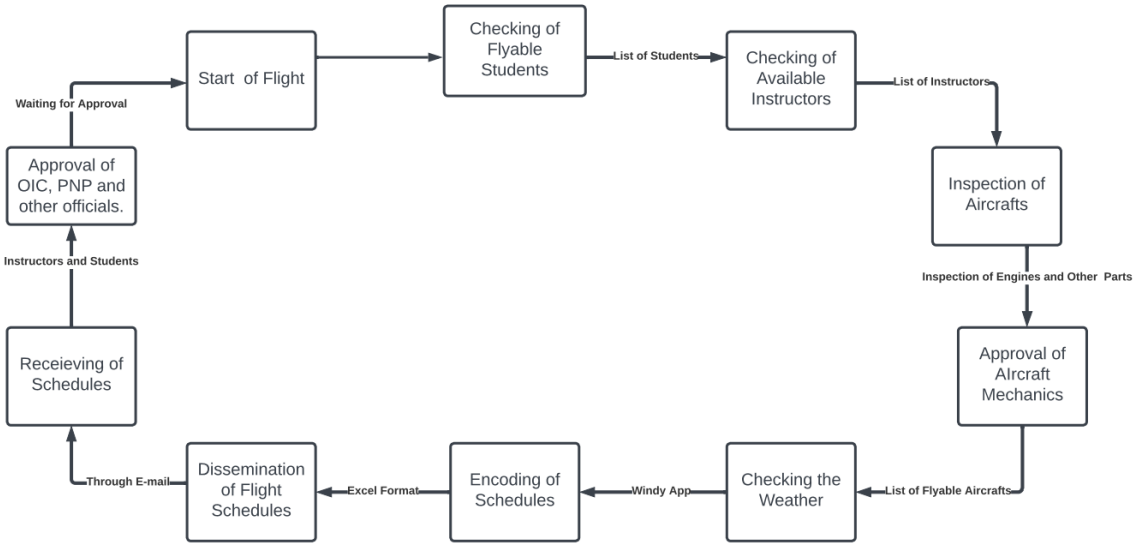


Figure 1

Data Flow Diagram of Existing Process

Figure 1 shows the Data Flow Diagram of Existing Process of flight schedules in AAA Academy. Whereas the administrators set the flight schedules using Excel and the scheduled flights are given to the Student Pilots.

Requirements Documentation

The system is designed to manage the flight schedules of student, ability to see the weather of the day, check the validity of the student licenses, and other information of the students. It provides the user the ability to create, login, enter, change, edit and search. Once the user views the system, the user will log in their account, the system has two users, the admin and the student. The admin has the ability to access all the functions of the system, such as log in, enter, add, delete and view the current weather. The student has the ability to log in, access their flight schedules and all the weather of the day, and check the validation or expiry of their licenses.

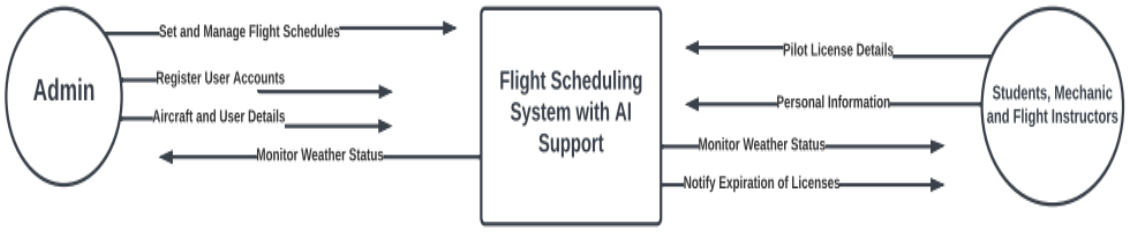


Figure 2

Data Flow Diagram of Proposed System

Figure 2 shows how data moves through an information system but does not show program logic or processing steps. It provides a logical model that shows what the system does, not how it does.

Data flow diagram or context diagram. It is a basic overview of the whole system or process being analyze or modeled.

Design of Software, System, Product, and Processes

Use Case Diagram

Is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.

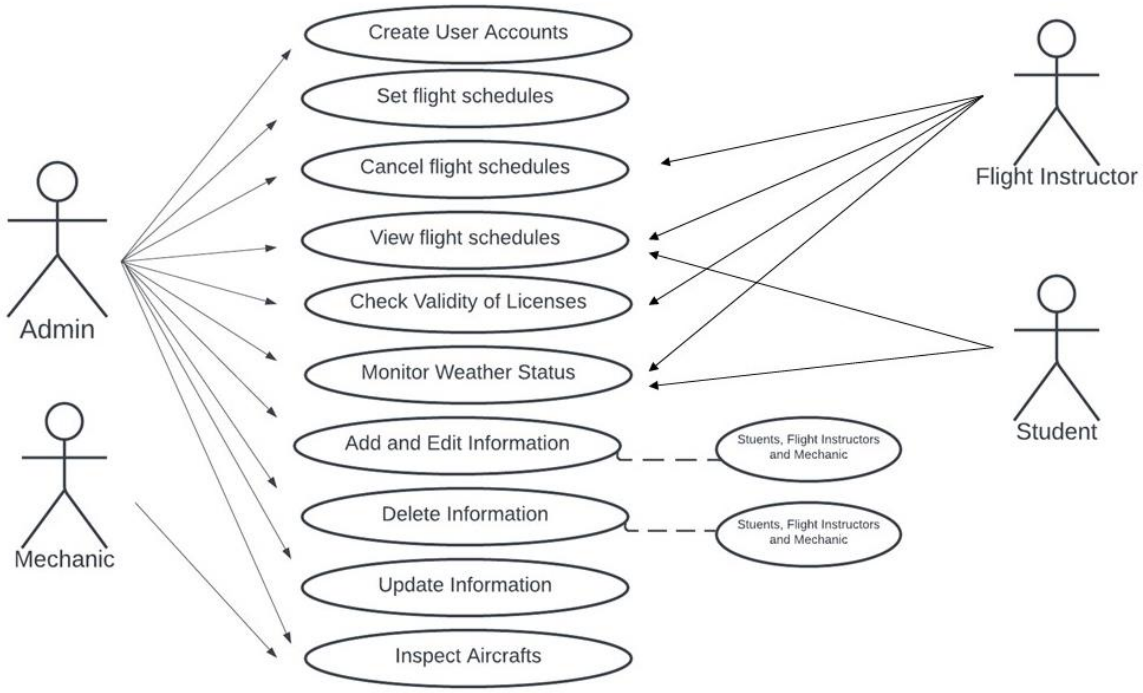


Figure 3
Use Case Diagram

Figure 3 illustrates and elaborates system flow of the user's data. The admin can create and view accounts, flight schedules, and weather, add, edit, update, and delete different information, and approve user accounts through this system. The instructors can

view schedules, check validity of licenses, and view weather status. Students can view flights schedules and weather status. And mechanics can check which aircrafts need to be inspected, and see the schedules of the aircraft.

System Architecture

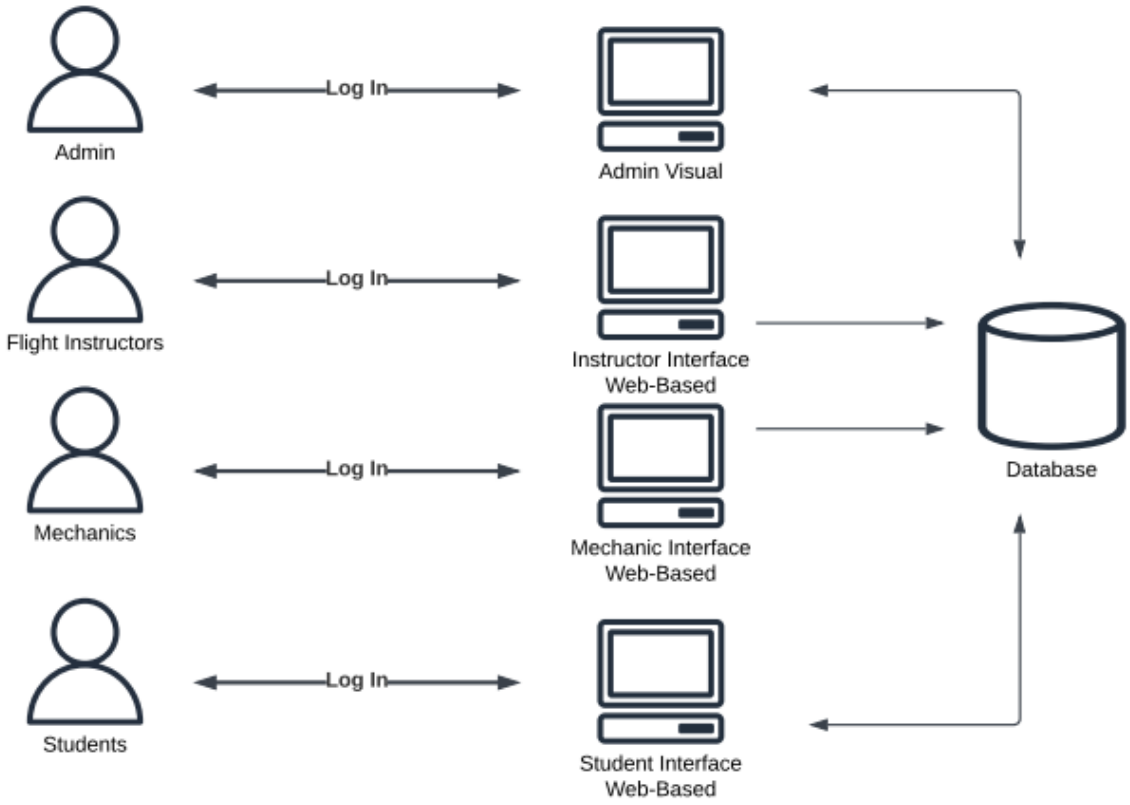


Figure 4
System Architecture

Figure 4 shows the System Architecture of the Flight Scheduling System whereas the admin inputs the data of the students, instructors, and aircrafts in the system and it then stores in the database before the students are able to view it. It will be a continous process as the students and instructors will give their correct information based on the requirements of the system.

Conceptual Framework

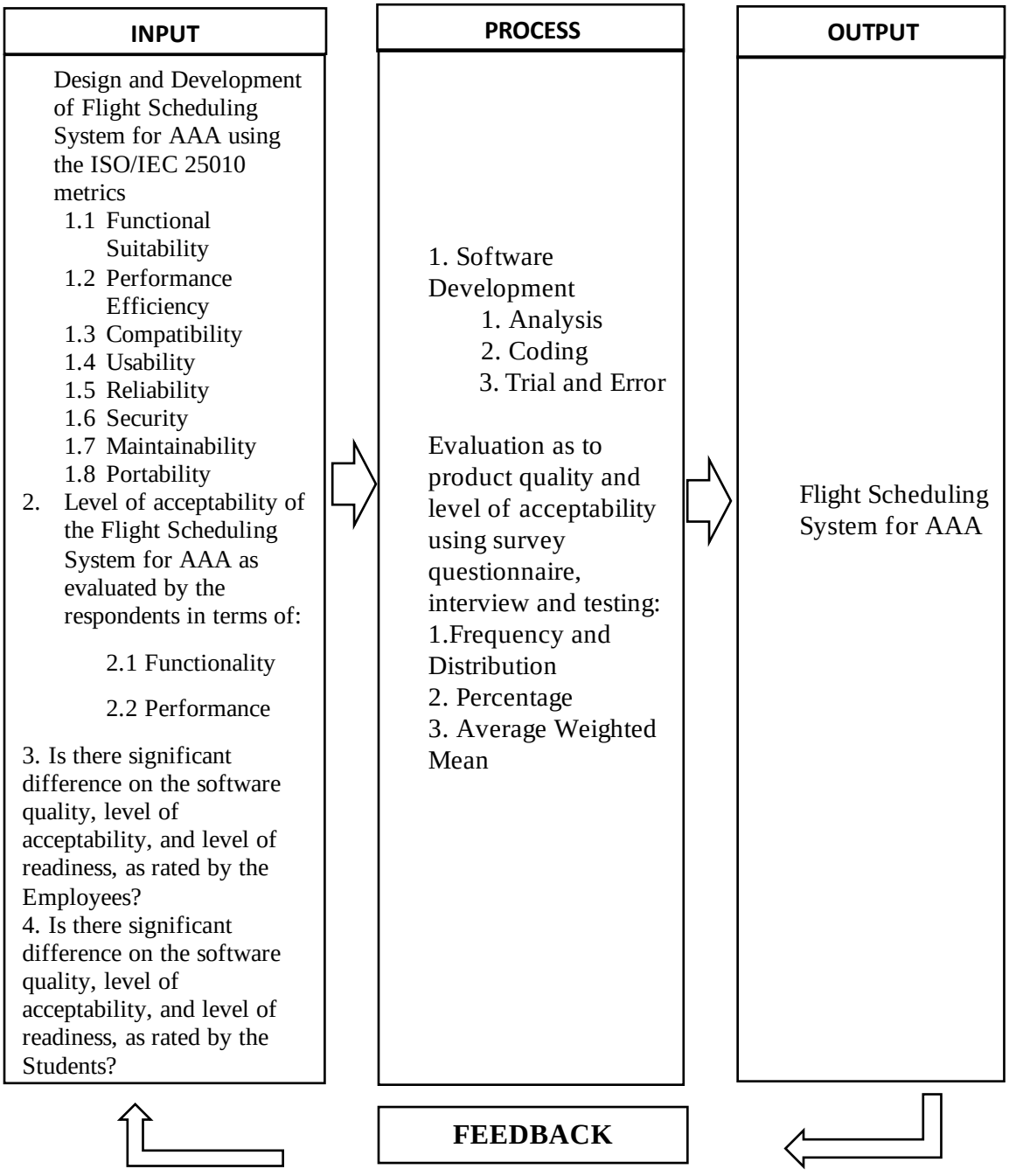


Figure 4
Input, Process, Output Diagram

Figure 4 shows the input, process and output procedure. Inputs are the conditions that exist prior to the web-based system, whereas processes are the steps involve in creating the system. Output will be the result or outcome of the system. The relationships among those variables were clearly established.

Hypotheses

1. There is significant difference between the employee and students' respondents Software Quality on Flight Scheduling System for AAA in terms of Functionality and Performance between Compatibility and Usability.

2. There is no significant difference between the employee and student's respondents' level of acceptability on Flight Scheduling System for AAA in terms of Functionality and Performance.

3. There is no significant difference between the employee and student's respondents' level of acceptability on Flight Scheduling System for AAA in terms of Information System Facility and Technical Personnel.

Development and Testing

Software Development Life Cycle System Architecture

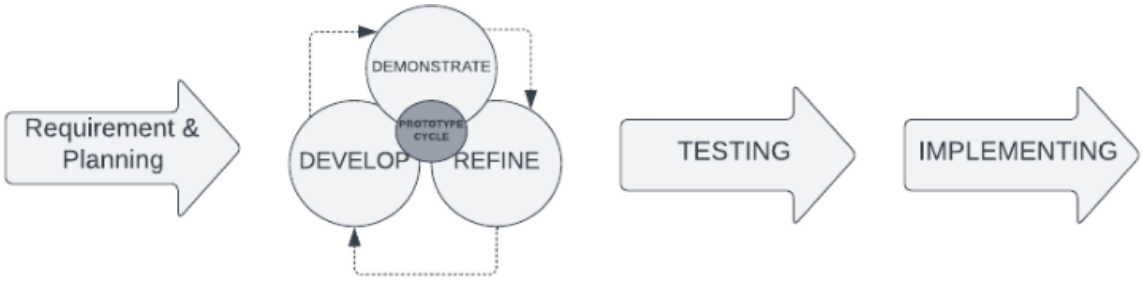


Figure 5
Rapid Application Development Methodology

Figure 5 shows the RAD Methodology is a divided into stages and focuses on developing the application by providing the Requirements, frequent iterations which is included in the Prototype Cycle that is composed of demonstrate, refine, and develop, Testing, and Implementing.

The RAD Methodology has three stages: requirements, testing, and implementing.

Phase 1: Requirements. The researchers presented their project to the admin of the All Asia Aviation Academy They conduct an interview and gather all the needed information to create the project. With those interview, the researchers come up with the requirement needed by student and be able to make a description or required functionality of the system.

Phase 2: Testing. Once the design and coding are completed, the researchers will test the system to identify and observe any potential faults in the code. If the testing is unsuccessful and errors are discovered, the researchers will return to the coding to correct any flaws and retest it. If an error occurs, return to fix and edit, and repeat until the system is successful.

Phase 3: Implement. This is the stage at which the researchers will deploy the system to All Asia Aviation Academy by delivering it to the administrative, who will be the one to train and familiarize their personnel with the system. The system that will be deployed to them will be useful for their school, allowing them to store data and manage student schedules.

Software Quality Metrics

International Organization for Standardization/International Electro Technical Commission ISO/IEC 25010:2011. The researchers and the pre-identified individuals with knowledge and expertise in the fields related to the subject matter conducted the tests to determine the level of product quality against the standard criteria of ISO/IEC 25010:2011. ISO/IEC 25010:2011 defines:

1. Quality in use model composed of five characteristics (some of which are further subdivided into sub characteristics) that relate to the outcome of interaction when a product is used in a particular context of use. This system model is applicable to complete the human-computer system, including both computer systems in use and software products in use.

2. A product quality model composed of eight characteristics (which are the further subdivided into sub characteristics) that relate to static properties of software and dynamic properties of the computer system. The model is applicable to both computer systems and software products. The characteristics defined by both models are relevant to all software products and computer systems. The characteristics and sub-characteristics provide consistent terminology for specifying, measuring, and evaluating system and software product quality. They also provide a set of quality characteristics against which stated quality requirements can be a compared for completeness.

Although the scope of the product quality model is an intended to be software and computer systems, many of the characteristics are also relevant to wider systems and services. ISO/IEC 25012 contains a model for data quality that is complementary to this

model. The scope of the models excludes purely functional properties, but it does include functional suitability.

The scope of application of the quality models includes supporting specification and evaluation of software and software-intensive computer systems from different perspectives by those associated with their acquisition, requirements, development, use, evaluation, support, maintenance, quality assurance and control, and audit. The models can for example, be used by developers, acquirers, quality assurance and control staff, and independent evaluators, particularly those responsible for specifying and evaluating software product quality requirements definition; identifying software and system design objectives; identifying software and system testing objectives; identifying quality control criteria as part of quality assurance; identifying acceptance criteria for a software product and/or software-intensive computer system; and establishing measures of quality characteristics in support of these activities.

Data Analysis

The data responses that will be a gathered by the researchers using a questionnaire will be the tallied and set into table for interpretation and analysis. The statistical tools are shown below that will be used by the researchers.

Table 1
Distribution of Respondents

Respondents	Frequency	Percentage
Employees	30	42%
Students	41	58%
Total	**71**	**100%**

Table 1 shows the percentage distribution of respondents grouped according to their positions whereas the employees (Admin, Instructors, and Mechanics) has the frequency of thirty (30) with a percentage of 42%, and the students has the frequency of forty-one (41) with a percentage of 58%, with a total frequency of 71 or 100%.

1. **Slovin** - It is used to calculate the sample size necessary to achieve a certain confidence interval when sampling a population.
2. **Percentage**. This will be employed to determine the frequency count and Percentage distribution of the respondents using the formula show below.

$$P(\%)=(f/N) * 100$$

Where:

%	=	Percentage
f	=	Frequency
N	=	Total number of respondents

2. **Weighted Mean.** This will be used to determine the mean of the perception of the respondents in each system quality metric indicated in each system performance indicators.

$$WAM = \sum fx/N$$

Where:

WAM	=	Weighted arithmetic mean
f	=	Frequency
x	=	Weighted of each option
$\sum fx$	=	Sum of the products of f and x

N = Total number of respondents

The weighted value assigned to the perception of the respondents will be a patterned after Likert Scaling. According to McLeod, S. A. (2008), Likert scales (named after their creator, American social scientist Rensis Likert) are quite popular because they are one of the most reliable ways to measure opinions, perceptions, and behaviors.

3. Interpretation of Data.

Likert Scale Use to Interpret the Level of System Quality

Point	Weight Value	Qualitative Interpretation
4	3.26 – 4.00	Excellent
3	2.51 – 3.25	Good
2	1.76 – 2.50	Fair
1	1.00 – 1.75	Poor

Likert Scale Use to Interpret the Level of Acceptability

Point	Weight Value	Qualitative Interpretation
4	3.26 – 4.00	Highly Accepted
3	2.51 – 3.25	Accepted
2	1.76 – 2.50	Slightly Accepted
1	1.00 – 1.75	Not Accepted

Likert Scale Use to Interpret the Level of Readiness

Point	Weight Value	Qualitative Interpretation
4	3.26 – 4.00	Very Ready
3	2.51 – 3.25	Ready
2	1.76 – 2.50	Slightly Ready
1	1.00 – 1.75	Not Ready

Description of the Prototype

The researchers choose All Asia Aviation Academy to create a system which help them to view the weather status every day, view the validity of the student licenses, and be able to automatically schedule the flights of the students. First, the researchers reach out to the captains asking for a permission to create a system. Flight Scheduling System plays a significant role in making the flight schedules easier, faster, and more efficient. For making the system. The researchers used several programming languages for both frontend and backend of the system. For frontend, the researchers used HTML, CSS, Bootstrap 5, and JavaScript. For backend, the researchers used PHP, MySql, Ajax, JQuery Code, and Visual Studio Code.

With the help above given explanations and discussions about the feasibility of the design, a prototype of the design was made using selected programming languages and some sampling of the featuring instrumentations on the design was shown by simply making the guidelines with the help of a captain.

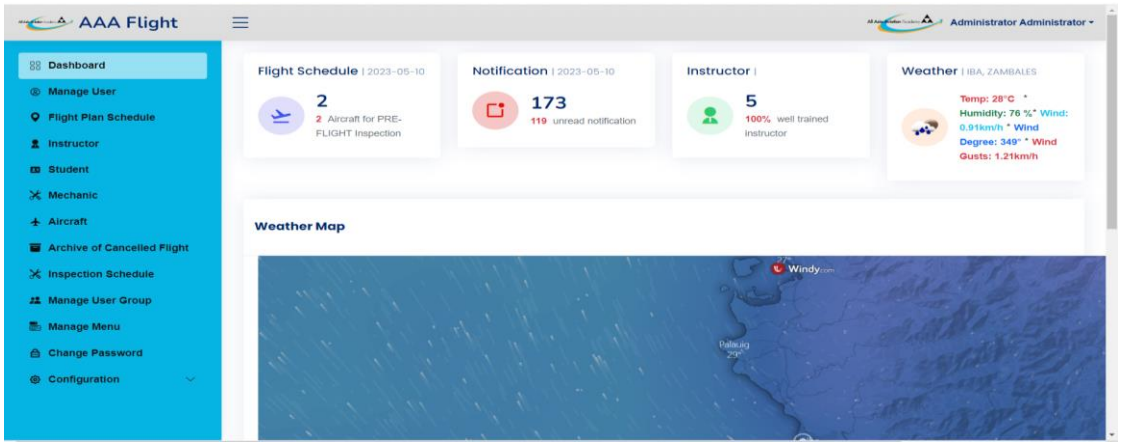


Figure 6
Web application view of the prototype

Figure 6 shows the web application view of the manufactured prototype dashboard of admin. Which shows the Dashboard, Manage User, Flight Plan Schedule, Instructor, Student, Mechanic, Aircraft, Archive of Cancelled Flight, Inspection Schedule, Manage User Group, Manage Menu, Change Password and Configuration, on the left side of the web application.

Implementation Plan

The Flight Scheduling system for All Asia Aviation Academy was developed for the instructors of All Asia Aviation Academy in Iba, Zambales to make their task easier as it is a web-based automatic system that only need internet connection and personal computer to perform their task.

	Week 1- 2	Week 3	Week 4-6	Week 7-8
Approval from the All Asia Aviation Academy (Letters for the Administrators)				
Data Gathering (Conducting of Interviews)				
Creating and Implementation of System (Software and Hardware Requirements)				
Data Analysis and System Presentation (Conducting of Survey and Presentation of System)				

Figure 7
Implementation Plan

Figure 7 shows the Implementation Plan describes how the information system will be deployed, installed and transitioned into an operational system. The plan contains an overview of the system, a brief description of the major tasks involved in the implementation, the overall resources needed to support the implementation effort (such as hardware, software. facilities, materials, and personnel), and any site-specific implementation requirements.

Hardware Minimum Requirements

CPU: 1.6 GHz (or faster)

RAM: 512 MB, 2 GB, 1 GB (32 bit – 1 GB, 64 bit – 2 GB)

Free Hard Disk Space (HDD Space): 3 GB

Display (Screen Resolution): 1024 x 728 (DirectX 9), 320px (Mobile View)

Software Requirements

Operating System (OS) for Personal Computers: Windows XP

Operating System (OS) for Smartphone Devices: Android 3.0 Honeycomb Devices, iOS 4 Devices

Chapter 4

RESULTS AND DISCUSSION

This chapter reviews the results and analysis of the qualitative data, the compilation of the questionnaire and the results and analysis of the quantitative findings of the study. The findings are also discussed in the light of previous research findings and available literature, where applicable, in order to identify similarities and differences between Flight Scheduling System for AAA and previous studies and literature.

1. Evaluation of Functional Suitability

Table 2
Evaluation of the AAA Employees on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Functional Suitability

Functional Suitability	Employees		
	WM	**DE**	**Rank**
1. The degree which the system which a set of functions covers all the specified tasks and user objectives.	3.33	Excellent	2
2. The degree which the system provides the correct results with the needed.	3.33	Excellent	2
3. The degree which the system degree of precision which the functions facilitate the accomplishment of specified tasks and objectives.	3.37	Excellent	1
Overall Weighted Mean	**3.34**	**Excellent**	

The table 2 shows that the respondents wrote that the system degree of precision was “Excellent” with a rating of 3.37 (ranked 1st), while the degree which degree which the system provides the correct results and degree which the system which a set of functions had the lowest rating of 3.33 interpreted as “Excellent” (ranked 2nd). The computed overall

weighted mean of employees on Flight Scheduling System for AAA in terms of Functional Suitability was "Excellent" with a mean rating of 3.34. According to Abdullah & Hussan (2019), the class schedule management system makes it simple for administrators and instructors to determine their data. The users can then export the necessary reports for any enquiries. The researchers created a user-friendly web application that allows the users to easily use the system and its functions.

1.1 Evaluation of Functional Suitability

Table 3
Evaluation of the AAA Students on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Functional Suitability

Functional Suitability	Students		
	WM	**DE**	**Rank**
1. The degree which the system which a set of functions covers all the specified tasks and user objectives.	3.37	Excellent	2
2. The degree which the system provides the correct results with the needed.	3.49	Excellent	1
3. The degree which the system degree of precision which the functions facilitate the accomplishment of specified tasks and objectives.	3.49	Excellent	1
Overall Weighted Mean	**3.45**	**Excellent**	

Table 3 shows that the respondents wrote that the system degree of precision and the degree which the system provides the correct results were "Excellent" with a rating of 3.49 (ranked 1st), while the degree which the system which a set of functions had the lowest rating of 3.37 interpreted as "Excellent" (ranked 2nd). The computed overall weighted mean

students on Flight Scheduling System for AAA in terms of Functional Suitability was "Good" with a mean rating of 3.45. According to Gupta, R. et al. (2018) a system that functions well with many aircraft scheduling systems. It contrasts and evaluates many aspects of software quality, including dependability, usability, performance, and maintainability. Based on the practical feasibility of existing flight scheduling systems.

1.3 Evaluation of Performance Efficiency

Table 4
Evaluation of the AAA Employees on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Performance Efficiency

Performance Efficiency	Employees		
	WM	**DE**	**Rank**
1. The degree to which the response and processing times, and throughput rates of a product or system meet requirements when performing its functions.	3.33	Excellent	3
2. The degree to which the amounts and types of resources used by a product or system meet requirements when performing its functions.	3.50	Excellent	2
3. The degree to which the maximum limits of a product or system parameter meet requirements.	3.67	Excellent	1
Overall Weighted Mean	**3.50**	**Excellent**	

Table 4 shows that the respondents wrote that the degree which the maximum limits of a product or system parameter meet requirements was "Excellent" with a rating of 3.67 (ranked 1st), while the degree to which the response and processing times had the lowest rating of 3.33 interpreted as "Excellent" (ranked 3rd). The computed overall weighted mean of employees on Flight Scheduling System for AAA in terms of Performance Efficiency

was "Excellent" with a mean rating of 3.50. According to Kim, K., & Jang, K. (2019). It is possible to utilize a variety of mathematical models, algorithms, and heuristics to optimize flight schedules while taking crew assignment, aircraft maintenance, and aircraft routing into account. It emphasizes the significance of good scheduling in raising operational and performance effectiveness.

1.4 Evaluation of Performance Efficiency

Table 5
Evaluation of the AAA Students on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Performance Efficiency

Performance Efficiency	Students		
	WM	**DE**	**Rank**
1. The degree to which the response and processing times, and throughput rates of a product or system meet requirements when performing its functions.	3.46	Excellent	3
2. The degree to which the amounts and types of resources used by a product or system meet requirements when performing its functions.	3.68	Excellent	1
3. The degree to which the maximum limits of a product or system parameter meet requirements.	3.56	Excellent	2
Overall Weighted Mean	**3.57**	**Excellent**	

Table 5 shows that the respondents wrote that the degree to which the amounts and types of resources was "Excellent" with a rating of 3.68 (ranked 1st), while the degree to which the response and processing times had the lowest rating of 3.46 interpreted as "Excellent" (ranked 3rd). The computed overall weighted mean of students on Flight Scheduling System for AAA in terms of Performance Efficiency was "Excellent" with a

mean rating of 3.57. According to Li, Y., Chen, M., & Wang, L. (2017) a successful performance of the flight scheduling systems, with an emphasis on effectiveness metrics including on-time performance, aircraft utilization, and passenger happiness. post discusses a thorough framework for performance evaluation and examines how scheduling tactics affect system performance. The results offer suggestions for enhancing performance effectiveness in flight scheduling.

1.5 Evaluation of Compatibility

Table 6
Evaluation of the AAA Employees on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Compatibility

Compatibility	Employees		
	WM	**DE**	**Rank**
1. The degree to which the system or component can exchange information and perform its required functions while sharing the same hardware or software environment with other products, systems, or components.	3.57	Excellent	2
2. The degree to which the system can efficiently perform its required functions while sharing a common environment and resources with other products, without detrimental impact on any other product.	3.63	Excellent	1
3. The degree to which two or more systems, products, or components can exchange information and utilize the information that has been exchanged.	3.43	Excellent	3
Overall Weighted Mean	**3.54**	**Excellent**	

Table 6 shows that the respondents wrote that the degree to which the system can efficiently perform was "Excellent" with a rating of 3.63 (ranked 1st), while the degree to

which two or more systems, products, or components can exchange information had the lowest rating of 3.43 interpreted as "Excellent" (ranked 3rd). The computed overall weighted mean of employees on Flight Scheduling System for AAA in terms of Compatibility was "Excellent" with a mean rating of 3.54. Botangen, Khavee Agustus (2014) stated that faculty workload can be simply arranged because the application enables the scheduling of faculty members to manage a course. The issue of uneven distribution of teaching loads is easily remedied. The researchers provided different functions in this system that suits the needs of AAA in terms of flight scheduling including the current weather status, notifications, and license expiration notification.

1.6 Evaluation of Compatibility

Table 7
Evaluation of the AAA Students on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Compatibility

Compatibility	Students		
	WM	**DE**	**Rank**
1. The degree to which the system or component can exchange information and perform its required functions while sharing the same hardware or software environment with other products, systems, or components.	3.44	Excellent	1
2.The degree to which the system can efficiently perform its required functions while sharing a common environment and resources with other products, without detrimental impact on any other product.	3.32	Excellent	2
3. The degree to which two or more systems, products, or components can exchange information and utilize the information that has been exchanged.	3.27	Excellent	3
Overall Weighted Mean	**3.34**	**Excellent**	

The respondents wrote that degree to which the system or component can exchange information was "Excellent" with a rating of 3.44 (ranked 1st), while the degree to which two or more systems, products, or components can exchange information had the lowest rating of 3.27 interpreted as "Good" (ranked 3rd). The computed overall weighted mean of students on Flight Scheduling System for AAA in terms of Compatibility was "Excellent" with a mean rating of 3.34. According to Chen, L., Wang, Q., & Li, J. (2021) to ensure seamless interoperability and information interchange, a competent flight scheduling system looks into the integration of various software components, interfaces, and data formats.

1.7 Evaluation of Usability

Table 8
Evaluation of the AAA Employees on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Usability

Usability	Employees		
	WM	**DE**	**Rank**
1. The degree to which users can recognize whether a product or system is appropriate for their needs.	3.27	Excellent	6
2. The degree to which specified users can effectively, efficiently, and safely achieve their learning goals when using the product or system in a specified context of use.	3.30	Excellent	5
3. The degree to which the system has attributes that make it easy to operate and control.	3.43	Excellent	3
4. The degree to which the system protects users from making errors.	3.63	Excellent	1
5. The degree to which the user interface enables pleasing and satisfying interaction for the user.	3.53	Excellent	2
6. The degree to which people with a wide range of characteristics and capabilities can use the system to achieve a specified goal in a specified context of use.	3.33	Excellent	4
Overall Weighted Mean	**3.42**	Excellent	

The respondents wrote that degree to which the system protects users was "Excellent" with a rating of 3.63 (ranked 1st), while the degree to which users can recognize had the lowest rating of 3.27 interpreted as "Excellent" (ranked 6th). The computed overall weighted mean of employees on Flight Scheduling System for AAA in terms of Usability was "Excellent" with a mean rating of 3.42. According to Legaspi, De Angel, Lagman, & Ortega (2014), the university or institution will benefit from effective course scheduling that works out relative information such as courses, time, location, and faculty. The researchers provided a database that includes the information of the students and their employees, including the remaining time to fly to be able to manage their information easily while creating their flight schedules.

1.8 Evaluation of Usability

Table 9
Evaluation of the AAA Students on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Usability

Usability	Students		
	WM	**DE**	**Rank**
1. The degree to which users can recognize whether a product or system is appropriate for their needs.	3.32	Excellent	6
2. The degree to which specified users can effectively, efficiently, and safely achieve their learning goals when using the product or system in a specified context of use.	3.46	Excellent	5
3. The degree to which the system has attributes that make it easy to operate and control.	3.71	Excellent	3
4. The degree to which the system protects users from making errors.	3.76	Excellent	2
5. The degree to which the user interface enables pleasing and satisfying interaction for the user.	3.80	Excellent	1
6. The degree to which people with a wide range of characteristics and capabilities can use the system to achieve a specified goal in a specified context of use.	3.51	Excellent	4
Overall Weighted Mean	**3.59**	**Excellent**	

The respondents wrote that the degree to which the user interface enables pleasing was "Excellent" with a rating of 3.80 (ranked 1st), while the degree to which users can recognize whether a product had the lowest rating of 3.32 interpreted as "Excellent" (ranked 6th). The computed overall weighted mean of students on Flight Scheduling System for AAA in terms of Usability was "Excellent" with a mean rating of 3.59. According to Brown, R., Johnson, M., & Smith, J. (2020) to improve their usefulness, good flight scheduling systems must adhere to user-centered design principles. It outlines a systematic method for developing user-friendly interfaces and enhancing overall usability that includes user research, prototyping, and iterative design.

1.9 Evaluation of Reliability

Table 10
Evaluation of the AAA Employees on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Reliability

Reliability	Employees		
	WM	**DE**	**Rank**
1. The degree to which the system meets the needs for reliability under normal operation.	3.37	Excellent	4
2. The degree to which the system is operational and accessible when required for use.	3.53	Excellent	3
3. The degree to which the system operates as intended despite the presence of hardware or software faults.	3.73	Excellent	1
4. The degree to which the system can recover the data directly affected and re-establish the desired state of the system in the event of an interruption or failure.	3.57	Excellent	2
Overall Weighted Mean	**3.55**	**Excellent**	

The respondents wrote that the degree to which the system operates as intended was "Excellent" with a rating of 3.73 (ranked 1st), while the degree to which the system meets the needs had the lowest rating of 3.37 interpreted as "Excellent" (ranked 4th). The computed overall weighted mean of employees on Flight Scheduling System for AAA in terms of Reliability was "Excellent" with a mean rating of 3.55. Anaman, Kwabena & Quaye, Ruth & Owusu-Brown, Bernice. (2017) stated that the generation of constantly updated flight plans in response to current weather information regarding shifting wind and general weather conditions can allow aircraft to consume fuel more efficiently and pilot their planes in a safer environment. The researchers will help the employees of AAA to be able to view the current weather status in the dashboard that will guide them on creating flight schedules by checking if the weather will affect on the flights' arrival and departure.

10.1 Reliability

Table 11
Evaluation of the AAA Students on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Reliability

Reliability	Students		
	WM	DE	Rank
1. The degree to which the system meets the needs for reliability under normal operation.	3.29	Excellent	3
2. The degree to which the system is operational and accessible when required for use.	3.59	Excellent	2
3. The degree to which the system operates as intended despite the presence of hardware or software faults.	3.78	Excellent	1
4. The degree to which the system can recover the data directly affected and re-establish the desired state of the system in the event of an interruption or failure.	3.59	Excellent	2
Overall Weighted Mean	**3.56**	**Excellent**	

The respondents wrote that the degree to which the system operates was "Excellent" with a rating of 3.78 (ranked 1st), while the degree to which the system meets the needs had the lowest rating of 3.29 interpreted as "Excellent" (ranked 3rd). The computed overall weighted mean of students on Flight Scheduling System for AAA in terms of Reliability was "Excellent" with a mean rating of 3.56. According to Anaman, Quaye, & Owusu-Brown (2017),weather conditions have a considerable impact on aviation operations. Weather information assists meteorologists, pilots, navigators, airline corporations, and businesses in ensuring safe flights while also saving money by lowering some of the demanding requirements associated with carrying extra fuel loads. The researchers provided a real-time weather system that allows the users to view the current weather and monitor it.

1.11 Evaluation of Security

Table 12
Evaluation of the AAA Employees on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Security

Security	Employees		
	WM	**DE**	**Rank**
1. The degree to which a system ensures that data are accessible only to those authorized to have access.	3.57	Excellent	3
2. The degree to which a system, prevents unauthorized access to, or modification of, computer programs or data.	3.53	Excellent	4
3. The degree to which actions or events can be proven to have taken place so that they cannot be repudiated later.	3.77	Excellent	1
4. The degree to which the actions of an entity can be uniquely traced to that entity.	3.60	Excellent	2
5. The degree to which the identity of a subject or resource can be proven to be the one claimed.	3.57	Excellent	3
Overall Weighted Mean	**3.61**	Excellent	

The respondents wrote that the degree to which actions or events can be proven was "Excellent" with a rating of 3.77 (ranked 1st), while the degree to which a system, prevents unauthorized access had the lowest rating of 3.53 interpreted as "Excellent" (ranked 4th). The computed overall weighted mean of employees on Flight Scheduling System for AAA in terms of Security was "Excellent" with a mean rating of 3.61. Kierzkowski, A. et al. (2017) stated that a security control system is a crucial component of an airport because every passenger must go through a security check before boarding. Security oversight must be carried out effectively while upholding a high standard of safety.

1.12 Evaluation of Security

Table 13
Evaluation of the AAA Students on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Security

Security	Students		
	WM	**DE**	**Rank**
1. The degree to which a system ensures that data are accessible only to those authorized to have access.	3.68	Excellent	1
2. The degree to which a system, prevents unauthorized access to, or modification of, computer programs or data.	3.46	Excellent	3
3. The degree to which actions or events can be proven to have taken place so that they cannot be repudiated later.	3.46	Excellent	3
4. The degree to which the actions of an entity can be uniquely traced to that entity.	3.44	Excellent	4
5. The degree to which the identity of a subject or resource can be proven to be the one claimed.	3.59	Excellent	2
Overall Weighted Mean	**3.53**	**Excellent**	

The respondents wrote that the degree which a system ensures that data are accessible was "Excellent" with a rating of 3.68 (ranked 1st), while the degree to which the

actions of an entity had the lowest rating of 3.44 interpreted as "Excellent" (ranked 4th). The computed overall weighted mean of students on Flight Scheduling System for AAA in terms of Security was "Excellent" with a mean rating of 3.53. Kierzkowski, A. et al. (2017) stated that the algorithm enables the establishment of a capacity shortage buffer in the security control system in order to reduce system operation costs while maintaining acceptable passenger service quality.

1.13 Evaluation of Maintainability

Table 14

Evaluation of the AAA Employees on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Maintainability

Maintainability	Employees		
	WM	**DE**	**Rank**
1. The degree to which a system is composed of discrete components, such that a change to one component has minimal impact on other components.	3.63	Excellent	2
2. The degree to which an asset can be used in more than one system or in building other assets.	3.73	Excellent	1
3. Modification of the system does not affect others part of the system.	3.63	Excellent	2
4. The system can be modified effectively and efficiently without introducing defects or degrading the existing system quality.	3.47	Excellent	4
5. The system can run on different hardware specifications, software environments, and firmware versions, both on computers and other mobile devices.	3.53	Excellent	3
Overall Weighted Mean	**3.60**	**Excellent**	

The respondents wrote that the degree to which an asset can be used in more than one system was "Excellent" with a rating of 3.73 (ranked 1st), while the system can be modified effectively and efficiently had the lowest rating of 3.47 interpreted as "Excellent"

(ranked 4th). The computed overall weighted mean of employees on Flight Scheduling System for AAA in terms of Maintainability was "Excellent" with a mean rating of 3.60. Safie, F. (2014) stated that building safe, dependable, and cost-effective systems requires a high level of reliability and maintainability. The problems of todays unmanned and manned space flight missions necessitate the most efficient application of our technical knowledge base in order to build cost-effective and inexpensive technologies.

1.14 Evaluation of Maintainability

Table 15
Evaluation of the AAA Students on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Maintainability

Maintainability	Students		
	WM	DE	Rank
1. The degree to which a system is composed of discrete components, such that a change to one component has minimal impact on other components.	3.61	Excellent	3
2. The degree to which an asset can be used in more than one system or in building other assets.	3.66	Excellent	2
3. Modification of the system does not affect others part of the system.	3.68	Excellent	1
4. The system can be modified effectively and efficiently without introducing defects or degrading the existing system quality.	3.56	Excellent	4
5. The system can run on different hardware specifications, software environments, and firmware versions, both on computers and other mobile devices.	3.46	Excellent	5
Overall Weighted Mean	**3.60**	**Excellent**	

The respondents wrote that the modification of the system does not affect others part of the system was "Excellent" with a rating of 3.68 (ranked 1st), while the system can be modified effectively and efficiently had the lowest rating of 3.56 interpreted as

"Excellent" (ranked 4th). The computed overall weighted mean of students on Flight Scheduling System for AAA in terms of Maintainability was "Excellent" with a mean rating of 3.60. Brown, J., et al (2019) stated that maintainability verification, which verifies the human-machine maintenance interface, is an important component of system requirement verification. Agile acquisition and effective, fast execution of the maintainability verification procedure are critical to the program timeline within maintainability design. Because the majority of verification is done via test vehicle or aircraft, maintainability demonstration has a substantial impact on cost and schedule due to the significant demonstration time on the vehicle and equipment.

1.15 Evaluation of Portability

Table 16
Evaluation of the AAA Employees on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Portability

Portability	Employees		
	WM	**DE**	**Rank**
1. The system provides a flexible environment.	3.53	Excellent	1
2. The system is easy to install and works in a specified environment.	3.43	Excellent	2
3. The system can be replaced or can replace other software or systems with a similar purpose of use and functionalities.	3.53	Excellent	1
4. The system is accessible with minimal connectivity requirements.	3.37	Excellent	3
Overall Weighted Mean	**3.47**	**Excellent**	

The respondents wrote that the system provides a flexible environment and system can be replaced or can replace other software were "Excellent" with a rating of 3.53 (ranked 1st), while the system is accessible with minimal connectivity had the lowest rating of 3.37

interpreted as "Excellent" (ranked 3rd). The computed overall weighted mean of employees on Flight Scheduling System for AAA in terms of Portability was "Excellent" with a mean rating of 3.47. Ohneiser, O., et al (2016) stated that the idea is that portable weather displays can be used without impairing pilot performance on safety-related flight activities actions and judgments judged within the parameters of the current research. However, it also demonstrates that an increased WSA does not automatically imply improved flight behavior.

1.16 Evaluation of Portability

Table 17
Evaluation of the AAA Students on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model of Software Quality in terms of Portability

Portability	Students		
	WM	**DE**	**Rank**
1. The system provides a flexible environment.	3.54	Excellent	2
2. The system is easy to install and works in a specified environment.	3.51	Excellent	3
3. The system can be replaced or can replace other software or systems with a similar purpose of use and functionalities.	3.59	Excellent	1
4. The system is accessible with minimal connectivity requirements.	3.27	Excellent	4
Overall Weighted Mean	**3.48**	**Excellent**	

The respondents wrote that system can be replaced or can replace other software was "Excellent" with a rating of 3.59 (ranked 1st), while system is accessible with minimal connectivity had the lowest rating of 3.27 interpreted as "Excellent" (ranked 4th). The computed overall weighted mean of students on Flight Scheduling System for AAA in

terms of Portability was "Excellent" with a mean rating of 3.48. Ohneiser, O., et al (2016) stated that General Aviation pilots can acquire a general overview of weather conditions on numerous internet or television weather sites to prepare for a flight and prevent encounters with hazardous weather. If the circumstances are favorable,

Pilots can obtain a more comprehensive weather briefing by contacting a Flight Service Station (FSS). Specialists at the FSS may give pilots with a full weather briefing, accessible weather forecasts, and weather reports that characterize weather conditions along the flight path.

Software Quality Summary

Table 18
Summary on the Evaluation of AAA Employees on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model

Software Quality	Employees		
	OWM	**DE**	**Rank**
1. Functional Suitability	3.34	Excellent	8
2. Performance Efficiency	3.50	Excellent	5
3. Compatibility	3.54	Excellent	4
4. Usability	3.42	Excellent	7
5.Reliability	3.55	Excellent	3
6. Security	3.61	Excellent	2
7. Maintainability	3.60	Excellent	1
8. Portability	3.47	Excellent	6
Overall Weighted Mean	**3.50**	**Excellent**	

The Software Quality of the Flight Scheduling System for AAA was evaluated by the employees as "Excellent" on all areas as to: Maintainability (3.60, ranked 1st), Security (3.61, ranked 2nd), Reliability (3.55, ranked 3rd), Compatibility (3.54, ranked 4th), Performance Efficiency (3.50, ranked 5th), Portability (3.47, ranked 6th), Usability (3.42, ranked 7th), and Functional Suitability (3.34, ranked 8th). On average, all employees evaluated the Software Quality of Flight Scheduling System for AAA as "Excellent" with a mean rating of 3.50. Reddivari, S. (2019) stated that the software process model has a significant impact on the overall system's quality; the longer a defect remains unnoticed in the system, the more difficult it is to rectify. However, forecasting software quality in the early stages would greatly benefit developers in software maintenance and quality assurance tasks, as well as in allocating time and resources more efficiently.

Software Quality Summary

Table 19
Summary on the Evaluation of AAA Students on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 Model

Software Quality	Students		
	OWM	DE	Rank
1. Functional Suitability	3.45	Excellent	7
2. Performance Efficiency	3.57	Excellent	3
3. Compatibility	3.34	Excellent	8
4. Usability	3.59	Excellent	2
5.Reliability	3.56	Excellent	4
6. Security	3.53	Excellent	5
7. Maintainability	3.60	Excellent	1
8. Portability	3.48	Excellent	6
Overall Weighted Mean	**3.51**	**Excellent**	

The Software Quality of the Flight Scheduling System for AAA was evaluated by the AAA students as "Excellent" on all areas as to: Maintainability (3.60, ranked 1st), Usability (3.59, ranked 2nd), Performance Efficiency (3.57, ranked 3rd), Reliability (3.56, ranked 4th), Security (3.53, ranked 5th), Portability (3.48, ranked 6th), Functional Suitability (3.45, ranked 7th), and Compatibility (3.34, ranked 8th). On average, all students evaluated the Software Quality of Flight Scheduling System for AAA as "Excellent" with a mean rating of 3.51. Tsafarakis, S., et al (2017) measuring customer satisfaction is critical for modern firms since it can greatly contribute to a continuous effort to improve service quality. Airlines must establish a specialized mechanism for measuring passenger happiness in order to meet customer expectations and reach greater quality standards.

2. Evaluation of Functionality

Table 20
Evaluation of AAA Employees on the Level of Acceptability of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Functionality

Functionality	Employees		
	WM	**DE**	**Rank**
1. The degree to which the system's features and functions are complete and meet the users' needs from their perspective.	3.47	Excellent	2
2. The system's features and functions perform without delay and are fully functional.	3.63	Excellent	1
3. The system provides accurate and relevant information that meets the users' needs.	3.37	Excellent	3
Overall Weighted Mean	**3.49**	**Excellent**	

The evaluation of the respondents on the Flight Scheduling System for AAA in terms of Functionality is presented in Table 20.

The respondents wrote that the system's features and functions perform was "Excellent" with a rating of 3.63 (ranked 1st), while system provides accurate and relevant information had the lowest rating of 3.37 interpreted as "Excellent" (ranked 3rd). The computed overall weighted mean of employees on Flight Scheduling System for AAA in terms of Functionality was "Excellent" with a mean rating of 3.49. Zografos, K., et al (2017), the majority of the world's busiest airports are experiencing severe congestion and delay issues, necessitating quick capacity and demand management action. Solutions aimed at reducing congestion through better slot scheduling have recently gained a lot of attention due to their potential to achieve immediate and significant capacity utilization gains. A slot scheduling strategy offers to deal with congestion problems more effectively and sustainably in the short to medium term, relying on current resources.

2.1 Evaluation of Functionality

Table 21
Evaluation of AAA Students on the Level of Acceptability of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Functionality

Functionality	Students		
	WM	**DE**	**Rank**
1. The degree to which the system's features and functions are complete and meet the users' needs from their perspective.	3.41	Excellent	2
2. The system's features and functions perform without delay and are fully functional.	3.41	Excellent	2
3. The system provides accurate and relevant information that meets the users' needs.	3.66	Excellent	1
Overall Weighted Mean	**3.50**	**Excellent**	

The evaluation of the respondents on the Flight Scheduling System for AAA in terms of Functionality is presented in Table 21.

The respondents wrote that system provides accurate and relevant information was "Excellent" with a rating of 3.66 (ranked 1st), while degree to which the system's features and functions are complete and system's features and functions perform without delay had the lowest rating of 3.41 interpreted as "Excellent" (ranked 2nd). The computed overall weighted mean of students on Flight Scheduling System for AAA in terms of Functionality was "Excellent" with a mean rating of 3.50.

2.2 Evaluation of Performance

Table 22
Evaluation of AAA Employees on the Level of Acceptability of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Performance

Performance	Employees		
	WM	**DE**	**Rank**
1. The system provides real-time information to the users.	3.40	Excellent	2
2. The system is effective and efficient in monitoring information.	3.50	Excellent	1
3. The system has user-friendly features that are easy to use.	3.40	Excellent	2
Overall Weighted Mean	**3.43**	Excellent	

The respondents wrote that system is effective and efficient was "Excellent" with a rating of 3.50 (ranked 1st), while the system provides real-time information and system has user-friendly features had the lowest rating of 3.40 interpreted as "Excellent" (ranked 2nd). The computed overall weighted mean of employees on Flight Scheduling System for AAA in terms of Performance was "Excellent" with a mean rating of 3.43. Ugur, E. (2014) stated that many flight schedules are released every day in modern air forces due to the

various types of aircraft and missions. Each flying unit creates its own flight schedule, which includes decisions on the ideal pilot-mission-aircraft triplet based on the unit's limits and guidelines.

2.3 Evaluation of Performance

Table 23
Evaluation of AAA Students on the Level of Acceptability of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Performance

Performance	Students		
	WM	**DE**	**Rank**
1. The system provides real-time information to the users.	3.22	Excellent	2
2. The system is effective and efficient in monitoring information.	3.56	Excellent	1
3. The system has user-friendly features that are easy to use.	3.10	Excellent	3
Overall Weighted Mean	**3.29**	**Excellent**	

The respondents wrote that the system is effective and efficient was "Excellent" with a rating of 3.56 (ranked 1st), while the system has user-friendly features had the lowest rating of 3.10 interpreted as "Excellent" (ranked 2nd). The computed overall weighted mean of students on Flight Scheduling System for AAA in terms of Performance was "Excellent" with a mean rating of 3.29. According to Mohammed, Z. et al (2018), the system that was created determines with accuracy the times that the school's classes are scheduled in relation to the calendar. The system gives the user the option to change the scheduling mode to suit their needs.

2.4 Level of Acceptability Summary

Table 24
Summary on the Evaluation of AAA Employees on the Level of Acceptability of Flight Scheduling System for AAA using ISO/IEC 25010 Model

Level of Acceptability	Employees		
	Weighted Mean	Qualitative Rating	Rank
1. Functionality.	3.49	Highly Accepted	1
2. Performance.	3.43	Highly Accepted	2
Overall Weighted Mean	**3.46**	**Highly Accepted**	

The Level of Acceptability of Flight Scheduling System for AAA are evaluated by the employees as Highly Accepted in terms of Functionality with a rating of 3.49 (ranked 1st), and Performance with a rating of 3.43 (ranked 2nd). On average, all employees evaluated the Level of Acceptability of Flight Scheduling System for AAA as "Highly Accepted" with a mean rating of 3.46. According to Abdelghany et al. (2017), The flight schedule is the main component of an airline's planning process, which aims to maximize revenues by maximizing the deployment of the airline's resources to satisfy demand. In this work, it gives a brief review of the roughly 20 years' worth of operations research professionals' contributions to airline scheduling.

2.5 Evaluation of Level of Acceptability

Table 25
Summary on the Evaluation of AAA Students on the Level of Acceptability of Flight Scheduling System for AAA using ISO/IEC 25010 Model

Level of Acceptability	Students		
	Weighted Mean	Qualitative Rating	Rank
1. Functionality.	3.50	Highly Accepted	1
2. Performance.	3.29	Highly Accepted	2
Overall Weighted Mean	**3.39**	**Highly Accepted**	

The Level of Acceptability of Flight Scheduling System for AAA are evaluated by the students as Highly Accepted in terms of Functionality with a rating of 3.50 (ranked 1st), and Performance with a rating of 3.29 (ranked 2nd). On average, all students evaluated the Level of Acceptability of Flight Scheduling System for AAA as "Highly Accepted" with a mean rating of 3.39. According to Cameron, M., & Goldman, Y. (2014), The automatic scheduling system created using the heuristic technique is simple, affordable, and adaptable. Future users assessed and endorsed the new scheduling mechanism.

3.0 Evaluation of Information System Facility

Table 26
Evaluation of AAA Employees on the Level of Readiness for Implementation of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Information System Facility

Information System facility	Employees		
	Weighted Mean	Qualitative Rating	Rank
1. Availability of computer units for the system installed.	3.43	Very Ready	3
2. The availability of a modem with reliable internet connection with sufficient bandwidth to cater the needs of the users.	3.70	Very Ready	1
3. The availability of enough IT facilities including computers, printers, network devices and access points that are needed to support the implementation of the system.	3.47	Very Ready	2
Overall Weighted Mean	**3.53**	**Very Ready**	

The evaluation of the employees on the Flight Scheduling System for AAA in terms of Information System Facility is presented in Table 26.

The respondents evaluated that availability of a modem with reliable internet connection was "Very Ready" with a rating of 3.70 (ranked 1st). The computed overall weighted mean of employees on Flight Scheduling for AAA in terms of Information system Facility was "Very Ready" with a mean rating of 3.53. According to the study of Labuanan et. al. (2021), the paper aimed to solve one of the major problems on the main campus of Isabela State University: poor schedule management. Planning is the process performed prior to the execution of certain events. As a result, it found that the genetic algorithm

representation and fitting method made the planning process more accurate and reliable, required less time, and reduced time conflicts in the created schedule.

3.1 Evaluation of Information System Facility

Table 27
Evaluation of AAA Students on the Level of Readiness for Implementation of Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Information System facility

Information System facility	Students		
	Weighted Mean	Qualitative Rating	Rank
1. Availability of computer units for the system installed.	3.39	Very Ready	2
2. The availability of a modem with reliable internet connection with sufficient bandwidth to cater the needs of the users.	3.59	Very Ready	1
3. The availability of enough IT facilities including computers, printers, network devices and access points that are needed to support the implementation of the system.	3.37	Very Ready	3
Overall Weighted Mean	**3.45**	**Very Ready**	

The respondents evaluated that availability of a modem with reliable internet connection was "Very Ready" with a rating of 3.70 (ranked 1st). The computed overall weighted mean of students on Flight Scheduling for AAA in terms of Information system Facility was "Very Ready" with a mean rating of 3.45. Lin, L., Luo, B., & Zhong, S. (2017), stated that a new reliability evaluation method based on the real-time load information is proposed for aircraft structural reliability because the traditional reliability assessment

methods for aircraft structures are unable to fully utilize the real-time status information gathered by the monitoring systems.

3.2 Technical Personnel

Table 28
Evaluation of AAA Employees on the Level of Readiness for Implementation of the Flight Scheduling System for AAA using ISO/IEC 25010 Model in terms of Technical Personnel

Technical Personnel	Employees		
	Weighted Mean	**Qualitative Rating**	**Rank**
1. The availability of personnel who are authorized to manage and maintain the system.	3.37	Very Ready	3
2. The readiness of personnel assigned in the implementation with proper knowledge to maintain the system.	3.63	Very Ready	2
3. The availability of personnel to call anytime for the equipment malfunction.	3.70	Very Ready	1
Overall Weighted Mean	**3.57**	**Very Ready**	

The respondents evaluated that readiness of personnel assigned in the implementation with proper knowledge to maintain the system was "Very Ready" with a rating of 3.57 (ranked 1st). The computed overall weighted mean of employees on Flight Scheduling System for AAA in terms of Technical Personnel was "Very Ready" with a mean rating of 3.57. According to Murça, M. C. R., & Müller, C. (2015), In this study, an optimization method for dynamic aircraft scheduling is presented. The method aids air traffic controllers in choosing and executing landing and takeoff schedules at airports that are both practical and practicable from an operational standpoint. The suggested mixed integer linear programming model takes into account the network of routes used for air

traffic control, introduces the idea of alternate approach routes, and is built to produce output that may be used to create effective warnings for actionable flight directives.

3.3 Evaluation of Technical Personnel

Table 29
Evaluation of AAA Students on the Level of Readiness for Implementation of the AAA Flight Scheduling System in terms of Technical Personnel

Technical Personnel	Students		
	Weighted Mean	**Qualitative Rating**	**Rank**
1. The availability of personnel who are authorized to manage and maintain the system.	3.61	Very Ready	1
2. The readiness of personnel assigned in the implementation with proper knowledge to maintain the system.	3.59	Very Ready	2
3. The availability of personnel to call anytime for the equipment malfunction.	3.51	Very Ready	3
Overall Weighted Mean	**3.57**	**Very Ready**	

The respondents evaluated that the availability of personnel was "Very Ready" with a rating of 3.61 (ranked 1st). The computed overall weighted mean of students on Flight Scheduling System for AAA in terms of Technical Personnel was "Very Ready" with a mean rating of 3.57. According to Botangen and Khal (2014), This effort created and developed a framework for scheduling classes that will enable group scheduling among users. The data management module, the course assignment module, the scheduling module, the result storage module, and the report module were all incorporated into the system. It has an engine that builds schedules and looks for conflicts using the greedy approach.

Level of Readiness Summary

Table 30
Summary on the Evaluation of AAA Employees on the Level of Readiness for Implementation of Flight Scheduling System for AAA

Level of Readiness	Employees		
	Weighted Mean	Qualitative Rating	Rank
1. Information System Facility	3.53	Very Ready	2
2. Technical Personnel	3.57	Very Ready	1
Grand Weighted Mean	**3.55**	**Very Ready**	

The Level of Readiness of Flight Scheduling System for AAA are evaluated by the employees as Very Ready in terms of Technical Personnel with a rating of 3.57 (ranked 1st), and Information System Facility with a rating of 3.53 (ranked 2nd). On average, all employees evaluated the Level of Readiness of Flight Scheduling System for AAA as "Very Ready" with a mean rating of 3.55. Deng, Q., Santos, B. F., & Verhagen, W. J. C. (2021), stated that There are thousands of parts, systems, and components in modern aircraft that require routine maintenance, inspection, or replacement. Maintenance planners must schedule the necessary tasks for each aircraft's maintenance checks in order to keep the fleet operational. These two hard problems are typically tackled by planners using their experience, which leads to less-than-optimal solutions. The first decision support system (DSS) created for optimizing the work distribution and aircraft maintenance check schedule is presented in this study.

Level of Readiness Summary

Table 31
Summary on the Evaluation of AAA Students on the Level of Readiness for Implementation of Flight Scheduling System for AAA

Level of Readiness	Students		
	Weighted Mean	**Qualitative Rating**	**Rank**
1. Information System Facility	3.45	Very Ready	2
2. Technical Personnel	3.57	Very Ready	1
Grand Weighted Mean	**3.51**	**Very Ready**	

The Level of Readiness of Flight Scheduling System for AAA are evaluated by the students as Very Ready in terms of Technical Personnel with a rating of 3.57 (ranked 1st), and Information System Facility with a rating of 3.45 (ranked 2nd). On average, all students evaluated the Level of Readiness of Flight Scheduling System for AAA as "Very Ready" with a mean rating of 3.51. Paulos, K. (2021), stated that the project's goal is to promote the dissemination of the created schedule for St. Mary's University in a safe and efficient manner. By substituting a working area or office that is dependent on technology, the proposed system avoids the current manual working environment. This will improve accuracy, decrease redundant work, and lessen scheduling process problems.

Table 32
Significant difference between the Employees and Students respondent's Evaluation on the Software Quality of Flight Scheduling System for AAA using ISO/IEC 25010 metrics

INDICATORS	dF	t Stat	P(T<=t) One Tail	t Critical One-tail	HYPOTHESES
Functional Suitability	69	-1.16	0.12	1.67	Not Significant, Accept Ho
Performance Efficiency	69	0.78	0.22	1.67	Not Significant, Accept Ho
Compatibility	69	2.30	0.01	1.67	Significant, Reject Ho
Usability	69	-3.60	0	1.67	Significant, Reject Ho
Reliability	69	-0.19	0.43	1.67	Not Significant, Accept Ho
Security	69	1.26	0.11	1.67	Not Significant, Accept Ho
Maintainability	69	0.08	0.47	1.67	Not Significant, Accept Ho
Portability	69	0.14	0.45	1.67	Not Significant, Accept Ho

Table 32 presents the test of hypotheses between the employees and students' respondents' evaluation on the Software Quality of the Flight Scheduling System for AAA using the one-tailed t-test in testing the hypotheses at 0.05 level of significance, the t-computed was as follows: Functional Suitability (-1.16), Performance Efficiency (0.78), Compatibility (2.30), Usability(-3.60), Reliability (-0.19), Security (1.26), Maintainability (0.08), Portability (0.14). Thus, the decision for all the parameters was to accept the null hypotheses (Ho), meaning that there is no significant difference on the evaluation of two group of respondents on the level of acceptability of the system, however there is a significant difference on the evaluation of two group respondents in term of Compatibility and Usability. Both employee and student's respondents have the same perception on a given positive evaluation except on Compatibility and Usability. Gora, A., Stefan, S., Popa, Stefan, & Albu, C. (2019) stated that the major findings revealed that the quality of the

educational process, as well as the practical and research activities, had a favorable and direct influence on students' competencies.

Table 33
Significant difference between the Employees and Students respondent's Evaluation on the Level of Acceptability of Flight Scheduling System for AAA using ISO/IEC 25010 metrics

INDICATORS	dF	t Stat	P(T<=t) One Tail	t Critical One-tail	HYPOTHESES
Functionality	69	-0.10	0.46	1.67	Not Significant, Accept Ho
Performance	69	1.63	0.06	1.67	Not Significant, Accept Ho

Table 33 presents the test of hypotheses between the employees and students' respondents' evaluation on the Level of Acceptability of the Flight Scheduling System for AAA using the one-tailed t-test in testing the hypotheses at 0.05 level of significance, the t-computed was as follows: Functionality (-0.10), Performance (1.62). Thus, the decision for all the parameters was to accept the null hypotheses (Ho), meaning that there is no significant difference on the evaluation of two group of respondents on the level of acceptability of the system. Both employee and student's respondents have the same perception on a given positive evaluation. Cameron & Goldman (2014) claimed that the heuristic technique-based automatic scheduling system is easy, inexpensive, and flexible. Future customers evaluated and approved the new scheduling system.

Table 34
Significant difference between the Employees and Students respondent's Evaluation on the Level of Readiness of Flight Scheduling System for AAA using ISO/IEC 25010 metrics

INDICATORS	dF	t Stat	P(T<=t) One Tail	t Critical One-tail	HYPOTHESES
Information System Facility	69	1.08	0.14	1.67	Not Significant, Accept Ho
Technical Personnel	69	-0.03	0.49	1.67	Not Significant, Accept Ho

Table 34 presents the test of hypotheses between the employees and students' respondents evaluation on the Level of Readiness of the Flight Scheduling System for AAA using the one-tailed t-test in testing the hypotheses at 0.05 level of significance, the t-computed was as follows: Information System Facility (1.08), Technical Personnel (-0.03). Thus, the decision for all the parameters was to accept the null hypotheses (Ho), meaning that there is no significant difference on the evaluation of two group of respondents on the level of readiness of the system. Both employee and student's respondents have the same perception on a given positive evaluation. Paulos (2021) claimed that the project's objective was to encourage the efficient and safe distribution of the developed schedule. The suggested system avoids the present manual working environment by substituting a workspace or office that depends on technology. This will increase accuracy, reduce duplication of effort, and alleviate scheduling process issues.

Chapter 5
RECOMMENDATIONS

Based on the given information, the researchers have identified several areas where they believe improvements can be made to enhance the overall functionality and usefulness of the system. The following recommendations are put forth by the researchers:

1. Automatic Cancellation: This feature would enable the system to automatically cancel flights in the event of adverse weather conditions or other disruptions.
2. Enhanced Security and Virus Protection. This involves implementing security protocols, such as encryption, access controls, and intrusion detection systems.
3. System Improvements. This would enhance accessibility and convenience for both users and administrators.
4. Addition of New Features. To enhance user satisfaction and engagement, the researchers propose incorporating new features and ideas into the system.
5. AI Support and Data Analysis: By leveraging AI algorithms and techniques, the system can improve efficiency in various areas.

In conclusion, the researchers propose a set of recommendations aimed at improving the system's functionality, security, maintainability, user satisfaction, and efficiency. By implementing these suggestions, the system stands to benefit from enhanced automation, increased security, flexibility, and improved data analysis, ultimately leading to a more reliable and user-friendly experience.

REFERENCES

Abdelghany, A. et. al. (2017). “Airline flight schedule planning under competition”.

Abdullah, P. & Hussan, B. (2019). Class Schedule System. 10.13140/RG.2.2.13580.87680.

Ahlstrom, U., Ohneiser, O., & Caddigan, E. (2016). Portable Weather Applications for General Aviation Pilots. Human Factors: The Journal of the Human Factors and Ergonomics Society, 58(6), 864–885.

Al-Sultan, A. et. al. (2014). “An Airline Scheduling Model and Solution Algorithms”.

Anaman, K. Quaye, R. & Owusu-Brown, B. (2017). Benefits of Aviation Weather Services: A Review of International Literature. Research in World Economy. 8. 45-58. 10.5430/rwe.v8n1p45.

Barzagan M. (2015). “Flight scheduling through optimizing flight block and ground times: A case study”.

Basak A. (2020). “Flight Scheduling Optimization and Automation for AnadoluJet”.

Botangen, K, & Khal, C. (2014). “Class-Scheduling System for the Central Luzon State University(Abridged)”.

Botangen, Khavee Agustus. (2014). Web-Based Class Scheduling for a Collaborative Preparation of Block-Based Schedules. 10.7763/IPEDR.2014.V81.25.

Brown, J., & Kelly, C. (2018, January 1). Maintainability Verification for Cost-Effective Execution. IEEE Xplore.

Brown, R., Johnson, M., & Smith, J. (2020). Improving the Usability of Flight Scheduling Systems: A User-Centered Design Approach. Journal of Aviation Technology and Engineering, 10(2), 1-15.

Cameron, M., & Goldman, Y. (2014). Design of an Automated Employee Scheduling System. Industrial and Manufacturing Engineering.

Chen, L., Wang, Q., & Li, J.(2021). Assessing Compatibility in Flight Scheduling Systems: A Case Study. Journal of Air Transport Management, 93, 101999.

Chen, X., Yue, X.-G., Li, R. Y. M., Zhumadillayeva, A., & Liu, R. (2021). Design and Application of an Improved Genetic Algorithm to a Class Scheduling System. International Journal of Emerging Technologies in Learning (IJET), 16(01), 44.

Deng, Bruno, and Verhagen (2021) A novel decision support system for optimizing aircraft maintenance check schedule and task allocation.

Deng, Q., Santos, B. F., & Verhagen, W. J. C. (2021). A novel decision support system for optimizing aircraft maintenance check schedule and task allocation. Decision Support Systems, 146(0167-9236), 113545.

Eltoukhy, A. et. al. (2017). "Airline schedule planning: A review and future directions"

Gora, A., Stefan, S., Popa, Stefan, & Albu, C. (2019). Students' Perspective on Quality Assurance in Higher Education in the Context of Sustainability: A PLS-SEM Approach. Sustainability, 11(17), 4793. MDPI AG.

Gupta, R., Sharma, S., & Verma, S. (2018). Measuring Software Quality Attributes: A Comparative Study on Functional Suitability of Flight Scheduling Systems. International Journal of Computer Applications, 179(6), 1-7.

Ikhmeis, S. (2015) Collaborative rescheduling of flights in a single mega-hub network

Iqbal A., et. al. (2018). "Airline Scheduling with Max Flow algorithm".

Legaspi, J.B., De Angel, R., Lagman A., Ortega, J.H. (2014). Web based Course Scheduling System using Greedy Algorithm Vol-20/No-S2

Kenan, N. et. al. (2018). "An integrated flight scheduling and fleet assignment problem under uncertainty.

Kepir, B., Koçyigit, C., Koyuncu, I., Ozer, M., Kara, B., & Gurbuz, M. (2016). Flight-Scheduling Optimization and Automation for AnadoluJet.

Kim, K., & Jang, K. (2019). Optimization Techniques for Flight Scheduling: A Review. Journal of Advanced Transportation, 2019.

Kierzkowski, A., & Kisiel, T. (2017). Simulation model of security control system functioning: A case study of the Wroclaw Airport terminal. Journal of Air Transport Management, 64(0969-6997), 173–185.

Kowalski, M., et.al (2021) Planning and management of aircraft maintenance using a genetic algorithm.

Labuanan, F. et. al. (2021). "Class Scheduling System".

Lin, L., Luo, B., & Zhong, S. (2017). Development and application of maintenance decision-making support system for aircraft fleet. Advances in Engineering Software, 114(0965-9978), 192–207.

Li, Y., Chen, M., & Wang, L. (2017). Performance Evaluation of Flight Scheduling Systems: A Case Study. Journal of Air Transport Management, 64, 42-52.

Mohammed, Z. G., Hamdoon, A. M. A., & Aziz, M. S. (2018, March 1). Scheduling lecturer system based on FPGA. IEEE Xplore.

Murça, M. C. R., & Müller, C. (2015). Control-based optimization approach for aircraft scheduling in a terminal area with alternative arrival routes. Transportation Research Part E: Logistics and Transportation Review, 73(1366-5545), 96–113.

Nieto, J. (2020) Emphasising the importance of a safe and secure aviation industry

Ortega, E. Ortega, M. & Brigoli, D. (2015). Online Class Scheduling and Faculty Loading System within a Decision Support Framework. Vol. 6 · October 2015 Print Issn 2244-1824 · Online Issn 2244-1816 doi: http://dx.doi.org/10.7719/irj.v6i1.363

Paulos, K. (2021). Mobile App Enabled Scheduling System. Repository.smuc.edu.et.

Reddivari, S., & Raman, J. (2019, July 1). Software Quality Prediction: An Investigation Based on Machine Learning. IEEE Xplore.

Safie, F. M., Stutts, R. G., & Broussard, S. K. (2014, January 1). Reliability and Maintainability — Key to launch Vehicle affordability. IEEE Xplore.

Sadovsky, A., & Windhorst, A. (2019) A Scheduling Algorithm Compatible with a Distributed Management of Arrivals in the National Airspace System

Tsafarakis, S., Kokotas, T., & Pantouvakis, A. (2018). A multiple criteria approach for airline passenger satisfaction measurement and service quality improvement. Journal of Air Transport Management, 68(0969-6997), 61–75.

Wensveen, G. (2015). “Principle of Airline Scheduling”.

Zografos, K. G., Madas, M. A., & Androutsopoulos, K. N. (2016). Increasing airport capacity utilisation through optimum slot scheduling: review of current developments and identification of future needs. Journal of Scheduling, 20(1), 3–24.

APPENDICES

Appendix A
Relevant Source Code

```
<?php ob_start(); ?>
<?php require_once('../connections/pdoconnect.php'); ?>

<?php


$phu=new php_util();
$menu_id=$phu->get_menu_id(basename($_SERVER['PHP_SELF']));

$db=new DatabaseConnect();

if ((isset($_POST["POSTcheck"])) && ($_POST["POSTcheck"] == "form1")) {

   if ($_SESSION['MM_UserGroup']=="Administrator"){
      $query_rs = "select * FROM flight_sched fs WHERE flight_date>=? AND flight_date<=?
ORDER BY flight_date DESC";
       $db->query($query_rs);
       $db->bind(1,$_POST['from']);
       $db->bind(2,$_POST['to']);
       $rs=$db->rowset();
   }else {
      $query_rs = "select * FROM flight_sched fs RIGHT JOIN flight_sched_passenger fsp ON
fsp.flight_sched_id=fs.flight_sched_id WHERE flight_date>=? AND flight_date<=? AND
fsp.user_id=? ORDER BY flight_date DESC";
       $db->query($query_rs);
       $db->bind(1, $_SESSION['MM_ID']);
       $db->bind(2,$_POST['from']);
       $db->bind(3,$_POST['to']);
       $rs=$db->rowset();
   }
} else {
   if ($_SESSION['MM_UserGroup']=="Administrator"){
      $query_rs = "select * FROM flight_sched fs WHERE flight_date>=CURRENT_DATE()
AND flight_date<=CURRENT_DATE() ORDER BY flight_date DESC";
       $db->query($query_rs);
       $rs=$db->rowset();
   }else {
      $query_rs = "select * FROM flight_sched fs RIGHT JOIN flight_sched_passenger fsp ON
fsp.flight_sched_id=fs.flight_sched_id WHERE flight_date>=CURRENT_DATE() AND
flight_date<=CURRENT_DATE() AND fsp.user_id=? ORDER BY flight_date DESC";
       $db->query($query_rs);
       $db->bind(1, $_SESSION['MM_ID']);
```

```
        $rs=$db->rowset();
    }
}


$SQLcrud = "UPDATE `user` SET flight_status='' WHERE  id IN (SELECT user_id FROM
flight_sched_passenger WHERE flight_sched_id IS NULL OR flight_sched_id='')";
$db->query($SQLcrud);
$db->execute();

$SQLcrud = "UPDATE `lup_aircraft` SET flight_status='', flight_sched_slug='' WHERE
lup_aircraft_id IN (SELECT lup_aircraft_id FROM flight_sched_passenger WHERE
flight_sched_id IS NULL OR flight_sched_id='')";
$db->query($SQLcrud);
$db->execute();
$SQLcrud = "DELETE FROM flight_sched_passenger WHERE flight_sched_id IS NULL OR
flight_sched_id='';
$db->query($SQLcrud);
$db->execute();
?>
<!DOCTYPE html>
<html lang="en">
<head>

<title><?php echo $app_title; ?>  </title>
</head>
<?php require_once('../template/phplink.php'); ?>
<body >
<?php require_once('../template/header.php'); ?>

<div class="card">
<div class="card-header"><h5 class="card-title"><strong><?php echo
htmlentities($_SESSION['title']); ?></strong></h5></div>
          <div class="card-body">
<!--------------------------------------------------------------------------------->
<form method="post" name="form1" id="form1">
   <div class="form-horizontal">
   <fieldset>
   <div class="row">
      <div class="form-group  col-md-3 col-sm-12">
            <div class="form-floating ">
```

```
            <input required type="date" class="form-control col-form-label"  name="from"
id="from" placeholder=" " value="<?php if (isset($_POST['from'])) echo $_POST['from']; else
echo date('Y-m-d');?>" >
            <label >Flight Date</label>
            </div>
          </div>

        <div class="form-group  col-md-3 col-sm-12">
        <div class="form-floating ">
          <input required type="date" class="form-control col-form-label"  name="to" id="to"
placeholder=" " value="<?php if (isset($_POST['to'])) echo $_POST['to']; else echo date('Y-m-
d');?>" >
          <label >Flight Date</label>
        </div>
        </div>

        <div class="form-group  col-md-3 col-sm-12">
        <div class="form-floating ">
          <button type="submit" class="btn btn-primary" form="form1"><span class="bi-
filter"></span> Filter</button>
          <a type="button" class="btn btn-secondary" data-bs-toggle="modal" data-bs-
target="#modalDialogPrint"><span class="bi-printer-fill"  data-toogle="tooltip" data-
placement="bottom" title="Create Printable Form"></span> Print</a>
          <label> </label>
        </div>
        </div>

    </div>

    <input type="hidden" name="POSTcheck" value="form1">
    </fieldset>
  </div>
</form>
<br>

<table id="tablelist" class="table table-striped table-hover table-responsive table-bordered" >
    <thead>
      <tr class="alert-info">
        <th>Aircraft ID</th>
        <th>Aircraft Validity</th>
        <th>Flight Date</th>
        <th>Departure Time</th>
```

```
            <th>Estimated Time of Arrival</th>
            <th>Pilot in Command</th>
            <th>Route</th>
            <th>Aircraft Status</th>

            </th>
              <th data-sortable="false"  width="110px">
               <div class="btn-group" role="group" align="center">
               <?php if ($_SESSION['MM_UserGroup']=="Administrator"){ ?>
                  <a href="flight_plan_new.php" class="btn btn-outline-secondary" data-
toogle="tooltip" data-placement="bottom" title="New"><span class="bi-plus-square"></span>
</a>
                  <?php } ?>
                    <!--<a type="button" class="btn btn-outline-secondary" data-bs-toggle="modal"
data-bs-target="#modalDialogPrint"><span class="bi-printer-fill"  data-toogle="tooltip" data-
placement="bottom" title="Create Printable Form"></span></a>-->

               </div>
            </th>
         </tr>
      </thead>
      <tbody>

<?php foreach ($rs as $rs_data){

      $query_rs = "SELECT * FROM `flight_sched_passenger` fsp INNER JOIN user u ON
u.id=fsp.user_id INNER JOIN lup_aircraft la ON la.lup_aircraft_id=fsp.lup_aircraft_id WHERE
`flight_sched_id`=? AND u.group=?";
      $db->query($query_rs);
      $db->bind(1,$rs_data['flight_sched_id']);
      $db->bind(2,'Instructor');
      $rscount_instructor=$db->rowsingle();
      $rscount_instructor_total=$db->rowcount();

      $istatus="";
      $query_rs = "SELECT * FROM `inspection_sched` WHERE `flight_sched_id`=?";
      $db->query($query_rs);
      $db->bind(1,$rs_data['flight_sched_id']);
      $rsinspect=$db->rowsingle();
      $rsinspect_total=$db->rowcount();
      if ($rsinspect_total>0){
        $istatus=$rsinspect['inspection_status'];
```

```
    }

    $query_rs = "SELECT * FROM `inspection_sched` WHERE `flight_sched_id`=? AND
inspection_type='PRE-FLIGHT'";
    $db->query($query_rs);
    $db->bind(1,$rs_data['flight_sched_id']);
    $rsinspect_pre=$db->rowsingle();


?>
   <tr >
   <td class="align-middle"><?php echo htmlentities($rscount_instructor['aircraft_id']); ?></td>
   <td class="align-middle"><?php echo htmlentities($rscount_instructor['date_validity']);
?></td>
   <td class="align-middle"><?php echo htmlentities($rs_data['flight_date']); ?></td>
   <td class="align-middle"><?php echo htmlentities($rs_data['time_departure']); ?></td>
   <td class="align-middle"><?php echo htmlentities($rs_data['etime_arrival']); ?></td>
   <td class="align-middle"><?php echo htmlentities($rscount_instructor['firstname']).'
'.htmlentities($rscount_instructor['lastname']).' '.htmlentities($rscount_instructor['extname']);
?></td>
   <td class="align-middle"><?php echo htmlentities($rs_data['route_begin']).'-
'.htmlentities($rs_data['route_end']); ?></td>
   <td class="align-middle" <?php if ($istatus=="NOT Ready for Flight") echo
"style='background-color:red;'"?>><?php echo $istatus; ?></td>
   <td  class="align-middle" width="150px">
      <div class="btn-group" role="group" align="center">
        <a href="flight_plan_view.php?recordID=<?php echo $rs_data['flight_sched_id'];?>"
class="btn btn-outline-success" data-toogle="tooltip" data-placement="bottom"
title="View"><span class="bi-eye"></span></a>
         <?php if ($_SESSION['MM_UserGroup']=="Administrator" ||
$_SESSION['MM_UserGroup']=="Instructor"){
           if(file_exists('../images/aircraft_maintenance_sched/'.htmlentities($rsinspect_pre['inspe
ction_sched_id']).'.pdf')) {?>
            <a href="flight_plan_upload_report.php?recordID=<?php echo
$rs_data['flight_sched_id'];?>" class="btn btn-outline-success" data-toogle="tooltip" data-
placement="bottom" title="Upload Flight Report"><span class="ri-file-upload-
line"></span></a>
         <?php } } if ($_SESSION['MM_UserGroup']=="Administrator"){ ?>
           <a href='flight_plan_remove.php?recordID=<?php echo
$rs_data["flight_sched_id"];?>' class="btn btn-outline-danger" data-toogle="tooltip" data-
placement="bottom" title="Cancel"><span class="bi-trash"></span></a>
         <?php } ?>
```

```
        </div>
    </td>
    </tr>
<?php } ?>
</tbody>
</table>
<!-------------------------------------------------------------------------------->
</div>
    <div class="card-footer"></div>
</div>
<?php require_once('../template/footer.php'); ?>

<script>
        const labelData = {
                placeholder: "Hanapin...",
                noRows: "No record to display",
                info: "Showing {start} to {end} of {rows} record (Page {page} of {pages} pages)"
            }


    const dataTable = new simpleDatatables.DataTable("#tablelist", {
        searchable: true,
        fixedHeight: true,
        //perPage: 25,
        //labels: labelData,
    });

    //dataTable.columns().hide([1, 2])
    //dataTable.columns().remove([0, 2, 3, 6]);
    //dataTable.columns().order([0, 2, 1]);

</script>


<div class="modal fade" id="modalDialogPrint" tabindex="-1">
    <div class="modal-dialog modal-dialog-scrollable modal-xl">
        <div class="modal-content">
            <div class="modal-header">
                <h5 class="modal-title">Print Window</h5>
                <button type="button" class="btn-close" data-bs-dismiss="modal" aria-
label="Close"></button>
            </div>
```

```
        <div class="modal-body"><div id="printArea"><?php require('flight_plan_print.php');
?></div></div>
          <div class="modal-footer">
            <button type="button" class="btn btn-secondary " data-bs-dismiss="modal"><span
class="bi-x-octagon"  data-toogle="tooltip" data-placement="bottom" title="Print"></span>
Close</button>
            <button id="Print" type="button" class="btn btn-secondary" data-bs-
dismiss="modal"><span class="bi-printer"  data-toogle="tooltip" data-placement="bottom"
title="Print"></span> Print</button>
          </div>
       </div>
   </div>
</div>


<style>
@media screen {
  #printSection {
      display: none;
  }
}

@media print {
  body * {
    visibility:hidden;
  }
  #printSection, #printSection * {
    visibility:visible;
  }
  #printSection {
    position:absolute;
    left:0;
    top:0;
  }
}
</style>

<script>
document.getElementById("Print").onclick = function () {
    printElement(document.getElementById("printArea"));
};

function printElement(elem) {
```

```
    var domClone = elem.cloneNode(true);

    var $printSection = document.getElementById("printSection");

    if (!$printSection) {
        var $printSection = document.createElement("div");
        $printSection.id = "printSection";
        document.body.appendChild($printSection);
    }

    $printSection.innerHTML = "";
    $printSection.appendChild(domClone);
    window.print();
}
</script>
</body>

</html>
<?php ob_flush();
$db->close();
?>
<?php ob_start(); ?>
<?php require_once('../connections/pdoconnect.php'); ?>

<?php
$phu=new php_util();
$menu_id=$phu->get_menu_id(basename($_SERVER['PHP_SELF']));

$db=new DatabaseConnect();
$query_rs = "select * FROM `user` WHERE `group`=? and `status`=?";
$db->query($query_rs);
$db->bind(1,'Student');
$db->bind(2,'active');
$rsstudent=$db->rowset();
$rss_total=$db->rowcount();

$query_rs = "select * FROM `user` WHERE `group`=? and `status`=?";
$db->query($query_rs);
$db->bind(1,'Instructor');
$db->bind(2,'active');
$rsinstructor=$db->rowset();
$rsi_total=$db->rowcount();
```

```
$query_rs = "select * FROM `lup_aircraft` WHERE aircraft_status=?";
$db->query($query_rs);
$db->bind(1,'active');
$rsaircraft=$db->rowset();
$rsa_total=$db->rowcount();

if ((isset($_POST["POSTcheck"])) && ($_POST["POSTcheck"] == "form1")) {

  /*$query_rs = "SELECT * FROM `flight_sched_passenger` fsp INNER JOIN user u ON
u.id=fsp.user_id WHERE fsp.`flight_sched_slug`=? AND u.group=?";
  $db->query($query_rs);
  $db->bind(1,htmlentities($_POST['slug']));
  $db->bind(2,'Student');
  $rscount_student=$db->rowset();
  $rscount_student_total=$db->rowcount();
  if ($rscount_student_total>0){*/

    $SQLcrud = "INSERT INTO flight_sched (`flight_date`, `time_departure`, `etime_arrival`,
`departure_aerodome`, `destination_aerodome`, `route_begin`, `route_end`, `level`, `note`,
flight_sched_slug) VALUES (?,?,?,?,?,?,?,?,?,?)";
    $db->query($SQLcrud);
    $db->bind(1,htmlentities($_POST['flight_date']));
    $db->bind(2,htmlentities($_POST['time_departure']));
    $db->bind(3,htmlentities($_POST['etime_arrival']));
    $db->bind(4,htmlentities($_POST['route_begin']));
    $db->bind(5,htmlentities($_POST['route_end']));
    $db->bind(6,htmlentities($_POST['route_begin']));
    $db->bind(7,htmlentities($_POST['route_end']));
    $db->bind(8,htmlentities($_POST['level']));
    $db->bind(9,htmlentities($_POST['note']));
    $db->bind(10,htmlentities($_POST['slug']));
    $db->execute();

    $id=$db->lastinsertid();

    $SQLcrud = "UPDATE flight_sched_passenger SET `flight_sched_id`=?
WHERE  flight_sched_slug=?";
    $db->query($SQLcrud);
    $db->bind(1,$id);
    $db->bind(2,htmlentities($_POST['slug']));
    $db->execute();
```

```
    $SQLcrud = "DELETE FROM flight_sched_passenger WHERE user_id=? AND
flight_sched_slug=? ";
    $db->query($SQLcrud);
    $db->bind(1,'0');
    $db->bind(2,htmlentities($_POST['slug']));
    $db->execute();

    $SQLcrud = "UPDATE lup_aircraft SET `flight_status`=?, flight_sched_slug=? WHERE
lup_aircraft_id=?";
    $db->query($SQLcrud);
    $db->bind(1,'Flight Schedule Active');
    $db->bind(2,htmlentities($_POST['slug']));
    $db->bind(3,htmlentities($_POST['aid']));
    $db->execute();

    $doc_ref_no=0;
    $query_rs = "select * FROM `inspection_sched` WHERE doc_ref_year=? ORDER BY
inspection_sched_id DESC";
    $db->query($query_rs);
    $db->bind(1,date('Y'));
    $rsis=$db->rowsingle();
    $rsis_total=$db->rowcount();
    if ($rsis_total>0){
      $doc_ref_no=$rsis['doc_ref_no']+1;
    }else{
      $doc_ref_no=1;
    }
    $SQLcrud = "INSERT INTO inspection_sched (`flight_sched_id`, `flight_sched_slug`,
`lup_aircraft_id`, `inspection_type`, `doc_ref_no`, `doc_ref_year`,  `effective_date`,
inspection_status) VALUES (?,?,?,?,?,?,?,?)";
    $db->query($SQLcrud);
    $db->bind(1,$id);
    $db->bind(2,htmlentities($_POST['slug']));
    $db->bind(3,htmlentities($_POST['aid']));
    $db->bind(4,'PRE-FLIGHT');
    $db->bind(5,$doc_ref_no);
    $db->bind(6,date('Y'));
    $db->bind(7,$_POST['flight_date']);
    $db->bind(8,$_POST['inspection_status']);
    $db->execute();
    $id_inspect=$db->lastinsertid();
```

Appendix B
Evaluation Tool or Test Documents

[REPUBLIC ACT NO. 10173] An act protecting individual personal information in information and communications systems in the government and the private sector, creating for this purpose a national privacy commission, and for other purposes.

General Direction: Please accomplish this questionnaire very carefully and honestly. Please rest assured that any information that you supply will be treated with the greatest confidentially and anonymity.

Name: _____ (optional)
Please put a check mark on the answers most applicable to you on the space provided. Please specify what type of respondent you are in and kindly put a check.

☐ **Employee (Admin / Mechanic /Pilot Instructor)**
☐ **Student**

I. Evaluation of the respondents on the Software Quality of the Flight Scheduling System for AAA.

Direction: Kindly put a check (✓) at the right of the software evaluation under the proper heading to indicate your assessment on the software product based on the specified factor. Below are the scale and corresponding descriptive rating which can help you evaluate the system.

Point Scale	Descriptive Rating
4	Excellent
3	Good
2	Fair
1	Poor

FUNCTIONAL SUITABILITY	4	3	2	1
1. The degree to which the system covers all specified tasks and user objectives with its set of functions.				
2. The degree to which the system provides the correct results as needed.				
3. The degree to which the system's level of precision enables the accomplishment of specified tasks and objectives.				
PERFORMANCE EFFICIENCY	**4**	**3**	**2**	**1**
1. The degree to which the response and processing times, and throughput rates of a product or system meet requirements when performing its functions.				
2. The degree to which the amounts and types of resources used by a product or system meet requirements when performing its functions.				

3. The degree to which the maximum limits of a product or system parameter meet requirements.				
COMPATIBILITY	**4**	**3**	**2**	**1**
1. The degree to which the system or component can exchange information and perform its required functions while sharing the same hardware or software environment with other products, systems, or components.				
2. The degree to which the system can efficiently perform its required functions while sharing a common environment and resources with other products, without detrimental impact on any other product.				
3. The degree to which two or more systems, products, or components can exchange information and utilize the information that has been exchanged.				
USABILITY	**4**	**3**	**2**	**1**
1. The degree to which users can recognize whether a product or system is appropriate for their needs.				
2. The degree to which specified users can effectively, efficiently, and safely achieve their learning goals when using the product or system in a specified context of use.				
3. The degree to which the system has attributes that make it easy to operate and control.				
4. The degree to which the system protects users from making errors.				
5. The degree to which the user interface enables pleasing and satisfying interaction for the user.				
6. The degree to which people with a wide range of characteristics and capabilities can use the system to achieve a specified goal in a specified context of use.				
RELIABILITY	**4**	**3**	**2**	**1**
1. The degree to which the system meets the needs for reliability under normal operation.				
2. The degree to which the system is operational and accessible when required for use.				
3. The degree to which the system operates as intended despite the presence of hardware or software faults.				

4. The degree to which the system can recover the data directly affected and re-establish the desired state of the system in the event of an interruption or failure.				

SECURITY	**4**	**3**	**2**	**1**
1. The degree to which a system ensures that data are accessible only to those authorized to have access.				
2. The degree to which a system, prevents unauthorized access to, or modification of, computer programs or data.				
3. The degree to which actions or events can be proven to have taken place so that they cannot be repudiated later.				
4. The degree to which the actions of an entity can be uniquely traced to that entity.				
5.The degree to which the identity of a subject or resource can be proven to be the one claimed.				
MAINTAINABILITY	**4**	**3**	**2**	**1**
1. The degree to which a system is composed of discrete components, such that a change to one component has minimal impact on other components.				
2. The degree to which an asset can be used in more than one system or in building other assets.				
3. Modification of the system does not affect others part of the system.				
4. The system can be modified effectively and efficiently without introducing defects or degrading the existing system quality.				
5. The system can run on different hardware specifications, software environments, and firmware versions, both on computers and other mobile devices.				
PORTABILITY	**4**	**3**	**2**	**1**
1. The system provides a flexible environment.				
2. The system is easy to install and works in a specified environment.				

3. The system can be replaced or can replace other software or systems with a similar purpose of use and functionalities.				
4. The system is accessible with minimal connectivity requirements.				

Evaluation of the Level of Acceptability of the respondents on the Flight Scheduling System for AAA.

Direction: Please put a check (✓) on the column that corresponds to your answer. Use the given scale below.

Point Scale	Descriptive Rating
4	Highly Accepted
3	Accepted
2	Slightly Accepted
1	Not Accepted

FUNCTIONALITY	4	3	2	1
1. The degree to which the system's features and functions are complete and meet the users' needs from their perspective.				
2. The system's features and functions perform without delay and are fully functional.				
3. The system provides accurate and relevant information that meets the users' needs.				
PERFORMANCE	**4**	**3**	**2**	**1**
1. The system provides real-time information to the users.				
2. The system is effective and efficient in monitoring information.				
3. The system has user-friendly features that are easy to use.				

Evaluation of the Level of Readiness for Implementation of the Flight Scheduling System for AAA.

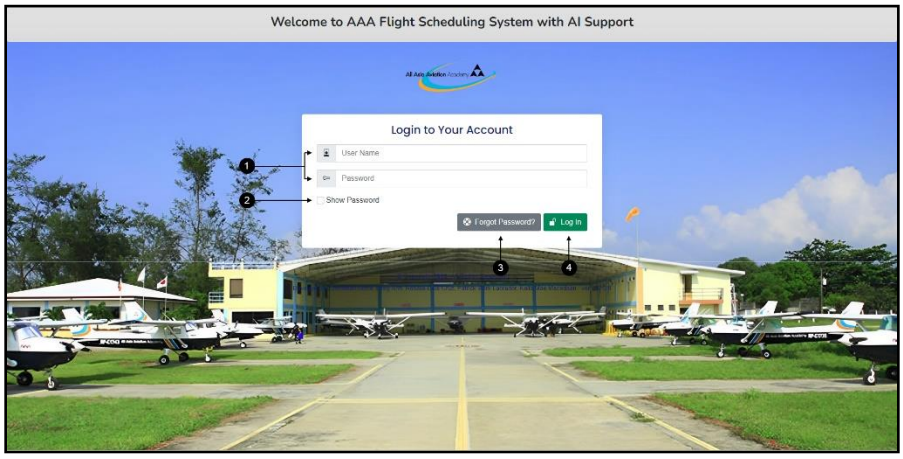
Direction: Please put a check (✓) on the column that corresponds to your answer. Use the given scale below.

Point Scale	Descriptive Rating
4	Very Ready
3	Ready
2	Slightly Ready
1	Not Ready

INFORMATION SYSTEM FACILITY	4	3	2	1
1. Availability of computer units for the system installed.				
2. The availability of a modem with reliable internet connection with sufficient bandwidth to cater the needs of the users.				
3. The availability of enough IT facilities including computers, printers, network devices and access points that are needed to support the implementation of the system.				
TECHNICAL PERSONNEL	**4**	**3**	**2**	**1**
1. The availability of personnel who are authorized to manage and maintain the system.				
2. The readiness of personnel assigned in the implementation with proper knowledge to maintain the system.				
3. The availability of personnel to call anytime for the equipment malfunction.				

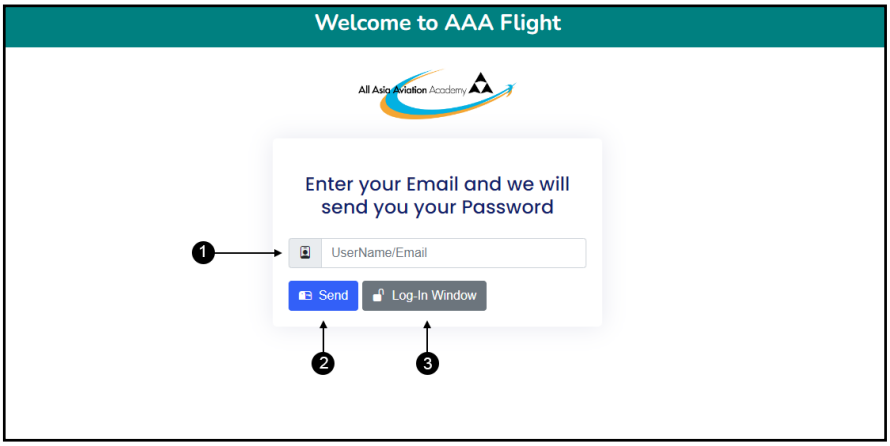
Appendix C
User's Guide

A. Login page Guide



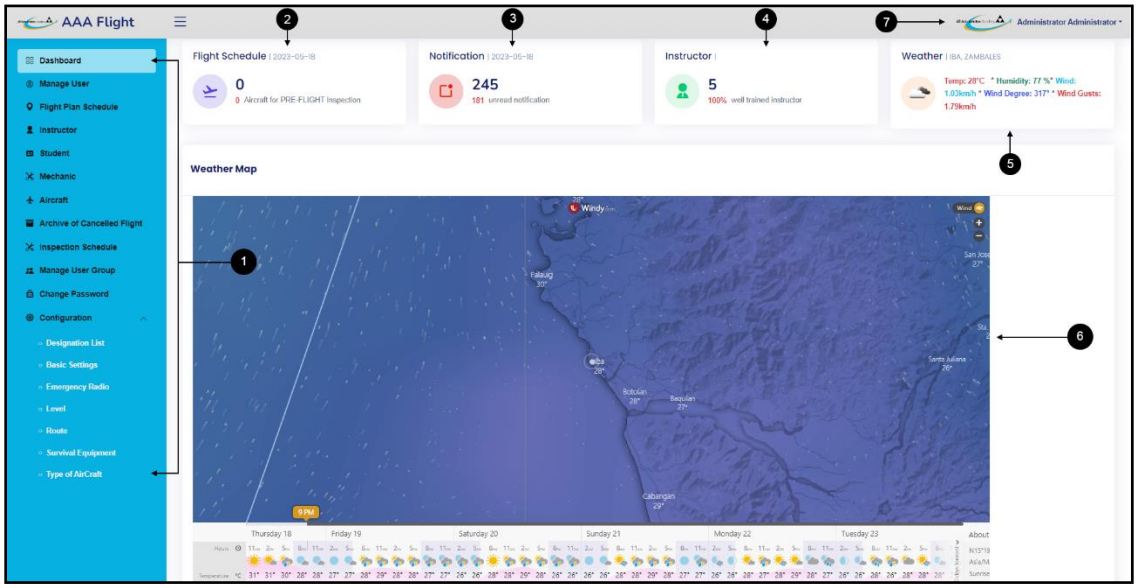
1. **Fields** - It is where the users input their username/email and password.
2. **Show password** - It is revealing the characters entered in a password field.
3. **Forgot password** – It refers to the action of recovering a forgotten password for a user's account.
4. **Login** - It process verifies the identity of users by confirming their credentials, typically a username/email and password combination. This ensures that only authorized individuals can access the system, such as administrators, instructors, students, or mechanics.

B. Forgot Password Guide



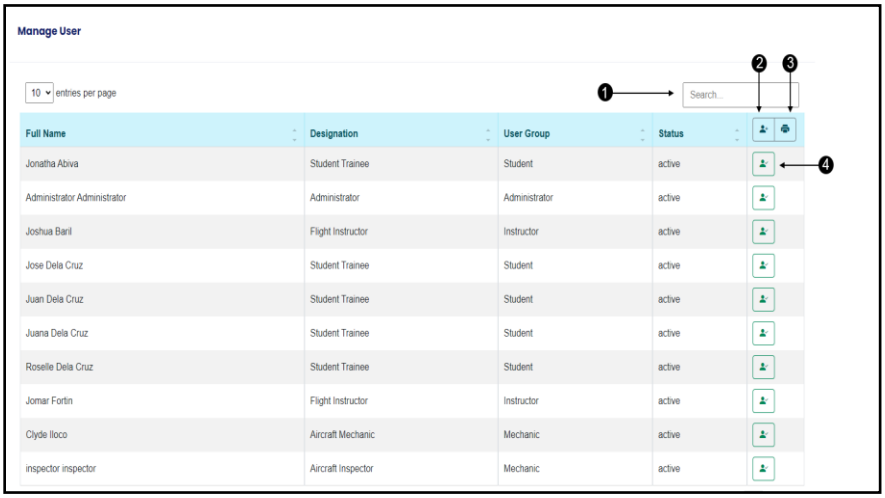
1. **Fields** – Enter valid email to recover forgotten password.
2. **Send button** – By clicking this button. If you have forgotten your password, please enter the valid email address registered in the system, and it will send you the password through email.
3. **Log-in window** – By clicking this button, you will be automatically redirected to the login page.

C. Administrator Dashboard Guide



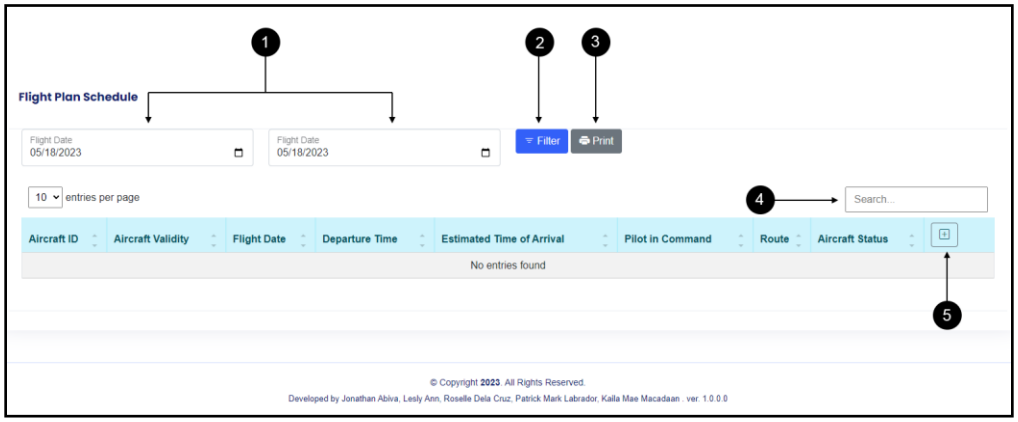
1. **Navigation Links** - On clicking these buttons, the users will proceed to specific pages. Each navigation link has a designated page to go.
2. **Flight Schedule** - The users can see the number of pre-flight schedules available.
3. **Notification** – The users can see the total number of notifications and the number of unread notifications.
4. **Instructor** - The users can see the number of instructors available.
5. **Weather Status** - The user can see the weather status it depends on the weather.
6. **Weather Map** - The user can see the previous weather status.
7. **Logout** – On clicking this button, the logout button will appear.

D. Manage User Guide



1. **Search bar** – It allow users to search the user data.
2. **Add User** – On clicking this button, will go to the fill up fields to register new user.
3. **Print** - On clicking this button, it allows the user to print all users' data.
4. **Edit** – Click this button if the user want to update the user's data.

E. Flight Plan Schedule Guide

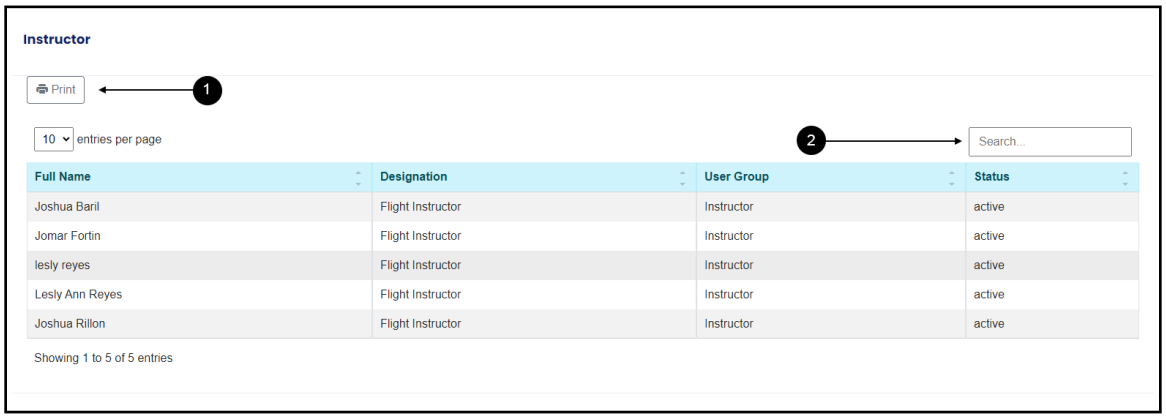


1. **Filter Schedule Date** - filter the date to see who user is scheduled.
2. **Filter** – On clicking this button, web app can filter the scheduled user based on the filtered date.
3. **Print** – On clicking this button, it allows the user to print scheduled users.
4. **Add Schedule** – On clicking this button, it proceed to create a flight plan schedule page.

F. Create Flight Plan Guide

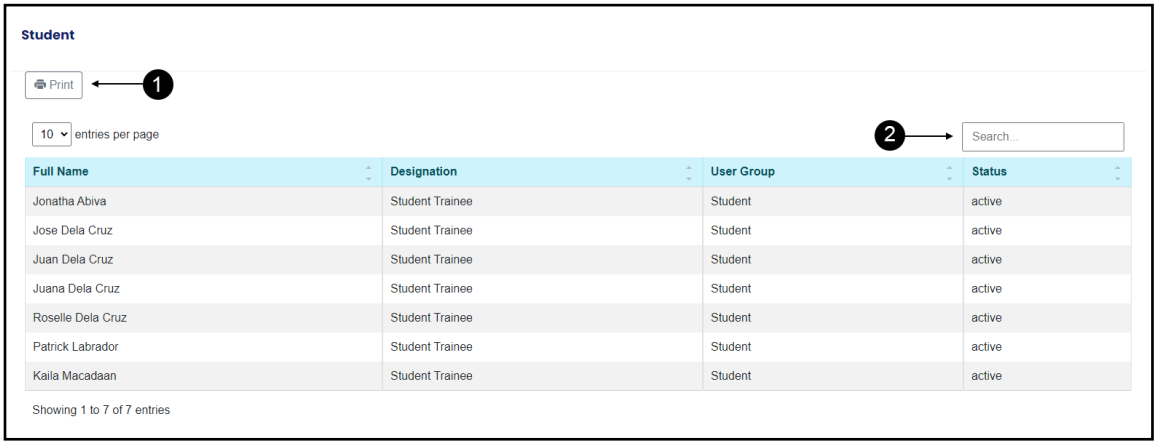
1. **Flight Date/Time** – The web app automatically selects the date and time based on the current date and time, and it automatically calculates the estimated time of arrival.
2. **Destination** – The users select the destination of aircraft.
3. **Level** – The users select the flight rules.
4. **Aircraft Identification** – The aircrafts will appear if the aircraft validity is not expired, and it will be automatically selected.
5. **Student** – The students will appear if the student licensed is not expired, and it will be automatically selected.
6. **Notes** – The user will add a note when user needs to add remarks to the schedule.
7. **Instructor** – The instructors will appear if the instructor licensed is not expired, and it will be automatically selected.
8. **Save** – On clicking this button, to create a flight plan schedule.
9. **Cancel** – This button close this page and return the previous page.

G. List of Instructor Guide



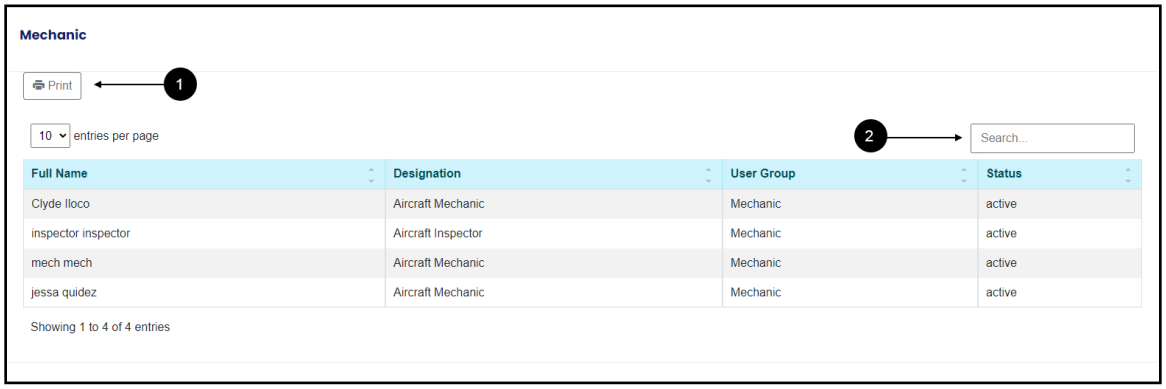
1. **Print** – On clicking this button, it allow the user to print the list of instructors.
2. **Search bar** – It allows the users to search the instructor.

H. List of Student Guide



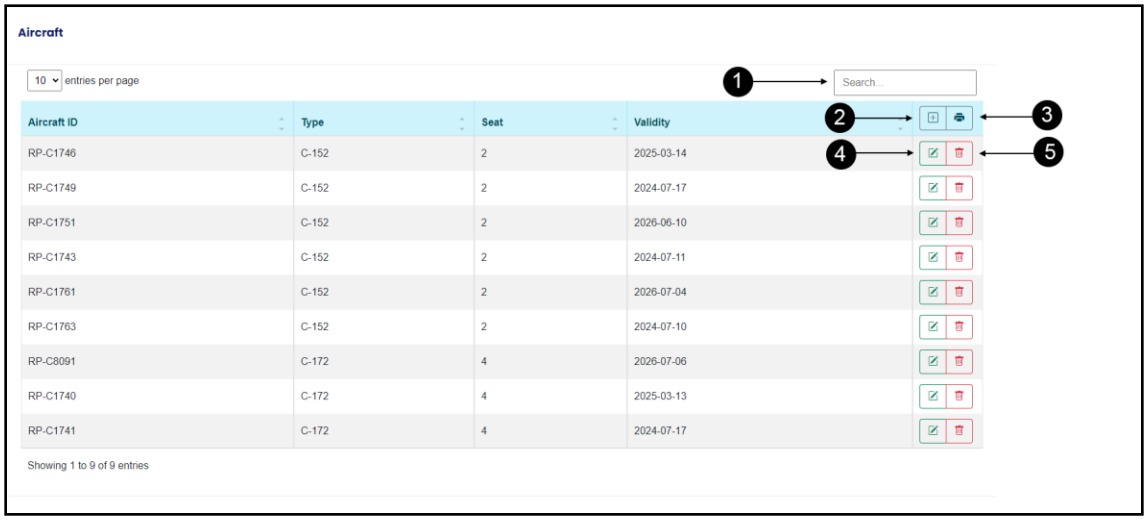
1. **Print** – On clicking this button, it allow the user to print the list of students.
2. **Search bar**- It allow the user to search the students.

I. List of Mechanic Guide



1. **Print** – On clicking this button, it allow the user to print the list of mechanic.
2. **Search bar** – It allows the user to search the mechanic.

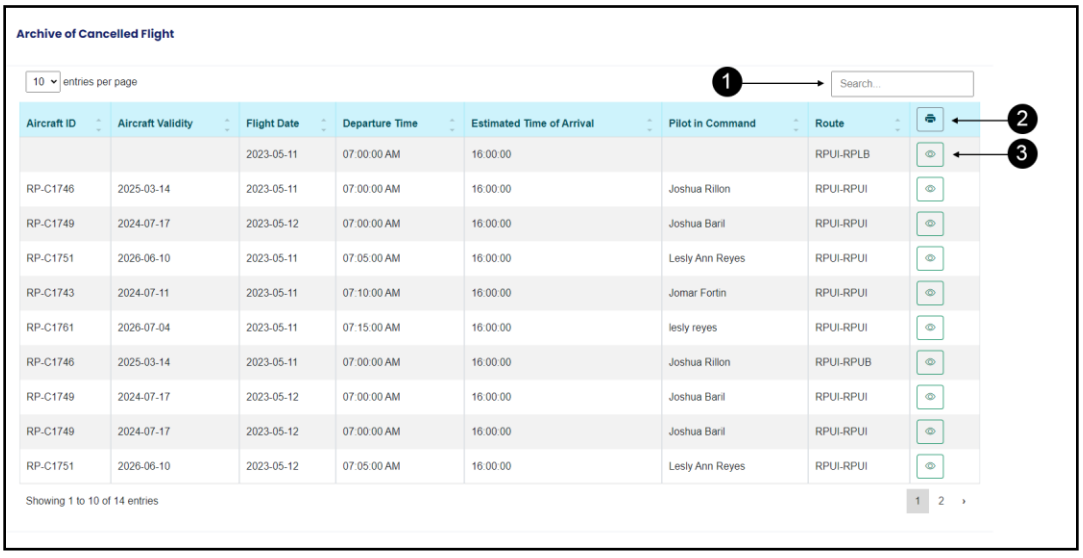
J. List of Aircraft Guide



1. **Search bar** – It allow the user to search the aircraft.
2. **Add Aircraft** – On clicking this button, Add aircraft page will appear.
3. **Print** - On clicking this button, it allow the user to print the list of aircrafts.
4. **Edit** – Click this button if the user want to edit the aircraft data.
5. **Delete** - Click this button if the user want to delete the aircraft data.

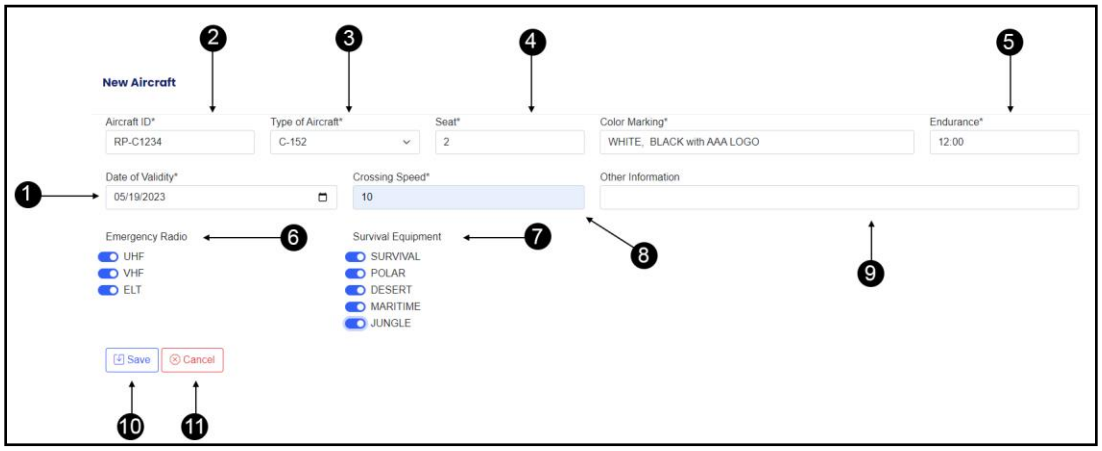
K. Archive of Cancelled Flight Guide

Note: All canceled flights in the flight plan are archived.



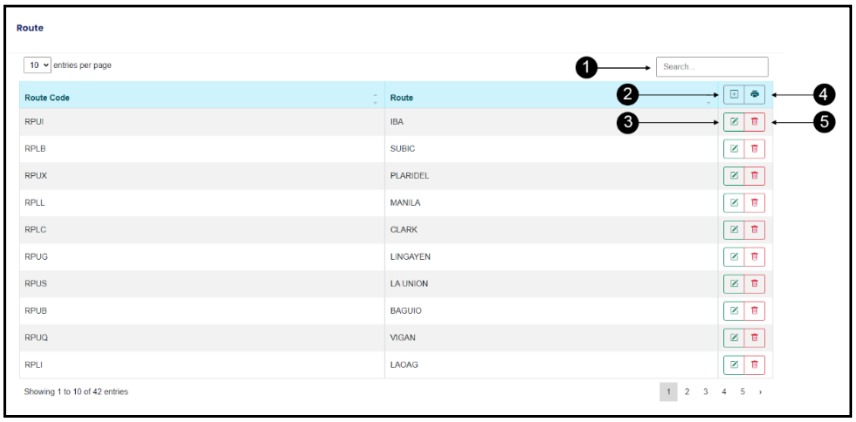
1. **Search bar** – It allow the user to search the cancelled flight.
2. **Print** – On clicking this button, it allow the user to print the cancelled flights.
3. **View** – Click this button if user want to view the information of cancelled flight.

L. Add Aircraft Guide



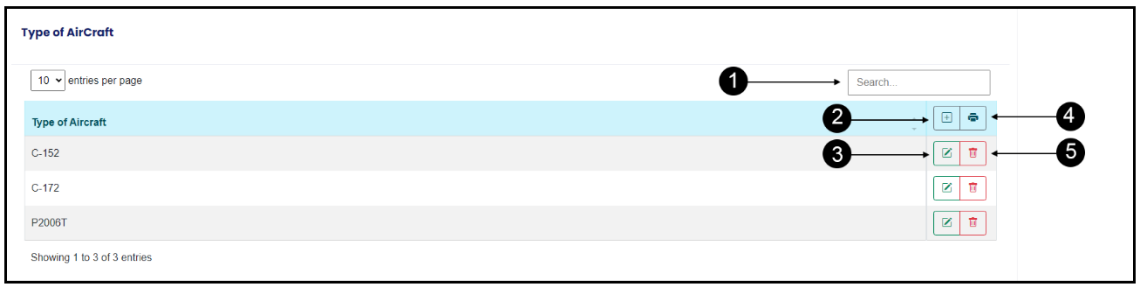
1. **Aircraft validity** – If aircraft validity is expired, aircraft data is not appear in flight plan.
2. **Aircraft Registration No.** – The user input the aircraft registration number
3. **Type of Aircraft** – The user select the aircraft type
4. **Seater** – The user input number of seater it depends on the aircraft type.
5. **Endurance** – The user enters the endurance of the aircraft
6. **Emergency Radio** – The user select the emergency radio of the aircraft.
7. **Survival Equipment** - The user select the survival equipment of the aircraft
8. **Crossing Speed** – The user enters the crossing speed of the aircraft.
9. **Other Information** – The user will enter other information of aircraft if needed.
10. **Save** – On clicking this button, to add a new aircraft information.
11. **Cancel** - This button close this page and return the previous page.

M. Route Guide



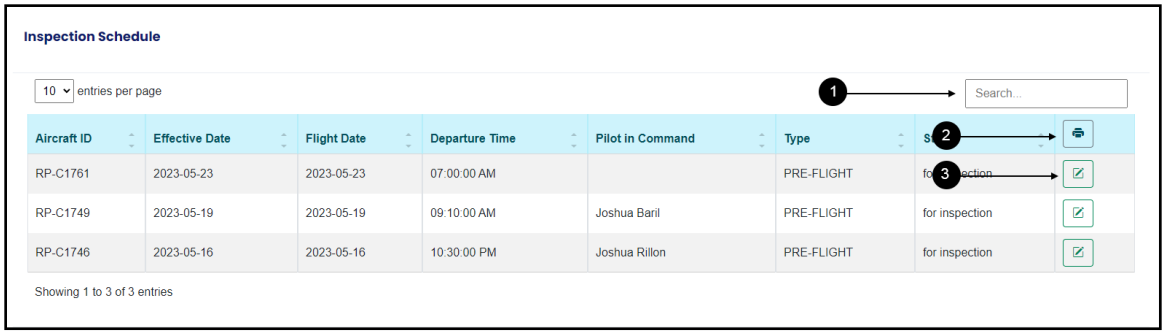
1. **Search bar** – It allow the user to search the route.
2. **Add Route** – On clicking this button, it proceed the add route page.
3. **Edit** – Click this button, if the user need to edit the route data.
4. **Print** – On clicking this button, it allow the user to print the route date.
5. **Delete** – Click this button, if the user need to delete the route data.

N. Type of Aircraft Guide



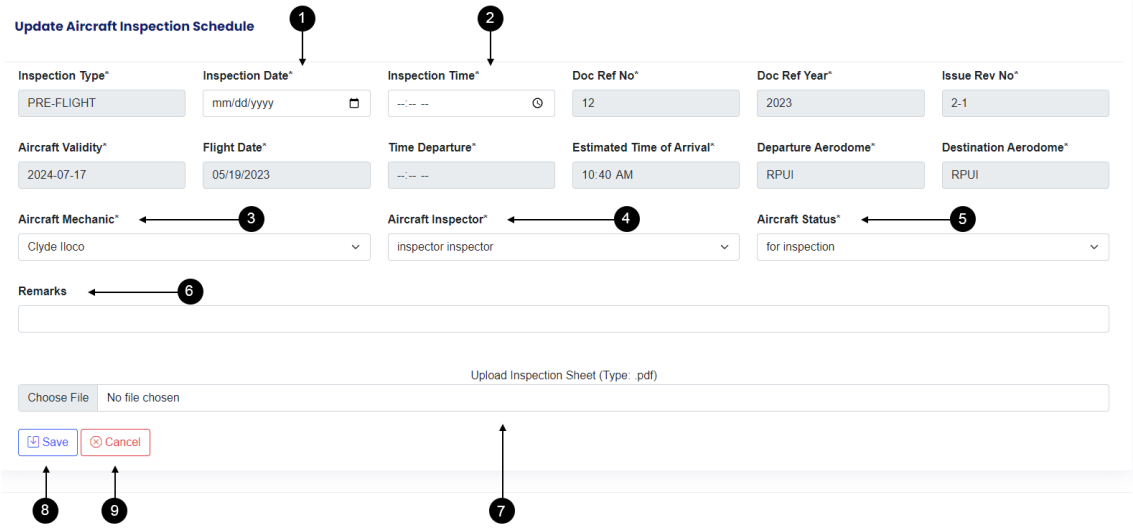
1. **Search bar -** It allow the user to search the type of aircraft.
2. **Add Type of Aircraft -** On clicking this button, it proceed the add type of aircraft page.
3. **Edit** – Click this button, if the user need to edit the type of aircraft.
4. **Print** – On clicking this button, it allow the user to print the type of aircraft.
5. **Delete** –Click this button, if the user need to delete the type of aircraft.

O. Inspection Schedule Guide



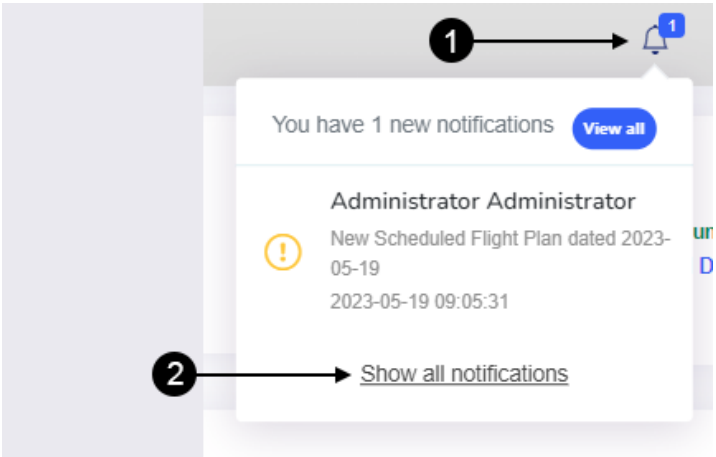
1. **Search bar** – It allow the user to search the inspection schedule list.
2. **Print** – On clicking this button, it allow the user to print the inspection schedule list.
3. **Edit** – Click this button, if the user need to inspect the schedule.

P. Update Aircraft Inspection Schedule Guide



1. **Inspection Date** – The user select the date on which day inspect the schedule.
2. **Inspection Time** – The user select the current time to inspect the schedule.
3. **Aircraft Mechanic** – The user selects a mechanic to check the aircraft.
4. **Aircraft Inspector** – The user selects an instructor and a mechanic to accompany them in checking the aircraft.
5. **Aircraft Status** – The user selects an aircraft status after inspection.
6. **Remarks** – The user will enter remarks in field if needed.
7. **Inspection Sheet** – The user uploads an inspection sheet after inspecting the aircraft
8. **Save** – On clicking this button, to update an inspection schedule.
9. **Cancel** – This button close this page and return the previous page.

Q. Notification Guide

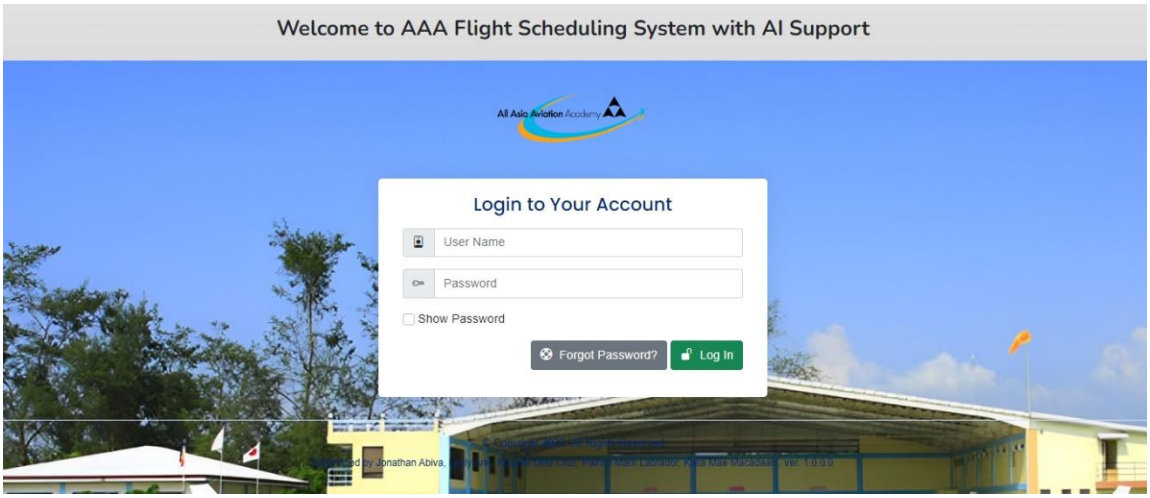


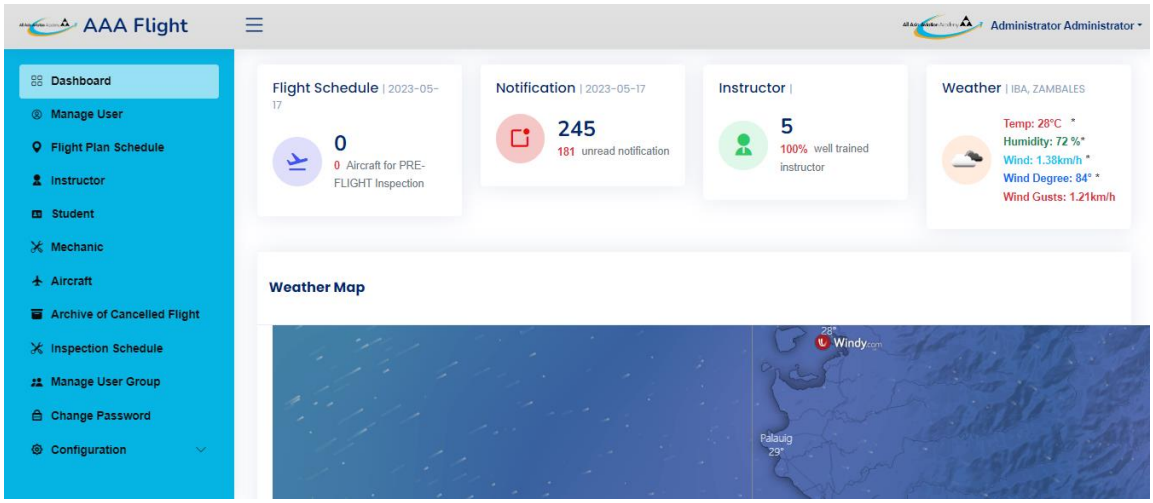
1. **Notification button** – By clicking the button, user can see if the user has a schedule.
2. **Show all notifications** – By clicking the button, the notification page will appear.

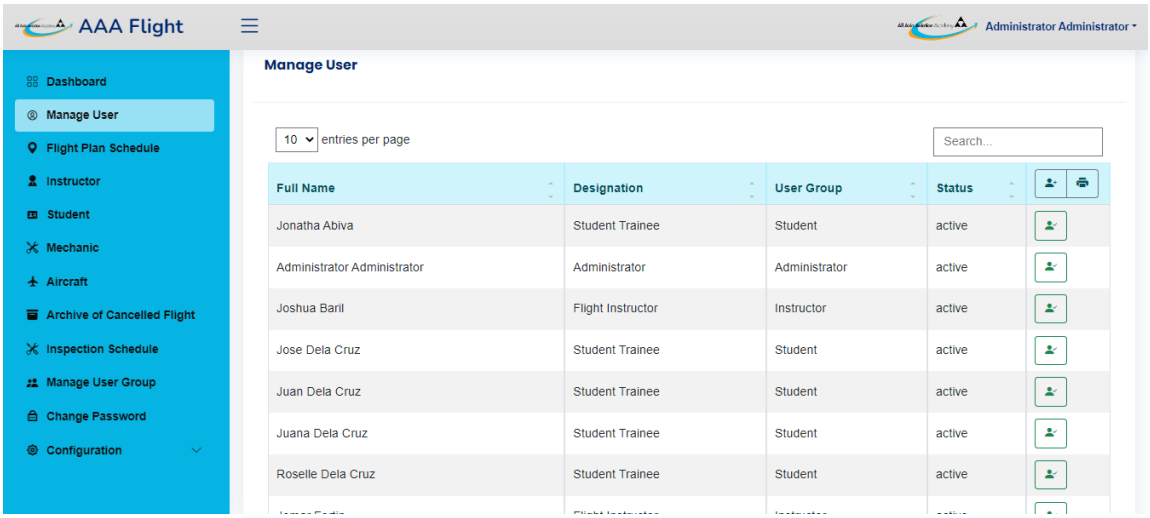
R. Schedule Status Guide

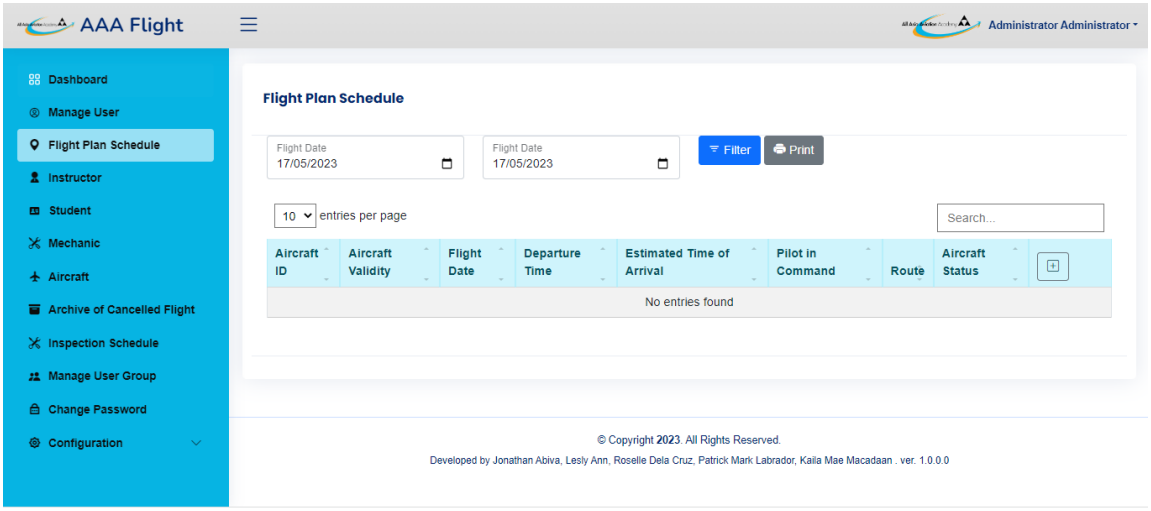
1. **Search bar** – It allow the user to search the schedule.
2. **Aircraft Status** – The user can see if the status of the aircraft is for inspection, ready to flight or not ready to flight.
3. **View** – The user allow to view the schedule information.

Appendix D
Screen Layouts


Welcome to AAA Flight Scheduling System with AI Support
All Asia Aviation Academy
Login to Your Account
User Name
Password
Show Password
Forgot Password?
Log In


AAA Flight
Administrator Administrator
Dashboard
Manage User
Flight Plan Schedule
Instructor
Student
Mechanic
Aircraft
Archive of Cancelled Flight
Inspection Schedule
Manage User Group
Change Password
Configuration
Flight Schedule | 2023-05-17
0
0 Aircraft for PRE-FLIGHT Inspection
Notification | 2023-05-17
245
181 unread notification
Instructor |
5
100% well trained instructor
Weather | IBA, ZAMBALES
Temp: 28°C
Humidity: 72 %
Wind: 1.38km/h
Wind Degree: 84°
Wind Gusts: 1.21km/h
Weather Map
Windy.com
Palauig


AAA Flight
Administrator Administrator
Dashboard
Manage User
Flight Plan Schedule
Instructor
Student
Mechanic
Aircraft
Archive of Cancelled Flight
Inspection Schedule
Manage User Group
Change Password
Configuration
Manage User
10 entries per page
Search...
Full Name
Designation
User Group
Status
Jonatha Abiva
Student Trainee
Student
active
Administrator Administrator
Administrator
Administrator
active
Joshua Baril
Flight Instructor
Instructor
active
Jose Dela Cruz
Student Trainee
Student
active
Juan Dela Cruz
Student Trainee
Student
active
Juana Dela Cruz
Student Trainee
Student
active
Roselle Dela Cruz
Student Trainee
Student
active


AAA Flight
Administrator Administrator
Dashboard
Manage User
Flight Plan Schedule
Instructor
Student
Mechanic
Aircraft
Archive of Cancelled Flight
Inspection Schedule
Manage User Group
Change Password
Configuration
Flight Plan Schedule
Flight Date
17/05/2023
Flight Date
17/05/2023
Filter
Print
10 entries per page
Search...
Aircraft ID
Aircraft Validity
Flight Date
Departure Time
Estimated Time of Arrival
Pilot in Command
Route
Aircraft Status
No entries found
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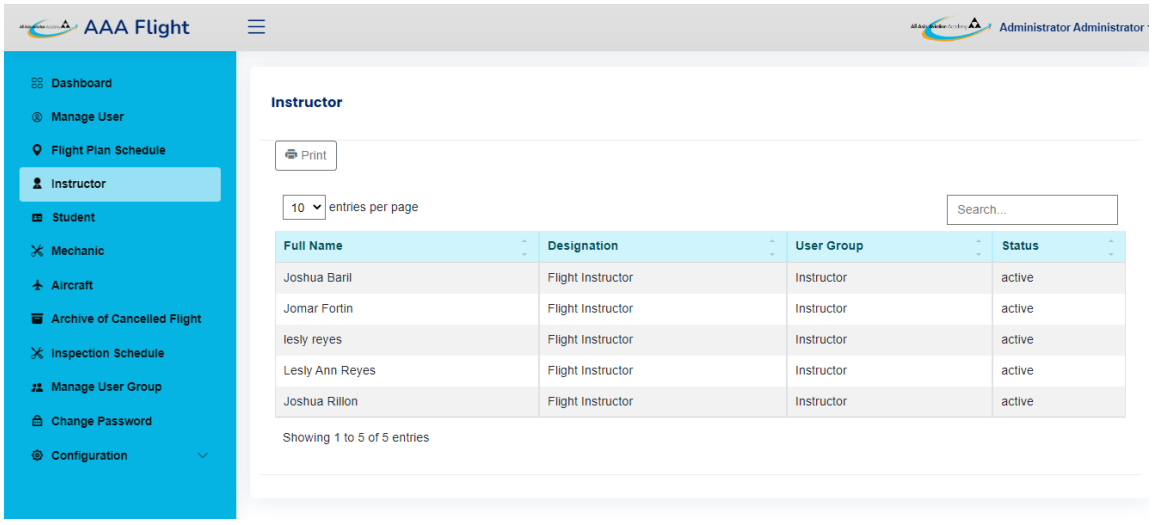
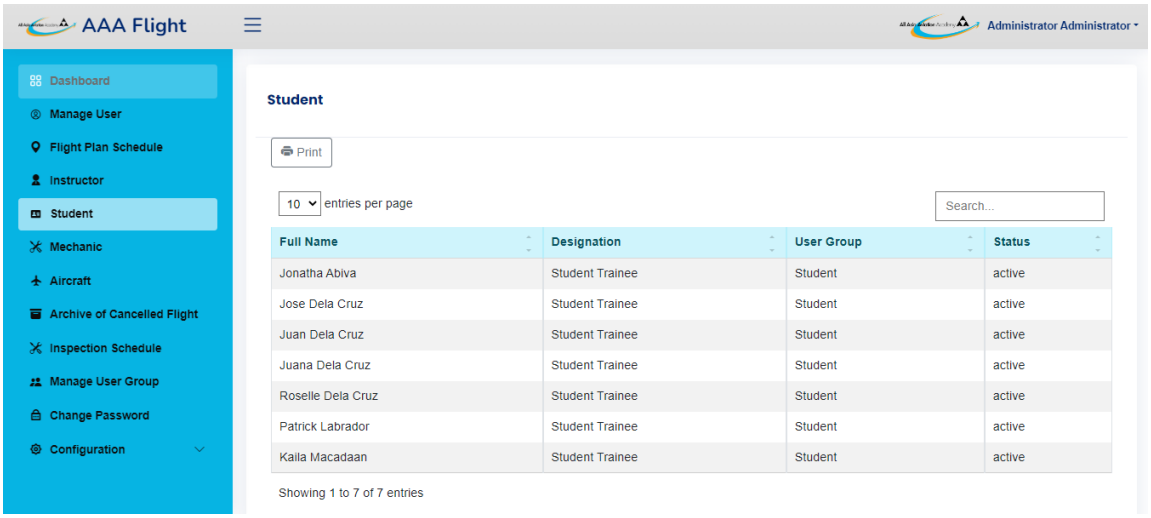
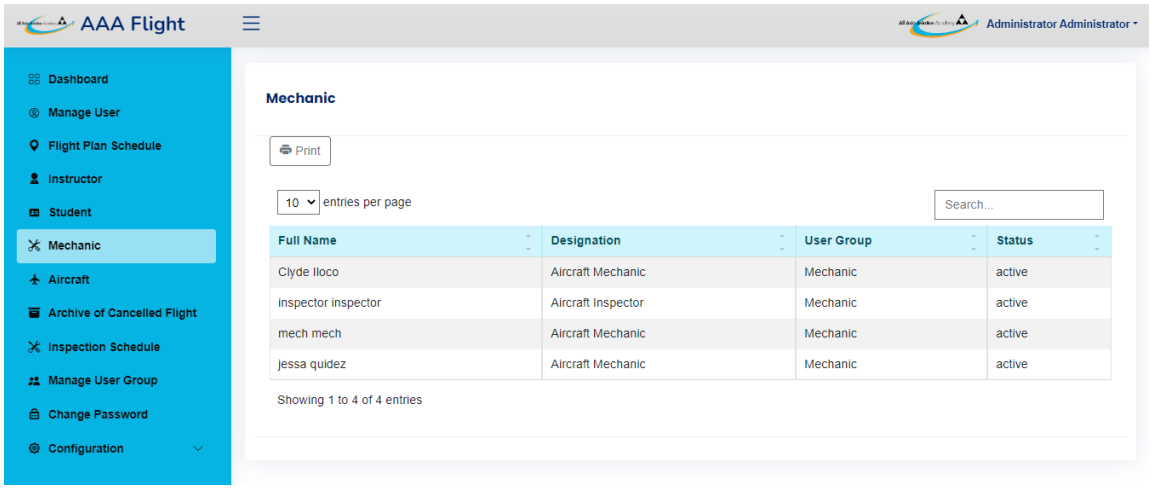
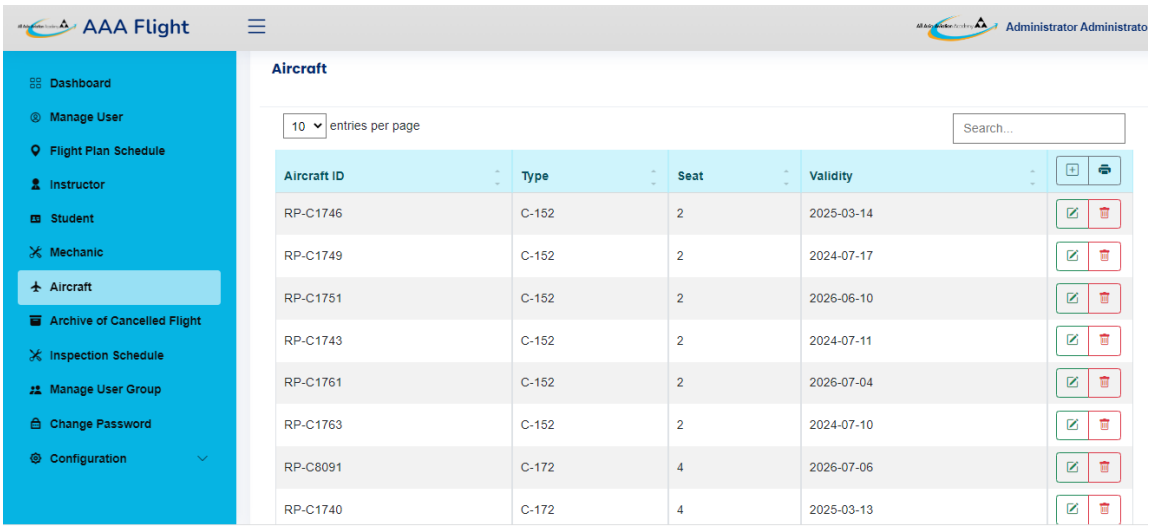
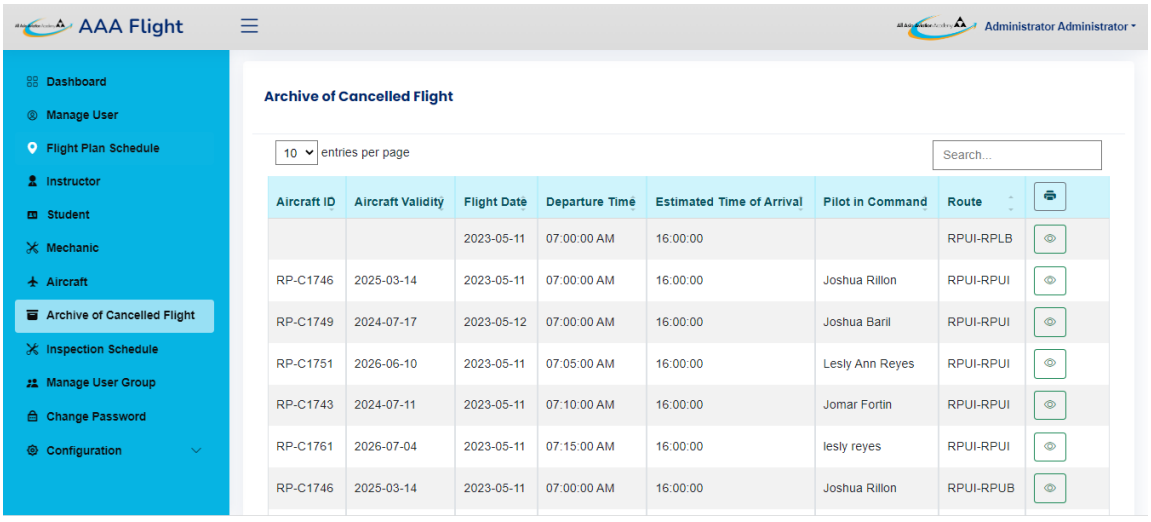
Developed by Jonathan Abiva, Lesly Ann, Roselle Dela Cruz, Patrick Mark Labrador, Kaila Mae Macadaan . ver. 1.0.0.0

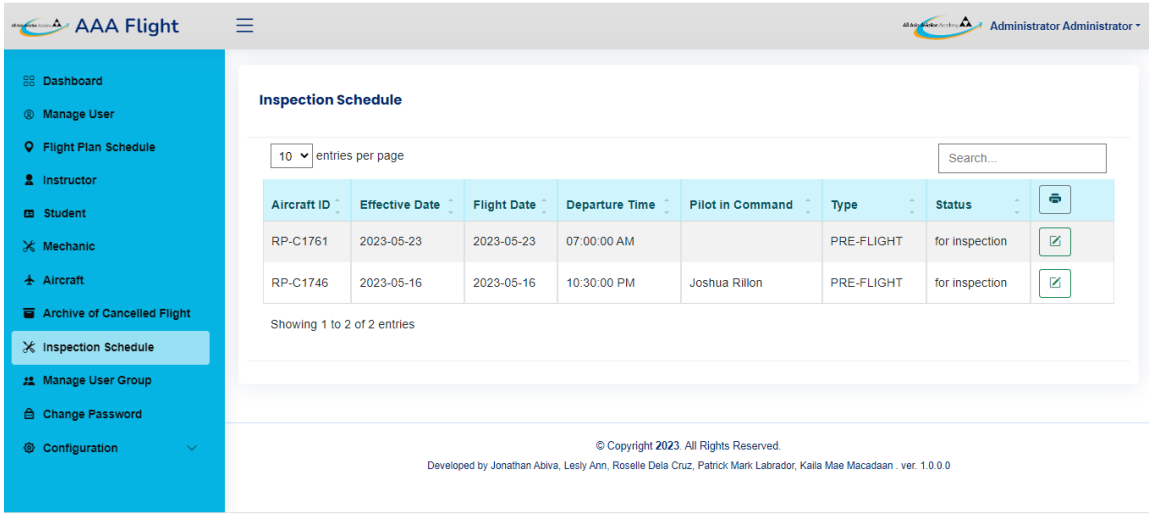

AAA Flight
Administrator Administrator
Dashboard
Manage User
Flight Plan Schedule
Instructor
Student
Mechanic
Aircraft
Archive of Cancelled Flight
Inspection Schedule
Manage User Group
Change Password
Configuration
Instructor
Print
10 entries per page
Search...
Full Name
Designation
User Group
Status
Joshua Baril
Flight Instructor
Instructor
active
Jomar Fortin
Flight Instructor
Instructor
active
lesly reyes
Flight Instructor
Instructor
active
Lesly Ann Reyes
Flight Instructor
Instructor
active
Joshua Rillon
Flight Instructor
Instructor
active
Showing 1 to 5 of 5 entries


AAA Flight
Administrator Administrator
Dashboard
Manage User
Flight Plan Schedule
Instructor
Student
Mechanic
Aircraft
Archive of Cancelled Flight
Inspection Schedule
Manage User Group
Change Password
Configuration
Student
Print
10 entries per page
Search...
Full Name
Designation
User Group
Status
Jonatha Abiva
Student Trainee
Student
active
Jose Dela Cruz
Student Trainee
Student
active
Juan Dela Cruz
Student Trainee
Student
active
Juana Dela Cruz
Student Trainee
Student
active
Roselle Dela Cruz
Student Trainee
Student
active
Patrick Labrador
Student Trainee
Student
active
Kaila Macadaan
Student Trainee
Student
active
Showing 1 to 7 of 7 entries


AAA Flight
Administrator Administrator
Dashboard
Manage User
Flight Plan Schedule
Instructor
Student
Mechanic
Aircraft
Archive of Cancelled Flight
Inspection Schedule
Manage User Group
Change Password
Configuration
Mechanic
Print
10 entries per page
Search...
Full Name
Designation
User Group
Status
Clyde Iloco
Aircraft Mechanic
Mechanic
active
inspector inspector
Aircraft Inspector
Mechanic
active
mech mech
Aircraft Mechanic
Mechanic
active
jessa quidez
Aircraft Mechanic
Mechanic
active
Showing 1 to 4 of 4 entries


AAA Flight
Administrator Administrato
Dashboard
Manage User
Flight Plan Schedule
Instructor
Student
Mechanic
Aircraft
Archive of Cancelled Flight
Inspection Schedule
Manage User Group
Change Password
Configuration
Aircraft
10 entries per page
Search...
Aircraft ID
Type
Seat
Validity
RP-C1746
C-152
2
2025-03-14
RP-C1749
C-152
2
2024-07-17
RP-C1751
C-152
2
2026-06-10
RP-C1743
C-152
2
2024-07-11
RP-C1761
C-152
2
2026-07-04
RP-C1763
C-152
2
2024-07-10
RP-C8091
C-172
4
2026-07-06
RP-C1740
C-172
4
2025-03-13


AAA Flight
Administrator Administrator
Dashboard
Manage User
Flight Plan Schedule
Instructor
Student
Mechanic
Aircraft
Archive of Cancelled Flight
Inspection Schedule
Manage User Group
Change Password
Configuration
Archive of Cancelled Flight
10 entries per page
Search...
Aircraft ID
Aircraft Validity
Flight Date
Departure Time
Estimated Time of Arrival
Pilot in Command
Route
2023-05-11
07:00:00 AM
16:00:00
RPUI-RPLB
RP-C1746
2025-03-14
2023-05-11
07:00:00 AM
16:00:00
Joshua Rillon
RPUI-RPUI
RP-C1749
2024-07-17
2023-05-12
07:00:00 AM
16:00:00
Joshua Baril
RPUI-RPUI
RP-C1751
2026-06-10
2023-05-11
07:05:00 AM
16:00:00
Lesly Ann Reyes
RPUI-RPUI
RP-C1743
2024-07-11
2023-05-11
07:10:00 AM
16:00:00
Jomar Fortin
RPUI-RPUI
RP-C1761
2026-07-04
2023-05-11
07:15:00 AM
16:00:00
lesly reyes
RPUI-RPUI
RP-C1746
2025-03-14
2023-05-11
07:00:00 AM
16:00:00
Joshua Rillon
RPUI-RPUB


AAA Flight
Administrator Administrator
Dashboard
Manage User
Flight Plan Schedule
Instructor
Student
Mechanic
Aircraft
Archive of Cancelled Flight
Inspection Schedule
Manage User Group
Change Password
Configuration
Inspection Schedule
10 entries per page
Search...
Aircraft ID
Effective Date
Flight Date
Departure Time
Pilot in Command
Type
Status
RP-C1761
2023-05-23
2023-05-23
07:00:00 AM
PRE-FLIGHT
for inspection
RP-C1746
2023-05-16
2023-05-16
10:30:00 PM
Joshua Rillon
PRE-FLIGHT
for inspection
Showing 1 to 2 of 2 entries
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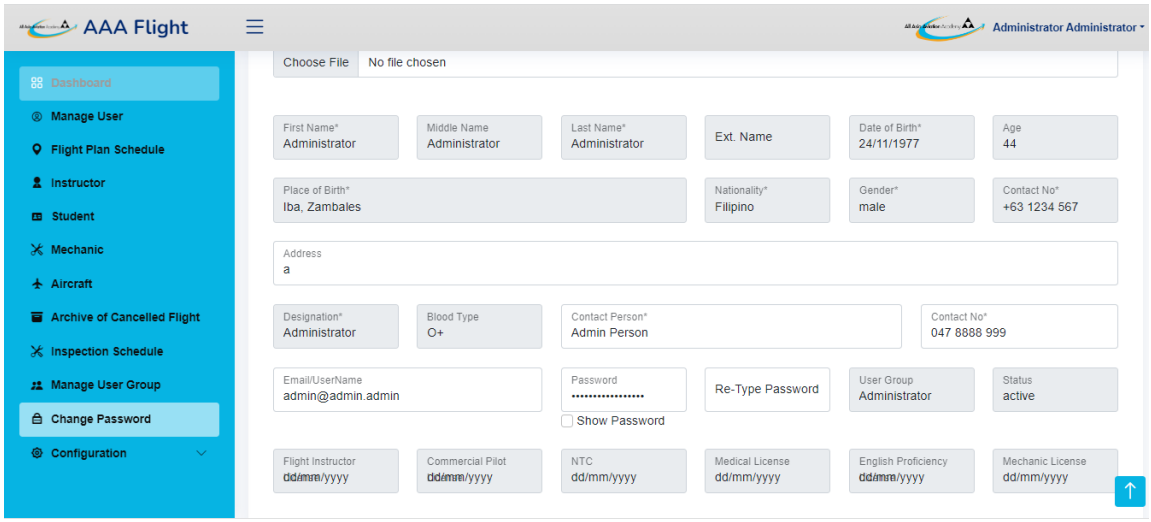
Developed by Jonathan Abiva, Lesly Ann, Roselle Dela Cruz, Patrick Mark Labrador, Kaila Mae Macadaan . ver. 1.0.0.0


AAA Flight
Administrator Administrator
Choose File
No file chosen
First Name*
Administrator
Middle Name
Administrator
Last Name*
Administrator
Ext. Name
Date of Birth*
24/11/1977
Age
44
Place of Birth*
Iba, Zambales
Nationality*
Filipino
Gender*
male
Contact No*
+63 1234 567
Address
a
Designation*
Administrator
Blood Type
O+
Contact Person*
Admin Person
Contact No*
047 8888 999
Email/UserName
admin@admin.admin
Password
Re-Type Password
User Group
Administrator
Status
active
Show Password
Flight Instructor
dd/mm/yyyy
Commercial Pilot
dd/mm/yyyy
NTC
dd/mm/yyyy
Medical License
dd/mm/yyyy
English Proficiency
dd/mm/yyyy
Mechanic License
dd/mm/yyyy

Appendix E
Test Results

Table 35
Software Quality of Flight Scheduling System for AAA as evaluated by Employees using ISO/IEC 25010:2011 metrics as to Functional Suitability

FUNCTIONAL SUITABILITY (Employees)		4 E	3 G	2 A	1 P	Total
1	Degree to which the set of functions covers all the specified tasks and user objectives.	12 (48)	16 (48)	2 (4)	0 (0)	100
2	Degree to which a product or system provides the correct results with the needed degree of precision.	10 (40)	20 (60)	0 (0)	0 (0)	100
3	Degree to which the functions facilitate the accomplishment of specified tasks and objectives.	13 (52)	15 (45)	2 (4)	0 (0)	101

Table 36
Software Quality of Flight Scheduling System for AAA as evaluated by Students using ISO/IEC 25010:2011 metrics as to Functional Suitability

FUNCTIONAL SUITABILITY (Students)		4 E	3 G	2 A	1 P	Total
1	Degree to which the set of functions covers all the specified tasks and user objectives.	17 (68)	22 (66)	2 (4)	0 (0)	138
2	Degree to which a product or system provides the correct results with the needed degree of precision.	22 (88)	17 (51)	2 (4)	0 (0)	143
3	Degree to which the functions facilitate the accomplishment of specified tasks and objectives.	22 (88)	17 (51)	2 (4)	0 (0)	143

Table 37
Software Quality of Flight Scheduling System for AAA as evaluated by Employees using ISO/IEC 25010:2011 metrics as to Performance Efficiency

PERFORMANCE EFFICIENCY (Employees)		4 E	3 G	2 A	1 P	Total
1	Degree to which the response and processing times, and throughput rates of a product or system meet requirements when performing its functions.	13 (52)	14 (42)	3 (6)	0 (0)	100
2	Degree to which the amounts and types of resources used by a product or system meet requirements when performing its functions.	17 (68)	11 (33)	2 (4)	0 (0)	105
3	Degree to which the maximum limits of a product or system parameter meet requirements.	21 (84)	8 (24)	1 (2)	0 (0)	110

Table 38
Software Quality of Flight Scheduling System for AAA as evaluated by Students using ISO/IEC 25010:2011 metrics as to Performance Efficiency

PERFORMANCE EFFICIENCY (Students)		4 E	3 G	2 A	1 P	Total
1	Degree to which the response and processing times, and throughput rates of a product or system meet requirements when performing its functions.	21 (84)	18 (54)	2 (4)	0 (0)	142
2	Degree to which the amounts and types of resources used by a product or system meet requirements when performing its functions.	29 (116)	11 (33)	1 (2)	0 (0)	151
3	Degree to which the maximum limits of a product or system parameter meet requirements.	24 (96)	16 (48)	1 (2)	0 (0)	146

Table 39
Software Quality of Flight Scheduling System for AAA as evaluated by Employees using ISO/IEC 25010:2011 metrics as to Compatibility

COMPATIBILITY (Employees)		4 E	3 G	2 A	1 P	Total
1	Degree to which the system or component can exchange information and perform its required functions while sharing the same hardware or software environment with other products, systems, or components.	20 (80)	7 (2166)	3 (6)	0 (0)	107
2	Degree to which the system can efficiently perform its required functions while sharing a common environment and resources with other products, without detrimental impact on any other product.	19 (76)	11 (33)	0 (0)	0 (0)	109
3	Degree to which two or more systems, products, or components can exchange information and utilize the information that has been exchanged.	16 (64)	11 (33)	3 (6)	0 (0)	103

Table 40
Software Quality of Flight Scheduling System for AAA as evaluated by Students using ISO/IEC 25010:2011 metrics as to Compatibility

COMPATIBILITY (Students)		4 E	3 G	2 A	1 P	Total
1	Degree to which the system or component can exchange information and perform its required functions while sharing the same hardware or software environment with other products, systems, or components.	21 (84)	17 (51)	3 (6)	0 (0)	141
2	Degree to which the system can efficiently perform its required functions while sharing a common environment and resources with other products, without detrimental impact on any other product.	15 (60)	24 (72)	2 (4)	0 (0)	136
3	Degree to which two or more systems, products, or components can exchange information and utilize the information that has been exchanged.	14 (56)	24 (72)	3 (6)	0 (0)	134

Table 41
Software Quality of Flight Scheduling System for AAA as evaluated by Employees using ISO/IEC 25010:2011 metrics as to Usability

	USABILITY (Employees)	4 E	3 G	2 A	1 P	Total
1	Degree to which users can recognize whether a product or system is appropriate for their needs.	9 (36)	20 (60)	1 (2)	0 (0)	98
2	Degree to which specified users can effectively, efficiently, and safely achieve their learning goals when using the product or system in a specified context of use.	11 (44)	17 (51)	2 (4)	0 (0)	99
3	Degree to which the system has attributes that make it easy to operate and control.	15 (60)	13 (48)	2 (2)	0 (0)	110
4	Degree to which the system protects users from making errors.	20 (80)	9 (27)	1 (2)	0 (0)	109
5	Degree to which the user interface enables pleasing and satisfying interaction for the user.	18 (72)	10 (30)	2 (4)	0 (0)	106
6	Degree to which people with a wide range of characteristics and capabilities can use the system to achieve a specified goal in a specified context of use.	10 (40)	20 (60)	0 (0)	0 (0)	100

Table 42
Software Quality of Flight Scheduling System for AAA as evaluated by Students using ISO/IEC 25010:2011 metrics as to Usability

	USABILITY (Students)	4 E	3 G	2 A	1 P	Total
1	Degree to which users can recognize whether a product or system is appropriate for their needs.	18 (72)	18 (54)	5 (10)	0 (0)	136
2	Degree to which specified users can effectively, efficiently, and safely achieve their learning goals when using the product or system in a specified context of use.	21 (84)	18 (54)	2 (4)	0 (0)	142
3	Degree to which the system has attributes that make it easy to operate and control.	30 (120)	10 (30)	1 (2)	0 (0)	110
4	Degree to which the system protects users from making errors.	31 (84)	10 (24)	0 (2)	0 (0)	151
5	Degree to which the user interface enables pleasing and satisfying interaction for the user.	33 (132)	8 (24)	0 (0)	0 (0)	156
6	Degree to which people with a wide range of characteristics and capabilities can use the system to achieve a specified goal in a specified context of use.	23 (92)	16 (48)	2 (4)	0	144

Table 43
Software Quality of Flight Scheduling System for AAA as evaluated by Employees using ISO/IEC 25010:2011 metrics as to Reliability

	RELIABILITY (Employees)	4 E	3 G	2 A	1 P	Total
1	Degree to which the system meets the needs for reliability under normal operation.	13 (52)	15 (45)	2 (4)	0 (0)	101
2	Degree to which the system is operational and accessible when required for use.	20 (80)	6 (18)	4 (8)	0 (0)	106
3	Degree to which the system operates as intended despite the presence of hardware or software faults.	23 (92)	6 (18)	1 (2)	0 (0)	112
4	Degree to which the system can recover the data directly affected and re-establish the desired state of the system in the event of an interruption or failure.	17 (68)	13 (39)	0 (0)	0 (0)	107

Table 44
Software Quality of Flight Scheduling System for AAA as evaluated by Students using ISO/IEC 25010:2011 metrics as to Reliability

	RELIABILITY (Students)	4 E	3 G	2 A	1 P	Total
1	Degree to which the system meets the needs for reliability under normal operation.	16 (64)	21 (63)	4 (8)	0 (0)	135
2	Degree to which the system is operational and accessible when required for use.	24 (96)	17 (51)	0 (0)	0 (0)	147
3	Degree to which the system operates as intended despite the presence of hardware or software faults.	32 (128)	9 (27)	0 (0)	0 (0)	155
4	Degree to which the system can recover the data directly affected and re-establish the desired state of the system in the event of an interruption or failure.	24 (96)	17 (51)	0 (0)	0 (0)	147

Table 45
Software Quality of Flight Scheduling System for AAA as evaluated by Employees using ISO/IEC 25010:2011 metrics as to Security

	SECURITY (Employees)	4 E	3 G	2 A	1 P	Total
1	Degree to which a system ensures that data are accessible only to those authorized to have access.	19 (76)	9 (27)	2 (4)	0 (0)	107
2	Degree to which a system, prevents unauthorized access to, or modification of, computer programs or data.	17 (68)	12 (36)	1 (2)	0 (0)	106
3	Degree to which actions or events can be proven to have taken place so that they cannot be repudiated later.	23 (92)	7 (21)	0 (0)	0 (0)	113
4	Degree to which the actions of an entity can be uniquely traced to that entity.	19 (76)	10 (30)	1 (2)	0 (0)	108
5	Degree to which the identity of a subject or resource can be proven to be the one claimed.	18 (72)	11 (33)	1 (2)	0 (0)	107

Table 46
Software Quality of Flight Scheduling System for AAA as evaluated by Students using ISO/IEC 25010:2011 metrics as to Security

	SECURITY (Students)	4 E	3 G	2 A	1 P	Total
1	Degree to which a system ensures that data are accessible only to those authorized to have access.	29 (116)	11 (33)	1 (2)	0 (0)	151
2	Degree to which a system, prevents unauthorized access to, or modification of, computer programs or data.	19 (76)	22 (66)	0 (0)	0 (0)	142
3	Degree to which actions or events can be proven to have taken place so that they cannot be repudiated later.	20 (80)	20 (60)	1 (2)	0 (0)	142
4	Degree to which the actions of an entity can be uniquely traced to that entity.	19 (76)	21 (63)	1 (2)	0 (0)	141
5	Degree to which the identity of a subject or resource can be proven to be the one claimed.	25 (100)	15 (45)	1 (2)	0 (0)	147

Table 47
Software Quality of Flight Scheduling System for AAA as evaluated by Employees using ISO/IEC 25010:2011 metrics as to Maintainability

	MAINTAINABILITY (Employees)	4 E	3 G	2 A	1 P	Total
1	Degree to which a system is composed of discrete components, such that a change to one component has minimal impact on other components.	20 (80)	9 (27)	1 (2)	0 (0)	109
2	Degree to which an asset can be used in more than one system or in building other assets.	23 (92)	6 (18)	1 (2)	0 (0)	105
3	Modification of the system does not affect others part of the system.	20 (84)	9 (24)	1 (2)	0 (0)	112
4	System can be modified effectively and efficiently without introducing defects or degrading the existing system quality.	14 (56)	16 (48)	0 (0)	0 (0)	104
5	System can run on different hardware specifications, software environments, and firmware versions, both on computers and other mobile devices.	16 (64)	14 (42)	0 (0)	0 (0)	106

Table 48
Software Quality of Flight Scheduling System for AAA as evaluated by Students using ISO/IEC 25010:2011 metrics as to Maintainability

	MAINTAINABILITY (Students)	4 E	3 G	2 A	1 P	Total
1	Degree to which a system is composed of discrete components, such that a change to one component has minimal impact on other components.	27 (108)	12 (36)	2 (4)	0 (0)	100
2	Degree to which an asset can be used in more than one system or in building other assets.	29 (116)	10 (30)	2 (4)	0 (0)	105
3	Modification of the system does not affect others part of the system.	29 (116)	11 (33)	1 (2)	0 (0)	110
4	System can be modified effectively and efficiently without introducing defects or degrading the existing system quality.	25 (100)	14 (42)	2 (4)	0 (0)	146
5	System can run on different hardware specifications, software environments, and firmware versions, both on computers and other mobile devices.	22 (88)	16 (48)	3 (6)	0 (0)	142

Table 49
Software Quality of Flight Scheduling System for AAA as evaluated by Employees using ISO/IEC 25010:2011 metrics as to Portability

	PORTABILITY (Employees)	4 E	3 G	2 A	1 P	Total
1	System provides a flexible environment.	16 (64)	14 (42)	0 (0)	0 (0)	106
2	System is easy to install and works in a specified environment.	15 (60)	13 (39)	2 (4)	0 (0)	103
3	System can be replaced or can replace other software or systems with a similar purpose of use and functionalities.	16 (64)	14 (42)	0 (0)	0 (0)	106
4	System is accessible with minimal connectivity requirements.	12 (48)	17 (51)	1 (2)	0 (0)	101

Table 50
Software Quality of Flight Scheduling System for AAA as evaluated by Students using ISO/IEC 25010:2011 metrics as to Portability

	PORTABILITY (Students)	4 E	3 G	2 A	1 P	Total
1	System provides a flexible environment.	25 (100)	13 (39)	3 (6)	0 (0)	145
2	System is easy to install and works in a specified environment.	22 (88)	18 (54)	1 (2)	0 (0)	144
3	System can be replaced or can replace other software or systems with a similar purpose of use and functionalities.	24 (96)	17 (51)	0 (0)	0 (0)	147
4	System is accessible with minimal connectivity requirements.	14 (56)	24 (72)	3 (6)	0 (0)	134

Table 51
Level of Acceptability of AAA Employees-respondents in terms of Functionality

	PORTABILITY (Employees)	4 E	3 G	2 A	1 P	Total
1	Degree to which the system's features and functions are complete and meet the users' needs from their perspective.	16 (64)	12 (36)	2 (4)	0 (0)	104
2	System's features and functions perform without delay and are fully functional.	21 (84)	7 (21)	2 (4)	0 (0)	109
3	System provides accurate and relevant information that meets the users' needs.	11 (44)	19 (57)	0 (0)	0 (0)	101

Table 52
Level of Acceptability of AAA Students-respondents in terms of Functionality

	PORTABILITY (Students)	4 E	3 G	2 A	1 P	Total
1	Degree to which the system's features and functions are complete and meet the users' needs from their perspective.	17 (67)	24 (72)	0 (0)	0 (0)	139
2	System's features and functions perform without delay and are fully functional.	18 (72)	22 (66)	1 (2)	0 (0)	140
3	System provides accurate and relevant information that meets the users' needs.	28 (112)	12 (36)	1 (2)	0 (0)	150

Table 53
Level of Acceptability of AAA Employees-respondents in terms of Performance

	PERFORMANCE (Employees)	4 E	3 G	2 A	1 P	Total
1	System provides real-time information to the users.	14 (56)	14 (42)	2 (4)	0 (0)	102
2	System is effective and efficient in monitoring information.	16 (64)	13 (39)	1 (2)	0 (0)	105
3	System has user-friendly features that are easy to use.	14 (56)	14 (42)	2 (4)	0 (0)	102

Table 54
Level of Acceptability of AAA Students-respondents in terms of Performance

	PERFORMANCE (Students)	4 E	3 G	2 A	1 P	Total
1	System provides real-time information to the users.	11 (44)	28 (84)	2 (4)	0 (0)	132
2	System is effective and efficient in monitoring information.	25 (100)	14 (42)	2 (4)	0 (0)	146
3	System has user-friendly features that are easy to use.	9 (36)	27 (81)	5 (10)	0 (0)	127

Table 55

Level of Readiness of Flight Scheduling System for AAA in the implementation of the system as evaluated by AAA Employees-respondents in terms of Information System Facility

	INFORMATION SYSTEM FACILITY (Employees)	4 E	3 G	2 A	1 P	Total
1	Availability of computer units for the system installed.	15 (60)	13 (39)	2 (4)	0 (0)	103
2	Availability of a modem with reliable internet connection with sufficient bandwidth to cater the needs of the users.	21 (84)	9 (27)	0 (0)	0 (0)	111
3	Availability of enough IT facilities including computers, printers, network devices and access points that are needed to support the implementation of the system.	16 (64)	12 (36)	2 (4)	0 (0)	104

Table 56

Level of Readiness of Flight Scheduling System for AAA in the implementation of the system as evaluated by AAA Students-respondents in terms of Information System Facility

	INFORMATION SYSTEM FACILITY (Students)	4 E	3 G	2 A	1 P	Total
1	Availability of computer units for the system installed.	21 (84)	15 (45)	5 (10)	0 (0)	139
2	Availability of a modem with reliable internet connection with sufficient bandwidth to cater the needs of the users.	27 (108)	11 (33)	3 (6)	0 (0)	147
3	Availability of enough IT facilities including computers, printers, network devices and access points that are needed to support the implementation of the system.	17 (68)	22 (66)	2 (4)	0 (0)	138

Table 57

Level of Readiness of Flight Scheduling System for AAA in the implementation of the system as evaluated by AAA Employees-respondents in terms of Technical Personnel

	TECHNICAL PERSONNEL (Students)	4 E	3 G	2 A	1 P	Total
1	Availability of personnel who are authorized to manage and maintain the system.	12 (48)	17 (51)	1 (2)	0 (0)	101
2	Readiness of personnel assigned in the implementation with proper knowledge to maintain the system.	20 (80)	9 (27)	1 (2)	0 (0)	109
3	Availability of personnel to call anytime for the equipment malfunction.	23 (92)	5 (15)	2 (4)	0 (0)	111

Table 58

Level of Readiness of Flight Scheduling System for AAA in the implementation of the system as evaluated by AAA Students-respondents in terms of Technical Personnel

	TECHNICAL PERSONNEL (Students)	4 E	3 G	2 A	1 P	Total
1	Availability of personnel who are authorized to manage and maintain the system.	28 (112)	10 (30)	3 (6)	0 (0)	148
2	Readiness of personnel assigned in the implementation with proper knowledge to maintain the system.	25 (100)	5 (15)	1 (2)	0 (0)	117
3	Availability of personnel to call anytime for the equipment malfunction.	23 (112)	16 (48)	2 (4)	0 (0)	164

Appendix F
Copy of Request Letter/ MOA/ MOU

Republic of the Philippines
President Ramon Magsaysay State University
(Formerly Ramon Magsaysay Technological University)
Iba, Zambales, Philippines
Tel/Fax No.: (047) 811-1683
College of Communication and Information Technology
BACHELOR OF SCIENCE IN COMPUTER SCIENCE

October 19, 2022

CAPT. KATAYAMA KAZUYA
Chief Admin
All Asia Aviation Academy
Iba, Zambales, 2201

Sir:

Greetings of Peace!

The undersigned are currently conducting a study entitled, **"ALL ASIA AVIATION ACADEMY FLIGHT SCHEDULING SYSTEM WITH AI SUPPORT"**, in partial fulfillment of the requirements for the Degree Bachelor of Science in Computer Science.

In this regard, may I request permission from your good office to conduct the said study in your institution/organization and also to float our questionnaire to the **"**students, captains, and instructors of All Asia Aviation Academy**"**. Rest assured that the data gathered will be used solely for this study and will be treated with utmost confidentiality.

Thank you very much in anticipation of your valuable assistance and favorable action on this request. More Power!

Very truly yours,

Abiva, Jonathan C.
Dela Cruz, Roselle M.
Labrador, Patrick Mark O.
Macadaan, Kaila Mae B.
Reyes, Lesly Ann D.

Noted:

DANIEL A. BACHILLAR, MSCS
Thesis Adviser

CARL ANGELO PAMPLONA, MSCS
Program Chair, BSCS

MENCHIE A. DELA CRUZ, Ph.D.
Dean, College of Communication and Information Technology

Approved:

CAPT. KATAYAMA KAZUYA
Chief Admin

Republic of the Philippines
President Ramon Magsaysay State University
(Formerly Ramon Magsaysay Technological University)
Iba, Zambales, Philippines
Tel/Fax No.: (047) 811-1683
College of Communication and Information Technology
BACHELOR OF SCIENCE IN COMPUTER SCIENCE

October 19, 2022

MR. RODOLFO R. UBALDO
OIC/ Manager, Iba Airport
Civil Aviation Authority of the Philippines
Iba, Zambales, 2201

Sir:

Greetings of Peace!

The undersigned are currently conducting a study entitled, **"ALL ASIA AVIATION ACADEMY FLIGHT SCHEDULING SYSTEM WITH AI SUPPORT"**, in partial fulfillment of the requirements for the Degree Bachelor of Science in Computer Science.

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Thesis Adviser

CARL ANGELO PAMPLONA, MSCS
Program Chair, BSCS

MENCHIE A. DELA CRUZ, Ph.D.
Dean, College of Communication and Information Technology

Approved:

MR. RODOLFO R. UBALDO
OIC/ Manager, Iba Airport

Republic of the Philippines
President Ramon Magsaysay State University
(Formerly Ramon Magsaysay Technological University)
Iba, Zambales, Philippines
Tel/Fax No.: (047) 811-1683
College of Communication and Information Technology
BACHELOR OF SCIENCE IN COMPUTER SCIENCE

CS THESIS WRITING
SY: **2022-2023**

ADVISER'S COMMITMENT AND AGREEMENT

This agreement is binding the CS Thesis Writing student/s and their chosen CS Thesis Writing adviser for the duration and completion of their study. As an agreement, the following will be expected from the student/s and their thesis adviser:

- The thesis student/s are requested and expected to exert all their efforts and skills to complete the given task.
- The thesis student/s agree to comply with the requirements of the panel members and thesis adviser in their full capacity.
- The thesis student/s are compelled to see their thesis advisers for technical advising and recommendations. A schedule should be made and agreed by both parties for their conferences and meetings to oversee progressive elaboration of the thesis.

Whereas, the CS Thesis Writing adviser is expected to perform the following duties as part of their commitment with their technical advisees:

- The adviser is expected to mentor and guide their CS Thesis Writing advisee/s. Proper and appropriate guidance in preparing and completing their study is being sought from you.
- Periodic schedule and meeting are expected to be given out by the thesis adviser to their thesis advisee/s to oversee progress and development.
- The thesis adviser shall be the source of support of the student/s to ensure that CS Thesis Writing achieves the objectives at the end of the given period.

By affixing your signature, it is deemed that you abide by all the duties and responsibilities set forth.

Name of Student/s	Signature/s
Abiva, Jonathan C.	
Dela Cruz, Roselle M.	
Labrador, Patrick Mark O.	
Macadaan, Kaila Mae B.	
Reyes, Lesly Ann D.	

Title:

ALL ASIA AVIATION ACADEMY FLIGHT SCHEDULING SYSTEM WITH AI SUPPORT

DANIEL A. BACHILLAR, MSCS
Thesis Adviser's Name and Signature

OCTOBER 20, 2022
Date

10/20/22

Republic of the Philippines
President Ramon Magsaysay State University
(Formerly Ramon Magsaysay Technological University)
Iba, Zambales, Philippines
Tel/Fax No.: (047) 811-1683
College of Communication and Information Technology
BACHELOR OF SCIENCE IN COMPUTER SCIENCE

March 21, 2023

CAPT. KATAYAMA KAZUYA
Chief Admin, All Asia Aviation Academy
Civil Aviation Authority of the Philippines
Iba, Zambales, 2201

Sir:

Greetings of Peace!

The undersigned are currently conducting a study entitled, **"ALL ASIA AVIATION ACADEMY FLIGHT SCHEDULING SYSTEM WITH AI SUPPORT"**, in partial fulfillment of the requirements for the degree Bachelor of Science in Computer Science. It aims to automate flight plan of students enrolled in the institution through the help of Artificial Intelligence.

In this regard, may we request permission from your good office to conduct an interview and to float questionnaires. Rest assured that all the data or information gathered will be used solely for this study and be treated with utmost confidentiality.

Thank you very much in anticipation of your valuable assistance and favorable action on this request. More Power!

Very truly yours,

Abiva, Jonathan C. **Dela Cruz, Roselle M.** **Labrador, Patrick Mark O.**

Macadaan, Kaila Mae B. **Reyes, Lesly Ann D.**

Noted:

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Thesis Adviser

CARL ANGELO S. PAMPLONA, MSCS
Program Chair, BSCS

MENCHIE A. DELA CRUZ, Ph.D.
Dean, College of Communication and Information Technology
Ih

Approved:
CAPT. KATAYAMA KAZUYA
Chief Admin, All Asia Aviation Academy

Republic of the Philippines
President Ramon Magsaysay State University
(Formerly Ramon Magsaysay Technological University)
Iba, Zambales, Philippines
Tel/Fax No.: (047) 811-1683
College of Communication and Information Technology
BACHELOR OF SCIENCE IN COMPUTER SCIENCE

March 21, 2023

MR. RODOLFO R. UBALDO
OIC/Manager, Iba Airport
Civil Aviation Authority of the Philippines
Iba, Zambales, 2201

Sir:

Greetings of Peace!

The undersigned are currently conducting a study entitled, **"ALL ASIA AVIATION ACADEMY FLIGHT SCHEDULING SYSTEM WITH AI SUPPORT"**, in partial fulfillment of the requirements for the degree Bachelor of Science in Computer Science. It aims to automate flight plan of students enrolled in the institution through the help of Artificial Intelligence.

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Macadaan, Kaila Mae B. **Reyes, Lesly Ann D.**

Noted:

DANIEL A. BACHILLAR, MSCS
Thesis Adviser

CARL ANGELO S. PAMPLONA, MSCS
Program Chair, BSCS

MENCHIE A. DELA CRUZ, Ph.D.
Dean, College of Communication and Information Technology

Approved:

MR. RODOLFO R. UBALDO
OIC/Manager, Iba Airport

Appendix G
Curriculum Vitae

JONATHAN C. ABIVA

Apostol, San Felipe, Zambales
+639616101785
abivajonathan17@gmail.com

BASIC INFORMATION

Age:	21-year-old
Gender:	Male
Date of Birth	June 26, 2001
Place of Birth:	San Marcelino, Zambales
Civil Status:	Single
Citizenship:	Filipino

EDUCATIONAL BACKGROUND

Tertiary: PRESIDENT RAMON MAGSAYSAY STATE UNIVERSITY
PALANGINAN, IBA ZAMBALES

Course BACHELOR OF SCIENCE IN COMPUTER SCIENCE
2019 - PRESENT

Senior High School: TECHNOLOGICAL COLLEGE OF SAN FELIPE INC.
SAN FELIPE, ZAMBALES
Year Graduated 2019

Junior High School: SAN RAFAEL TECHNICAL VOCATION HIGH SCHOOL
SAN FELIPE, ZAMBALES
Year Graduated 2017

Primary Level: CALAPACUAN ELEMENTARY SCHOOL
SUBIC, ZAMBALES
Year Graduated 2013

ROSELLE M. DELA CRUZ

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BASIC INFORMATION

Age:	22-year-old
Gender:	Female
Date of Birth	September 6, 2000
Place of Birth:	Iba, Zambales
Civil Status:	Single
Citizenship:	Filipino

EDUCATIONAL BACKGROUND

Tertiary: PRESIDENT RAMON MAGSAYSAY STATE UNIVERSITY
PALANGINAN, IBA ZAMBALES

Course BACHELOR OF SCIENCE IN COMPUTER SCIENCE
2019 - PRESENT

Senior High School: RAMON MAGSAYSAY TECHNOLOGICAL UNIVERSITY
IBA, ZAMBALES
Year Graduated 2019

Junior High School: SAN AGUSTIN INTEGRATED SCHOOL
IBA, ZAMBALES
Year Graduated 2017

Primary Level: SAN AGUSTIN ELEMENTARY SCHOOL
IBA, ZAMBALES
Year Graduated 2013

PATRICK MARK O. LABRADOR

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BASIC INFORMATION

Age:	23-year-old
Gender:	Male
Date of Birth	March 2 , 2000
Place of Birth:	Olongapo, Zambales
Civil Status:	Single
Citizenship:	Filipino

EDUCATIONAL BACKGROUND

Tertiary: PRESIDENT RAMON MAGSAYSAY STATE UNIVERSITY
PALANGINAN, IBA ZAMBALES

Course BACHELOR OF SCIENCE IN COMPUTER SCIENCE
2019 - PRESENT

Senior High School: RAMON MAGSAYSAY TECHNOLOGICAL UNIVERSITY
IBA, ZAMBALES
Year Graduated 2019

Junior High School: SANTA CRUZ ACADEMY
STA. CRUZ, ZAMBALES
Year Graduated 2017

Primary Level: NORTH CENTRAL ELEMENTARY SCHOOL
STA. CRUZ, ZAMBALES
Year Graduated 2013

KAILA MAE B. MACADAAN

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BASIC INFORMATION

Age:	22-year-old
Gender:	Female
Date of Birth	January 24, 2001
Place of Birth:	Iba, Zambales
Civil Status:	Single
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EDUCATIONAL BACKGROUND

Tertiary: PRESIDENT RAMON MAGSAYSAY STATE UNIVERSITY
PALANGINAN, IBA ZAMBALES

Course BACHELOR OF SCIENCE IN COMPUTER SCIENCE
2019 - PRESENT

Senior High School: RAMON MAGSAYSAY TECHNOLOGICAL UNIVERSITY
IBA, ZAMBALES
Year Graduated 2019

Junior High School: ZAMBALES HIGH NATIONAL HIGH SCHOOL
IBA, ZAMBALES
Year Graduated 2017

Primary Level: IBA ELEMENTARY SCHOOL
IBA, ZAMBALES
Year Graduated 2013

LESLY ANN D. REYES

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BASIC INFORMATION

Age:	22-year-old
Gender:	Female
Date of Birth	February 18, 2001
Place of Birth:	Iba, Zambales
Civil Status:	Single
Citizenship:	Filipino

EDUCATIONAL BACKGROUND

Tertiary: PRESIDENT RAMON MAGSAYSAY STATE UNIVERSITY
PALANGINAN, IBA ZAMBALES

Course BACHELOR OF SCIENCE IN COMPUTER SCIENCE
2019 - PRESENT

Senior High School: RAMON MAGSAYSAY TECHNOLOGICAL UNIVERSITY
IBA, ZAMBALES
Year Graduated 2019

Junior High School: SAN AGUSTIN INTEGRATED SCHOOL
IBA, ZAMBALES
Year Graduated 2017

Primary Level: SAN AGUSTIN ELEMENTARY SCHOOL
IBA, ZAMBALES
Year Graduated 2013