Software Requirements Specification

for

Crew Connect

Version 1.7.2 approved

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WASUP Airlines

<date created>

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Revision History

Name	Date	Reason For Changes	Version
Shanice Rapp	02/14/23	Added information in 1.1-1.5	1.1
Shanice Rapp	03/08/23	Added information in 2.1-2.7	1.2
Shanice Rapp	03/09/23	Created content for Appendix B	1.3
Shanice Rapp	03/23/23	Added Figure 1&2 and created table of figures	1.4
Shanice Rapp	03/28/23	Added 3.1-3.4	1.5
Shanice Rapp	04/02/23	Updated 3.1 & 3.2	1.6
Shanice Rapp	04/06/23	Added 4.1	1.7
Shanice Rapp	04/07/23	Added 4.2-4.5	1.7.1
Shanice Rapp	04/08/23	Added 4.6-4.8 and updated Table of Contents	1.7.2

1. Introduction

1.1 Purpose

The product presented is the Crew Connect application which is being developed for WASUP Airlines only. After several revisions, the application will be used with version XX which is the latest software version. This document will go over the application's purpose, the product scope, functional requirements, limitations, external interface requirements, system features, nonfunctional requirements, an overall description of the product, and comes with a glossary and reading suggestions for the intended audience. Throughout the document, the whole system is described.

1.2 Document Conventions

All text in the application is written in black color, Arial font. However, if there is an emergency or important notification, the text will appear in **bold red**. The *italic* text in the calendar stands for *vacation* time. The transportation information will pop up with a taxi icon next to the information.

1.3 Intended Audience and Reading Suggestions

User or Reader	Suggested Areas to Read
Stakeholders	2
IT, Developers, System workers, PM	3,4,5
End-users	1, 2

1.4 Product Scope

The Crew Connect application is being developed with the idea that the crew has a single place in which all communication can take place. The most helpful features of this application will be the schedule, the weather, routes, hotel information, pick-up information, and a vacation request feature. Faster and more effective communication are the main objectives of this new application. If the communication within and to the crew is being improved, emergencies can be dealt with faster and flight delays due to miscommunications can be prevented. All this helps to reach WASUP Airlines' main goal of maximizing customer satisfaction.

1.5 References

Go to www.wasupairlines.com/crewconnect for more information and an introduction to the application. There you will also find references and versions of the application and other documents related to the Crew Connect app.

2. Overall Description

2.1 Product Perspective

The Crew Connect application is a new self-contained product with the intended use being only for the Crew members inside WASUP airlines. Prior to Crew Connect, there were several misunderstandings due to simultaneous communication on several platforms, and important information was often read too late due to the lack of an efficient system for delivering this information. To prevent these issues, the purpose of developing the application is to bring several different systems into one application. For efficient and effective usage, the application is dependent on timely and correct input of data about flight schedules and vacation time and needs a third-party cooperation that supplies the application with the current weather information of the crew's current location as well as its destination location.
Figure 1 shows the main functions and how they will be present on the navigation page as well as a first idea of the interface in WASUP airlines' colors.

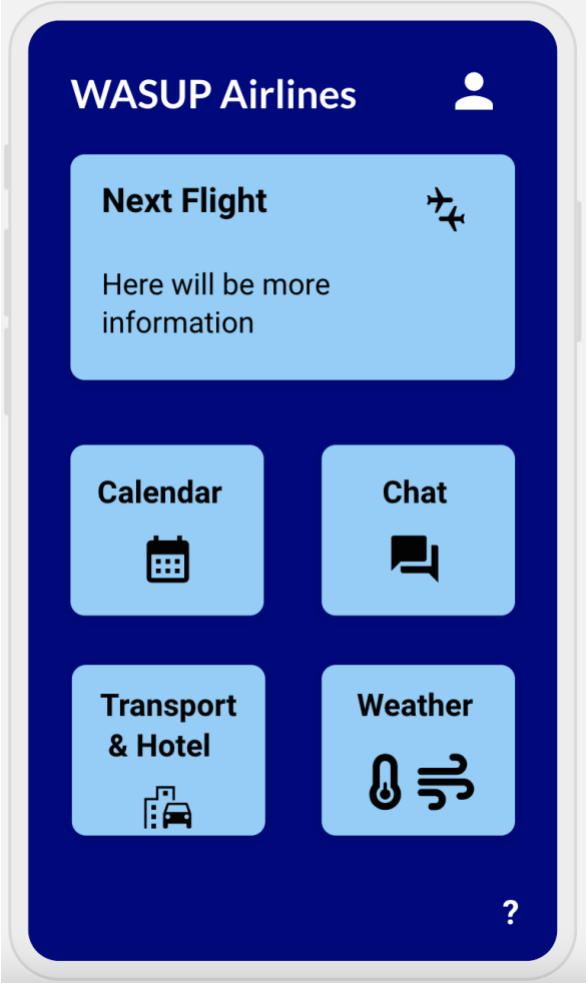

Figure 1 Crew Connect Navigation Page

2.2 Product Functions

The most important functions of the Crew Connect application are listed here:

- Chat amongst the crew (a new channel is opened for each flight with the corresponding crew)
- Calendar (contains scheduled flights and vacation times)
- Transport and Hotel Information (Travel)
- Weather alerts

For further understanding refer to the WASUP Flow Diagram.

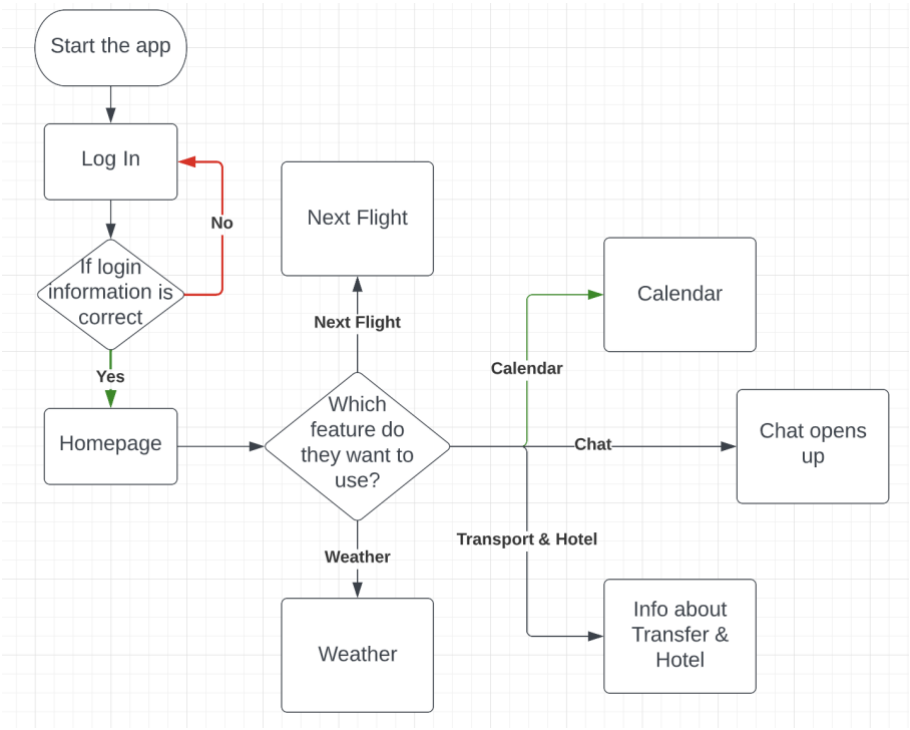

Figure 2 Crew Connect Flow Diagram

2.3 User Classes and Characteristics

The end-user of this product is the whole crew. Regardless of the crew members' position, both pilots and flight attendants have the same product functions. There are no admin roles, it is an only user tool. The information will be inputted by the backend team.

2.4 Operating Environment

Crew Connect will operate on a Linux-based mobile operating system and will not function properly on macOS. Therefore, each crew member will receive an Android smartphone. Furthermore, the compatibility with weatherbug.com/api as the supplier for all weather data is assured. The data will be stored on SQL servers and Oracle. After several revisions, version 2.0 will be the running version on the crew members' smartphones.

2.5 Design and Implementation Constraints

There are several limitations that come with Crew Connect. First, Crew Connect is only to be used by the crew, not by other employees of WASUP airlines. Second, the application will only work on Android devices. Third, to access all information through Crew Connect, the device must be connected to the internet. The basic information will be stored on the phone and the schedule for a specific event can be downloaded to access it without an internet connection. Since WASUP airlines is an American airline Crew Connect will be offered in English and Spanish version. The chat is to be solely used for work purposes, not to have private conversations. Therefore, the memory of 64GB for each crew member should be sufficient. To improve security, each crew member will receive their own smartphone with the app preinstalled and the application itself is not open for public use. Besides, the design of Crew Connect follows the lightskyblue and navy blue company colors and the font to use is Lato. Furthermore, the weather updates will be accessed through weatherbug.com/api and the database used for vacation requests is provided by Oracle. The development must fall into the $500,000.00 budget.

2.6 User Documentation

To access introduction videos and tutorials go to WASUP airlines' website and click on Crew Connect under the "For Flight Crew" button. You can also use this link to access it: www.wasupairlines.com/crewconnect. For further questions while using Crew Connect, click on the question mark symbol in the lower right corner and look for your answer there.

2.7 Assumptions and Dependencies

Crew Connect uses several servers to store the data. The PeopleSoft server (Oracle) is responsible for the vacation requests, the Travel server (SQL server) contains travel adjustments, and the flight and crew scheduling comes from the AIMS server (Oracle). Failing of one of the servers could lead to a disruption of the whole system and mistakes in scheduling and general flight delays. Furthermore, if the Weatherbug channel is down or if there are problems in transferring the data to Crew Connect, the application's weather page will not show data. Another dependency of Crew Connect comes with the hotel and especially the shuttle service. The application can only inform the crew about the car that picks them up and the driver and arrival time if the data has been put in by the transferring party. As well as the application being dependent on third parties that supply data, Crew Connect is also dependent on the proper usage of its crew members.
It is assumed that accurate budgeting and planning have been conducted to stay within the $500,000.00 budget.

3. External Interface Requirements

3.1 User Interfaces

Figures 3 through 5 give a preview of the UI of Crew Connect.

<u>Start Page</u>:

- Will show all the important functions of Crew Connect and works as a **Menu**.
- As a fast track, the user can also choose the **Next Flight** button.
- The header will always show the company's **WASUP Airlines** writing and below it will be the name and role of the **crew member**.
- In the top right corner, the member can change **personal settings**.

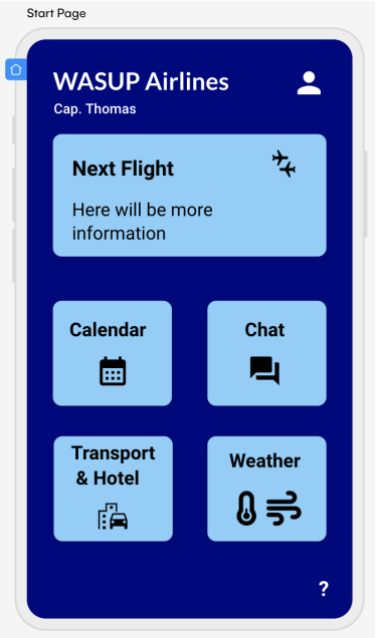

Figure 3: Start Page

<u>Calendar Page</u>:

- Has the same header.
- Then the user will see a **monthly calendar**.
- The plane taking off indicates the **departing date** for the crew and the **landing plane** indicates when the crew will come back to its destination airport.
- If a crew member wants to see further details, tap on a specific day in the calendar (as indicated in a light red square) and more detailed information will show up on the screen. Within 24 hours of departure, the **arrival information** will also be updated.

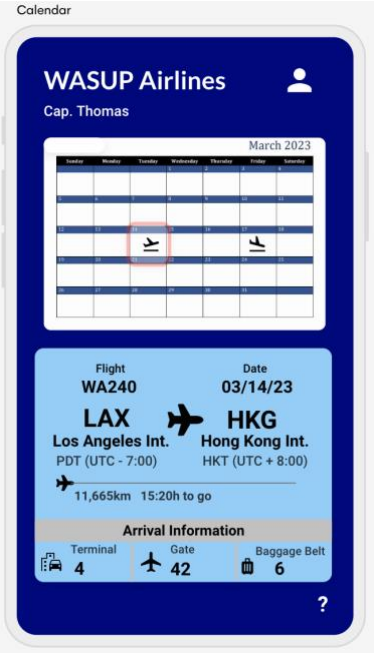

Figure 4: Calendar

Chat Menu:

- The crew member can decide which **flight** they want to read the chat. They are automatically added to the corresponding chats according to their flight schedule.
- The little number in the light blue circle shows how many **unread messages** they have in each chat.
- By clicking on one of the chats, a **group chat** with all regular functions will open.
- In case a user needs to contact specifically another crew member, the **"Contacts"** button will have all crew members saved in there.
- The **"Settings"** wheel Allows a crew member to customize their chat modes such as larger/smaller letters or dark mode.
- The little **question mark** works as a help function and shows answers to the most occurring questions.
- The UI of the **weather page** will be presented by weatherbug.com
- The user can also **swipe** through the different pages and menus by swiping left or right. There is no extra button for it.

Figure 5: Chat Menu

3.2 Hardware Interfaces

General:

- Crew Connect will only work on Android devices. Therefore, each crew member will receive a Samsung Galaxy A50 with 64 GB storage.

- The weather information will be pulled from Weatherbug.com/api and Wifi is required to have the most updated weather. Data can be previously downloaded and stored, chats and updates however can only be accessed with a Wifi connection.

Operation	Server	Provider	IP Address	Tables
Vacation Request	PeopleSoft Server	Oracle (Database)	**10.412.67.101**	V_REQUEST
Travel Adjustments	Travel Server	SQL	10.412.67.45	hotel_reservation, car_reservation, travel_overide
Flight & Crew Scheduling	AIMS Server	Oracle	10.412.68.49	flight_schedule, crew_schedule

Figure 6: Hardware Table

3.3 Software Interfaces

Crew Connect is using Oracle and SQL Server for its databases. When connected to the internet, all functions of the application will work, including the weather function and the chat function. The data for the weather function will be provided from *Weatherbug.com/api*. The data is being pulled from the databases and out of the tables mentioned in 3.2. The weather data needs to be global since the crew is operating worldwide.

3.4 Communications Interfaces

To update, the application needs access to the internet. All phones that have the Crew Connect app installed can communicate with each other and the HR and scheduling team of WASUP Airlines. No outside phone can install the Crew Connect app, only the phones that have special access granted within the company. This is done for security reasons.

4. System Features

<This template illustrates organizing the functional requirements for the product by system features, the major services provided by the product. You may prefer to organize this section by use case, mode of operation, user class, object class, functional hierarchy, or combinations of these, whatever makes the most logical sense for your product.>

4.1 Crew Login

4.1.1 Description and Priority

The crew login feature is of high priority since it gives access to Crew Connect and the data it contains. Furthermore, the login is a crucial security feature of the app.

4.1.2 Stimulus/Response Sequences

Sequence #	Stimulus	Response
1	User opens the App	LogIn Page comes up
2	User enters Username and Password	Username and Password are being verified
3	User taps on LogIn button	If Username and Password are correct, User gets routed to the homepage. Wrong input will receive an error message
4	User taps “Reset Password” button	User receives an input form to reset Username and Password

4.1.3 Functional Requirements

REQ-1: Log In page must have two input fields where the user can input Username and Password

REQ-2: Log In page must have a Log In button that initiates the input validation

REQ-3: Log In page must have a Reset Password button that lets the user reset their information and updates it in the database.

4.2 Home Page

4.2.1 Description and Priority

The Home Page is of high priority as it is the access point for all underlying features.

4.2.2 Stimulus/Response Sequences

Sequence #	Stimulus	Response
1	User taps on Next Flight button	Flight detail page will open up
2	User taps on Calendar button	Calendar page will open up
3	User taps on Chat button	Chat Menu will open up
4	User taps on Travel button	Travel page will open up
5	User taps on Weather button	Weatherbug.com opens
6	User taps on Person Icon in top right corner	Personal Settings will open
7	User taps on Question Mark symbol in lower right corner	Help feature appears

4.2.3 Functional Requirements

REQ-1: Home page must have all other featured pages displayed for the user

REQ-2: Routes between pages must function so that the user will be redirected to the selected page

4.3 Schedule

4.3.1 Description and Priority

The schedule feature is a crucial component of Crew Connect since it shows all past, current, and future flights for the crew. The calendar itself with detailed flight information is of high priority. In the schedule feature, the crew member can also add vacation requests which is of rather low priority.

4.3.2 Stimulus/Response Sequences

Sequence #	Stimulus	Response
1	User taps on departing plane within the calendar	Flight details pop up on the screen
2	User taps on arriving plane within calendar	Flight details pop up on the screen
3	User taps on any date field within calendar	Vacation request form pops up
4	User taps on Person Icon in top right corner	Personal Settings will open
5	User taps on Question Mark symbol in lower right corner	Help feature appears

4.3.3 Functional Requirements

REQ-1: Calendar must have updated flight schedule

REQ-2: Vacation request must be transferred to HR

REQ-3: If flight data not previously opened, user must have internet access for flight details and vacation request

4.4 Weather Page

4.4.1 Description and Priority

The weather information is being presented by weatgherbug.com. This feature is of low priority since weather information can also be retrieved elsewhere.

4.4.2 Stimulus/Response Sequences

Sequence #	Stimulus	Response
1	User is on weather page	Weather for current location is displayed
2	User is on weather page	Weather emergencies for current location are displayed
3	User chooses travel destination	Weather for travel destination is displayed
4	User taps on Person Icon in top right corner	Personal Settings will open
5	User taps on Question Mark symbol in lower right corner	Help feature appears

4.4.3 Functional Requirements

REQ-1: App must be connected to weatherbug server

REQ-2: Weather updates can only arrive with internet access

4.5 Travel

4.5.1 Description and Priority

The crew login feature is of high priority since it gives access to Crew Connect and the data it contains. Furthermore, the login is a crucial security feature of the app.

4.5.2 Stimulus/Response Sequences

Sequence #	Stimulus	Response
1	User is on Travel page	Transport & Hotel information are displayed
2	User taps on Hotel link	Hotel webpage opens
3	User taps on Switch Hotels button	Sends out request to HR to go into self financed hotel
4	User taps on Person Icon in top right corner	Personal Settings will open
5	User taps on Question Mark symbol in lower right corner	Help feature appears

4.5.3 Functional Requirements

REQ-1: Transport information must be frequently updated (arrival times, driver info, car info)

REQ-2: For most recent information and to access hotel webpage, phone must have an internet connection

4.6 HR

4.6.1 Description and Priority

HR is responsible for all background operations and updating the information in Crew Connect and is therefore of high priority.

4.6.2 Stimulus/Response Sequences

Sequence #	Stimulus	Response
1	User inputs vacation request	HR accepts or denies and sends out message
2	New month started	HR publishes schedule 3 months in advance
3	User taps on Switch Hotels button	HR accepts or denies hotel switch for Crew Member
4	User taps on Person Icon in top right corner	Personal Settings will open
5	User taps on Question Mark symbol in lower right corner	Help feature appears

4.6.3 Functional Requirements

REQ-1: In order to send out a request, user must be connected to the internet

REQ-2: HR must have access to all servers and data bases for input and editing of data

4.7 Communication

4.7.1 Description and Priority

Communication is crucial for well-flowing flight operations and therefore the chat feature that lets the crew of each flight communicate directly with each other is of high priority.

4.7.2 Stimulus/Response Sequences

Sequence #	Stimulus	Response
1	User taps the Chat Menu or swipes left on the home page	Chat Menu opens up
2	User taps on specific flight chat	Group chat with all crew members that are scheduled for the flight is opened; Number of unread messages for opened chat resets to 0
3	Message is being sent by another user	User receives a notification and number of unread messages goes up for each chat by unread messages
4	User taps “Search for Flight Chat” button	Flight filter opens with additional search bar
5	User taps “Contacts” button	Contact book with all crew members open, regardless of flight, and option to directly contact crew members individually appears
6	User taps “Settings” button	Chat settings open
7	User taps “Chats” button (after being on Settings or Contacts page)	Chat Menu opens up
8	User taps on Person Icon in top right corner	Personal Settings will open
9	User taps on Question Mark symbol in lower right corner	Help feature appears

4.7.3 Functional Requirements

REQ-1: To see new chats, crew member must be conntected to the internet

REQ-2: Chats must be opened 10 days before flight and crew members must be granted access

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4.8 Alerts

4.8.1 Description and Priority

Alerts are notifications that are being sent on the Crew members' phones. They are usually of urgent matter or live chats such as weather danger, flight rescheduling, flight cancellations, flight delays, vacation and hotel change request approvals or denials, and more. Crucial alerts are of high priority whereas chat alerts are of low priority since the crew member can also manually check the chat function.

4.8.2 Stimulus/Response Sequences

Sequence #	Stimulus	Response
1	Weatherbug.com discovers dangerous weather conditions in one of WASUP airlines' flight routes	Weather alert pops up on Crew members' phones
2	Shuttle service sends out driver to pick up crew	Nptification is send out to crew with information about driver, car, and pickup time
3	Adjustment in fligt schedule (including delays and cancellations)	Alert is being sent out to crew
4	Any other emergencies happen	Alert to all Crew members is being sent out
5	After 5,10,15,… unread chats in one group chat	Crew member receives notification about unread chats

4.8.3 Functional Requirements

REQ-1: HR is in control of most alerts

REQ-2: Weatherbug server is connected to Crew connect and sends out alerts

REQ-3: Shuttle service is responsible to provide correct information for transport alerts

5. Other Nonfunctional Requirements

5.1 Performance Requirements

<If there are performance requirements for the product under various circumstances, state them here and explain their rationale, to help the developers understand the intent and make suitable design choices. Specify the timing relationships for real time systems. Make such requirements as specific as possible. You may need to state performance requirements for individual functional requirements or features.>

5.2 Safety Requirements

<Specify those requirements that are concerned with possible loss, damage, or harm that could result from the use of the product. Define any safeguards or actions that must be taken, as well as actions that must be prevented. Refer to any external policies or regulations that state safety issues that affect the product's design or use. Define any safety certifications that must be satisfied.>

5.3 Security Requirements

<Specify any requirements regarding security or privacy issues surrounding use of the product or protection of the data used or created by the product. Define any user identity authentication requirements. Refer to any external policies or regulations containing security issues that affect the product. Define any security or privacy certifications that must be satisfied.>

5.4 Software Quality Attributes

<Specify any additional quality characteristics for the product that will be important to either the customers or the developers. Some to consider are: adaptability, availability, correctness, flexibility, interoperability, maintainability, portability, reliability, reusability, robustness, testability, and usability. Write these to be specific, quantitative, and verifiable when possible. At the least, clarify the relative preferences for various attributes, such as ease of use over ease of learning.>

5.5 Business Rules

<List any operating principles about the product, such as which individuals or roles can perform which functions under specific circumstances. These are not functional requirements in themselves, but they may imply certain functional requirements to enforce the rules.>

6. Other Requirements

<Define any other requirements not covered elsewhere in the SRS. This might include database requirements, internationalization requirements, legal requirements, reuse objectives for the project, and so on. Add any new sections that are pertinent to the project.>

Appendix A: Glossary

<Define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. You may wish to build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each SRS.>
Leg

Appendix B: Analysis Models

<Optionally, include any pertinent analysis models, such as data flow diagrams, class diagrams, state-transition diagrams, or entity-relationship diagrams.>

Appendix C: To Be Determined List

<Collect a numbered list of the TBD (to be determined) references that remain in the SRS so they can be tracked to closure.>