Flight reservation application

1. PRODUCT DESCRIPTION

A flight booking application is a software program designed to facilitate the process of booking flights for customers. It typically provides a user-friendly interface that allows customers to search for available flights, compare prices, and make reservations online. The application may also provide additional features, such as the ability to choose seats, purchase additional baggage, and make changes to reservations. The goal of a flight booking application is to provide customers with an easy and efficient way to book flights, while also increasing revenue for the airline or travel company that operates the application.

The problems that the project solves:

Convenience: A flight booking app makes it convenient for travelers to book flights from the comfort of their homes, offices, or while on the go. They no longer have to physically visit a travel agency or airport to book their flights.

Time-saving: With a flight booking app, travelers can save time that would otherwise have been spent waiting in long queues to book their flights. They can quickly search for available flights, compare prices, and make bookings in a matter of minutes.

Cost-effective: A flight booking app can help travelers find the best deals and discounts on flights. By comparing prices and offers from different airlines, travelers can save money on their bookings.

Real-time updates: Flight booking apps provide real-time updates on flight schedules, delays, cancellations, and other important information that travelers need to know. This helps travelers plan their trips better and avoid unnecessary inconvenience.

Project Function:

Flight Search: Users should be able to search for flights by specifying the departure and arrival cities, travel dates, and the number of passengers. The app should then display a list of available flights along with their prices.

Flight Details: Users should be able to view the details of each flight, including the airline, flight number, departure and arrival times, layovers (if any), and any other relevant information.

Booking and Payment: Users should be able to book a flight by selecting the desired flight and entering their personal and payment information. The app should provide a secure payment gateway to ensure that the user's payment details are kept safe.

2. TEAM DESCRIPTION

Tim members	Skills	Job
Syed Hossam syed	C++ / Sql / C# / Dart	Data base Team leader Project manager
Mahmoud Ahmed Hassan	Html / Css / Javascript / React.js / Bootstrap / Php / Sql	Front end
Mohamed Abdel Fattah Mohamed	Php / my sql	Back end
Mahmoud Elshazly	Html / Css / Java / C++	Wep developer java
Abdelwahab adel abdulmajeed	Html / Css / Javascript / React.js / Bootstrap / Php / my sql	Front end
Mahmoud amr ali	c++ / Html/designer	Designer and programmer

Lost experiences:- artificial intelligence / data engineer / machine learning .

Is there a need for a subject matter expert (SME)?

Yse need, to control the quality of raw materials and products and follow up the methods of transporation .

3. SOFTWARE PROCESS MODEL DESCRIPTION

For a Marketing site for construction and decoration products, the Agile model is the recommended .approach

<u>The Agile</u> model is a flexible and iterative approach to software development, where requirements and solutions evolve through the collaborative effort of self-organizing and cross-functional teams. Agile methodology allows for constant communication and feedback, which is crucial in a website development project, where the client's requirements and feedback may change as the project .progresses

Furthermore, the Agile model emphasizes delivering functional software frequently, with each iteration adding value to the end product. This approach allows for faster time-to-market and ensures that the client's needs are continually met throughout the .project

In contrast, the Waterfall model is a rigid and sequential approach to software development, where each stage of development must be completed before moving to the next stage. This approach can be cumbersome for website development, as changes and updates to the client's requirements cannot be easily

.accommodated once a stage has been completed

In conclusion, the Agile model is the recommended approach for a Marketing site for construction and decoration products due to ,its flexibility, iterative nature, and focus on client satisfaction

4. PRODUCT DEFINITION

tools they need

- 1-Video Conferencing Software (Zoom, Microsoft Teams)
- 2-Project Management Tools
- 3-Communication Tools (Microsoft Teams)
- 4-Learning Management System
- 5-Online Survey and Feedback Tools (Google Forms,)

goals or objectives

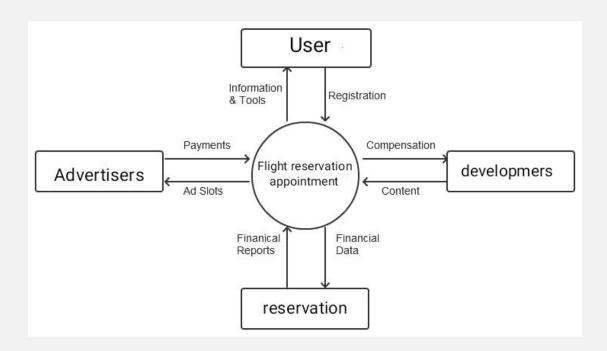
- 1-Evaluate feasibility and viability.
- 2-Test functionality and performance.
- 3-Gather user feedback for improvement.
- 4-Measure effectiveness compared to traditional methods.

expertise with technology

- 1-Familiarity with online platforms.
- 2-Understanding of web technologies.
- 3-Proficiency in data management.
- 4-Knowledge of security and privacy principles.

biggest challenges

- 1-Technical issues
- 2-Connectivity problems
- 3-User adoption and engagement
- 4-Security and privacy concerns
- 5-Training and support needs



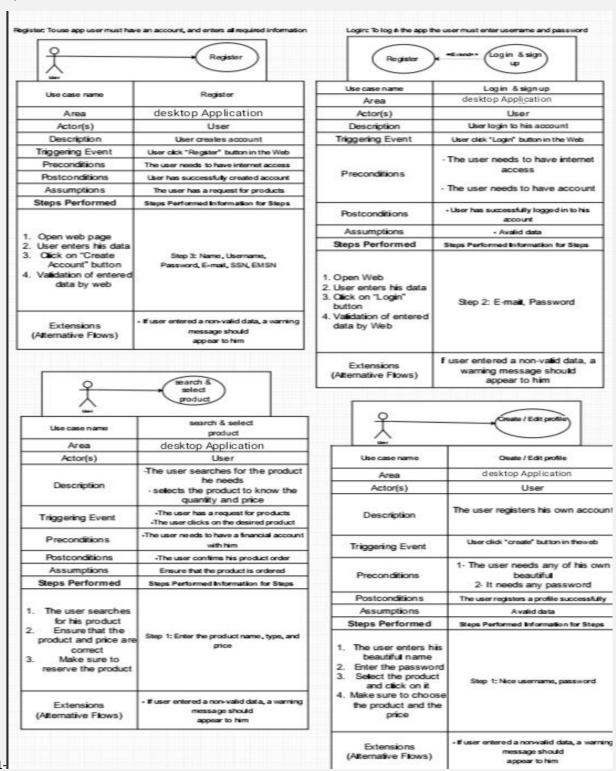


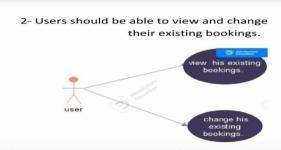
User Story

Title:	Priority:	Estimate:	
User Story: Keep it simple, easy to use, keep the service cheap, provide high availability, and keep it secure			
Acceptance Criteria: First, the user will log in.			
Second, he will record new flig			
ht, specifying the source, desti nation, date, and number of se			
ats. Third, he will create a recor			
d new passenger,			

Use case senior

Requirements:-





Use cases Scenario:

1-Use cases name: view his existing

bookings

Area: desktop Actor: travelers

Description: view all current

reservations

Triggering event: When the travel date

approaches

precondition: enter the correct

information and before the return trip

postcondition: View all current

information and before the return trip postcondition: Change booking

assumption: a valid data

Steps performed:

1-Login to the website

2-View all current reservations

3-change his existing bookings step performed information for steps: step 2: View all current reservations extensions: The return of the trip is

too late and If the information is not

correct

reservations

assumption: a valid data

Steps performed:

1-Login to the website

2-View all current reservations step performed information for steps: step 2: View all current reservations extensions: The return of the trip is too late and If the information is not

correct

2-Use cases name: change his

existing bookings

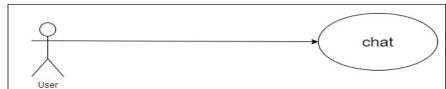
Area: website Actor: travelers

Description: change bookings Triggering event: before the travel

date

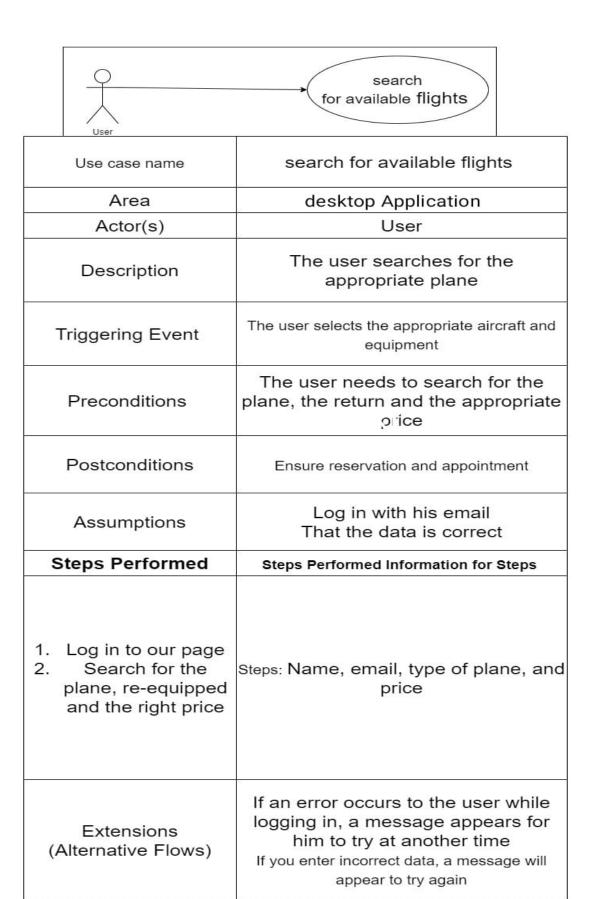
precondition: enter the correct

3- Provide customer service via a call centre or online chat .

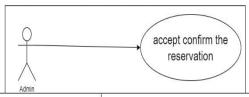


User	
Use case name	chat
Area	desktop Application
Actor(s)	User
Description	He asks about reservation times and prices
Triggering Event	The Admin speaks to customers
Preconditions	The user needs to login to our website The user needs access to the Internet
Postconditions	The user made the reservation safely
Assumptions	Confirmation of reservation The data is correct
Steps Performed	Steps Performed Information for Steps
 Open the site Inquire about requirements He makes reservations Ensure reservation, price and date 	Steps:Name, date, time, email, password, national number
Extensions (Alternative Flows)	If an error occurs to the user while logging in, a message appears for him to try at another time If you enter incorrect data, a message will appear to try again

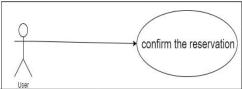
4- Display available flights, together with information such as departure and arrival timings, layover duration, and ticket price.



5-Please provide a booking confirmation with a reservation number and itinerary.



7.4000	
Use case name	accept confirm the reservation
Area	desktop Application
Actor(s)	Admin
Description	The Admin makes a reservation
Triggering Event	Accepts Admin information
Preconditions	It needs correct data from the user
Postconditions	Confirm user reservation
Assumptions	correct data
Steps Performed	Steps Performed Information for Steps
Ensure correct user data its national ID	Steps: Name, national number, password, email
Extensions (Alternative Flows)	If an error occurs to the user while logging in, a message appears for him to try at another time If you enter incorrect data, a message will appear to try again



	User	
	Use case name	confirm the reservation
	Area	desktop Application
	Actor(s)	User
	Description	The user makes a reservation
	Triggering Event	Accepts user information
	Preconditions	The user enters the correct data for him
	Postconditions	Confirm user reservation
	Assumptions	Enter the correct data
	Steps Performed	Steps Performed Information for Steps
1.	Ensure correct user data its national ID	Steps: Name, national number, password, email
	Extensions (Alternative Flows)	If an error occurs to the user while logging in, a message appears for him to try at another time If you enter incorrect data, a message will appear to try again

6- Customer should be able to select the names of departure and arrival cities from the list of all flight offered cities.



1-usecase scenario name:select the names departure and arrival cites

Area:desktop application

Actor:customer

Description:customer select the departure and arrival cites from the list of flight offered cites

Triggering event: When the user clicks on booking a flight from one city to another

Precondition:booking a new travel

Postcondition:select the departure and arrival city

Steps performed: 1-click on booking new travel

2- Click on the menu to choose the city of departure

3-click on the menu to choose the arrival city

Extension: There are no direct flights from the city to the city and if the information is not correct

7- Customer should be able to specify the number of passengers. the number of adults <include>> the number of children

Use cases Scenario:

Use cases name: specify passengers

Area : desktop Actor: customers

Description : Determine the number of

passengers on the flight

Triggering event: When booking

tickets

precondition : before the trip and when determining the number of

passengers

postcondition : determining the

number of passengers assumption : a valid data

Steps performed:

1-determining the number of

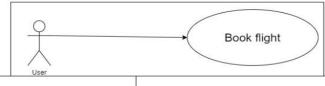
passengers

step performed information for steps : step 1 : when determining the number

of passengers

extensions :If the information is not correct and the number is not correct

8- Customer should be able to specify the travel class while searching for a flight.



User	
Use case name	Book flight
Area	desktop Application
Actor(s)	User
Description	The user books the plane
Triggering Event	The user clicks on the reservation button on the web
Preconditions	The user needs to log in to the website to book The user needs to have his own email and national numbe
Postconditions	The user drew it in peace
Assumptions	I have a fast user correct data
Steps Performed	Steps Performed Information for Steps
Ensure correct user data its national ID	Steps: Name, national number, password, email
Extensions (Alternative Flows)	If an error occurs to the user while logging in, a message appears for him to try another time If an error occurs to the user during booking, a message appears for him to try again

 $9-\;$ Customer should be able to sort the list of possible flights by price and flight duration.



1-usecase scenario name:sort the travels by price or duration

Area:desktop application

Actor:customer

Description: customer sort the travels by price or duration in the list of available travels

Triggering event: When the user clicks on sort button on the top of list and choose price or duration

Precondition: search for available travel

Postcondition:sort the travels by price or duration

Steps performed: 1-click on search a travels

2- Click on the menu to choose sort

3-click on the menu to sort by price or duration

Extension: there are no direct flights from the city to the city and if the information is not correct

10- Customer should be able to request reservation cancellation



Use cases Scenario:

Use cases name: request cancelation

Area: desktop Actor: travelers

Description: The traveler can cancel

the flight request

Triggering event: When canceling a

flight request

precondition: enter the correct information and before the return trip

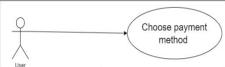
postcondition : The flight is cancelled

assumption: a valid data

Steps performed:

1-Login to the website
2-Submit a flight cancellation request step performed information for steps: step 2:when login to the website extensions:The return of the trip is too late and If the information is not correct

11- System should be able to handle payments done by the customer via PayPal and Bank.



User	
Use case name	Choose payment method
Area	desktop Application
Actor(s)	User
Description	He may have a Visa card for payment or an electronic wallet
Triggering Event	The user pays online
Preconditions	The user needs a Visa card or an electronic wallet to pay
Postconditions	The user pays successfully
Assumptions	The user has the ease of payment correct data
Steps Performed	Steps Performed Information for Steps
Enter on the web to pay He enters his visa card number and password for payment, as well as in the electronic wallet	Steps: Name, visa card number, password, email
Extensions (Alternative Flows)	If an error occurs to the user while logging in, a message appears for him to try another time If an error occurred in the payment, a message appears, try again



Bank		
Use case name	process payment	
Area	desktop Application	on
Actor(s)	User	
Description	The bank deposits an amou user into the account of	
Triggering Event	Confirmation of payment by the cu	stomer bank
Preconditions	We need a bank acco	ount
Postconditions	Payment completed success	ssfully
Assumptions	The user has confidence ar correct data	nd security
Steps Performed	Steps Performed Information f	or Steps
After the user sends the reservation money The money is sent to the bank in our account	Steps: bank account, pas	sword,
Extensions (Alternative Flows)	If an error occurs to the us payment, a message appears	

12- Administrator should be able to add new flights to the system,modif y the details of existing flights,

remove cancelled flights from the system ,see and accept reservation cancellation requests,

reject reservation cancellation requests and see details of existing booking



1-usecase scenario name:edit flights details

Area:desktop application

Actor:administrator

Description: administrator can show flights details and modify it by add a new flights ,accept cancellation requests or deny it,remove cancelled

4-modify flights details

5-add a new flights

Extension: the information is not correct

flights from the system and show booking details

Triggering event: When the administrator clicks on flights details button

Precondition: administrator login,click on flights details

Postcondition:edit flights information

Steps performed: 1-click on flights details button

2- Click on the menu to choose cancelled flights

3-review all cancelled requests and click on (accept,deny)

5. USER EXPERIENCE WIREFRAMES

Initial prototype screens to validate initial understanding of the product.

:

- 1-Understand the product: You need to have a clear understanding of the product, its features, and its target audience. This will help you in creating wireframes that meet the needs of your users.
- 2-Define the user flow: Determine the user journey and how they will interact with the product. This will help you in creating a clear and efficient wireframe design.
- 3-Sketch the basic layout: Start by sketching the basic layout of the wireframe on paper or using wireframing tools like Sketch, Figma, or Adobe XD. The goal at this stage is to create a rough idea of the layout and overall structure of the design.
- 4-Create the wireframe: Once you have a rough layout in mind, create a digital wireframe. Use the chosen wireframing tool to create a more detailed design that includes all necessary elements such as navigation, content, and functionality.
- 5-Refine and iterate: Refine and iterate the wireframe by testing it with users and making changes based on feedback. This is an important step in creating a wireframe that meets the needs of your target audience.

6. PROJECT ORGANIZATION

Breakdown of major tasks and schedule

Matrix of Responsibilities

Defines the high level which team members are responsible for which tasks

1.Planning Phase (Week 1-2)

Key Tasks:

- Define project objectives and scope
- Identify project stakeholders and their roles
- Create a project charter and project plan
- Establish project timelines and milestones
- Conduct initial risk assessment

Responsibilities Matrix:

Task	Responsible Team Member(s)
Define project objectives and scope	Project Manager, Business Analyst
Identify project stakeholders and their roles	Project Manager, Business Analyst
Create a project charter and project plan	Project Manager, Business Analyst
Establish project timelines and milestones	Project Manager, Technical Lead
Conduct initial risk assessment	Project Manager, Technical Lead

2. Design Phase (Week 3-6)

Key Tasks:

- Develop wireframes and user interface designs for the One Lane Pilots platform
- Create technical specifications and design documentation
- Conduct user testing and feedback sessions
- Refine and finalize the design of the One Lane Pilots platform

Responsibilities Matrix:

Task Responsible Team Member(s)

Develop wireframes and user interface designs	UX Designer, UI Designer, Frontend Developer
Create technical specifications and design documentation	Technical Lead, Backend Developer
Conduct user testing and feedback sessions	UX Designer, Project Manager, Business Analyst
Refine and finalize the design of the One Lane Pilots platform	UX Designer, UI Designer, Frontend Developer

3.Development Phase (Week 7-12)

Key Tasks:

- Develop the One Lane Pilots platform using appropriate programming languages and frameworks
- Conduct functional testing and debugging
- Integrate the platform with third-party services as needed
- Prepare the platform for deployment

Responsibilities Matrix:

Task	Responsible Team Member(s)
Develop the One Lane Pilots platform	Technical Lead, Backend Developer, Frontend
	Developer
Conduct functional testing and debugging	QA Tester, Technical Lead, Backend Developer,
	Frontend
Integrate the platform with third-party services	Technical Lead, Backend Developer
Prepare the platform for deployment	Prepare the platform for deployment

4.(Week 13-14)

Key Tasks:

- Deploy the One Lane Pilots platform to the intended platform or server
- Conduct final system testing and user acceptance testing
- Make necessary adjustments and bug fixes based on user feedback

Responsibilities Matrix:

Task	Responsible Team Member(s)
Deploy the One Lane Pilots platform to the intended platform or server	DevOps Engineer, Technical Lead
Conduct final system testing and user acceptance testing	QA Tester, Project Manager, Business Analyst
Make necessary adjustments and bug fixes based on user feedback	Technical Lead, Backend Developer, Frontend Developer, UX Designer

5. Project Review and Closure (Week 15-16)

Key Tasks:

- Conduct a final project review with stakeholders to evaluate project success and identify areas for improvement
- Prepare a project closure report and present it to stakeholders
- Archive project documentation and deliverables

Responsibilities Matrix:

Task	Responsible Team Member(s)
Conduct a final project review with stakeholders to evaluate project success and identify areas for improvement	Project Manager, Business Analyst, Technical Lead, UX Designer
Prepare a project closure report and present it to stakeholders	Project Manager, Business Analyst
Archive project documentation and deliverables	Project Manager, Business Analyst

7-VALIDATION PLAN

Test Strategy

1-What is the definition of done in project desktop application Booking airline tickets

The definition of done for a project application booking airline tickets can vary depending on the specific requirements and scope of the project. However, in general, the definition of done could include the following criteria:

- 1. The application allows users to search for flights based on their preferred travel dates, destinations, and other relevant criteria.
- 2. The application provides users with accurate and up-to-date information about flight schedules, availability, and pricing.
- 3. The application allows users to select and book flights, including the ability to choose seats and add additional services (such as baggage or meals) if necessary.
- 4. The application processes payments securely and efficiently, and provides users with confirmation of their bookings.
- 5. The application provides users with the ability to manage their bookings, including the ability to make changes or cancellations if necessary.
- 6. The application is user-friendly and easy to navigate, with clear instructions and helpful prompts throughout the booking process.
- 7. The application is reliable and stable, with minimal downtime or errors.
- 8. The application meets all relevant legal and regulatory requirements, including those related to data privacy and security.
- 9. The application is tested thoroughly to ensure that it works as intended and is free of bugs or other issues.
- 10. The application is delivered on time and within budget, and meets all other

project requirements and objectives.

2-What does success look like in project desktop application Booking airline tickets

Success in a project desktop application booking airline tickets would depend on the specific goals and objectives of the project, but here are some key indicators that could define success:

1. User satisfaction: Users are satisfied with the application and find it easy to use and navigate, leading to positive feedback and reviews.

2. Increased bookings: The application leads to an increase in the number of airline ticket bookings, indicating that users are finding it a valuable and

convenient tool for booking their travel.

3. Improved efficiency: The application streamlines the booking process, making it faster and more efficient for both users and airline staff.

4. Reduced errors: The application reduces errors in booking, such as double bookings or incorrect travel dates, leading to fewer cancellations and refunds.

5. Increased revenue: The application generates increased revenue for the airline through bookings and additional services, such as baggage fees or seat upgrades.

6. Cost savings: The application reduces

costs for the airline through automation of the booking process or other efficiencies.

7. Meeting project objectives: The project team successfully delivers the application within the defined scope, timeline, and budget.

8. Meeting technical standards: The application meets all relevant technical standards and is compliant with relevant regulations and security requirements.

9. High availability and reliability: The application is highly available and reliable, with minimal downtime or errors.

10. Continued improvement: The project

8- Risk assessment

1-Risk Identification
identify potential risks, assess their likelihood and impact, calculate a risk score, prioritize the risks, develop risk management strategies, and monitor the risks throughout the project lifecycle
2-Risk Prioritization in project desktop application Booking airline tickets
1. Technical risk of system failure or downtime during peak booking periods, which could result in lost revenue an customer frustration.
2- Technical risks of security
vulnerabilities, such as data breaches or hacking attempts, which may lead to loss of customer data and damage t the reputation of the application
3- Business risks: These risks relate to the possibility that the project may not meet business objectives, such as failure to generate sufficient revenues or failure to meet the needs of users. Examples of business risks might include poor user adoption rates, low customer satisfaction, or lack of integration with existing systems.
4- External risks of economic conditions that affect travel demand, which may lead to lower revenues for the application
3-Risk Mitigation
1. Conducting thorough testing and quality assurance processes to reduce the risk of software bugs and errors.

- 2. Implementing security measures, such as encryption and user authentication, to reduce the risk of data breaches and protect user data.
- 3. Building redundancy into critical systems or processes to reduce the risk of system failures or downtime, such as having backup servers or network connections.
- 4. Working with reputable vendors or partners who have established

reputations for quality and reliability to reduce the risk of supply chain disruptions or delays in obtaining necessary resources.

- 5. Developing contingency plans to address potential delays or budget overruns, such as by having backup resources or alternative development plans in place.
- 6. Regularly monitoring the risks throughout the project lifecycle to ensure that the risk management strategies are effective and to identify any new risks that may emerge

9. CONFIGURATION AND VERSION CONTROL

Configuration and version control are essential for ensuring the reliability and consistency of a desktop application for booking airline tickets, and can be achieved through tools like Git and Ansible. Effective management of configuration and version control helps prevent errors and ensures efficient development and maintenance of the application.

10. TOOLS

Tools and their use in project desktop application Booking airline tickets.

To develop a desktop application for booking airline tickets, there are several tools and technologies that you may need to use. Here are some of the commonly used tools for such a project:

- 1. Programming languages: You'll need to choose a programming language to write the code for your application. Popular languages for desktop applications is C#
- 2. Integrated Development Environment (IDE): An IDE is a software application that provides comprehensive facilities to computer programmers for software development. Examples is Visual Studio code
- 3. User Interface (UI) Framework: A UI framework or library can help you create a visually appealing and user-friendly interface. Popular UI frameworks is Windows Forms
- 4. Database management system: You'll need a database to store information about flights, bookings, and customers. Popular database management systems is SQLite.

11. ARCHITECTURE

List of hardware or other subsystems required for the product.

- 1.Web servers: The Online Pilots platform will require one or more web servers to host the website and serve content to users.
- 2.Database server: A database server will be required to store and manage user data, including login credentials, flight information, and payment information.
- 3. Payment gateway: An online payment gateway will be required to process payments from users for booking flights and other services.
- 4.Email server: An email server will be required to send automated emails to users for booking confirmations, flight updates, and other notifications.
- 5.Content Delivery Network (CDN): A CDN may be required to improve the performance and availability of the website by caching and serving static content from servers closer to the user's location.
- 6.Load balancer: A load balancer may be required to distribute traffic across multiple web servers to ensure high availability and scalability of the website.
- 7. Firewall: A firewall will be required to protect the website and user data from unauthorized access, attacks, and other security threats.
- 8. Analytics tools: Analytics tools such as Google Analytics may be used to track user behavior, website traffic, and other metrics to improve the platform's performance and user experience.
- 9. Content management system (CMS): A CMS such as WordPress may be used to manage and publish content on the website, including blog posts, news updates, and other content.
- 10.Domain name and SSL certificate: A domain name and SSL certificate will be required to secure the website and enable HTTPS encryption for user data.
- 11.APIs: APIs may be required to integrate with third-party services such as flight tracking, weather updates, and other services to provide users with real-time information and updates.

12-wireframes

