

LAB ASSIGNMENTS

FINAL DOCUMENTATION

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COURSE : ADVANCED SOFTWARE ENGINEERING.

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Project:

Airline Management System.

Assignment 1:

METHODOLOGIES AND TECHNIQUES

What did the others:

- The names already in field used the similar approach and provided with the same features we have in our application.

Techniques, Methodology:

- Agile software development methodology, which supports frequent changes.
- Object Oriented Programming techniques are used.
- MS Access Database used at the backend.

Results:

- A flight seat gets booked and an automated flight ticket is generated. All the user's data is stored in the database used at the backend.
- A flight seat gets cancelled just by entering the autogenerated Seat number given at the time of booking.
- Flight schedules from your current location to your destined location can be checked by entering the dates and locations.
- Flight fares can be checked by determining the locations and class (i.e. Business or Economy) you want to travel in.

Further Additions possible:

- There can be an admin panel added to the app, that provides with login facility for the admin, so that they could amend the schedules, fares and manage booking.

- Help panel can also be introduced that helps the Users/Customers with any kind of difficulty and confusion.

Important names in the field:

1. Pakistan International Airlines (PIA)
2. Emirates Airlines.
3. Airblue.

Related Articles and books:

- Airline Industry by The Guardian.
- An efficient hybrid approach for resolving the aircraft routing and rescheduling problem.
- Airlines and Airplanes - The New York Times

Relevant links:

- <https://www.theguardian.com/business/theairlineindustry>
- <https://www.sciencedirect.com/science/article/>
- www.nytimes.com/topic/subject/airlines-and-airplanes

Assignment 2:

REQUIREMENTS ANALYSIS

PURPOSE OF THE DOCUMENT:

The purpose of this document is to provide thorough details about requirements of the product/project specified by the client. It includes both user and system requirements, which are both functional and nonfunctional.

SCOPE OF THE PRODUCT:

The aim of our project is to design and develop a windows application software which would automate the major airline operations like providing facilities for reservation of tickets, checking of schedules, checking of flight fares, canceling of booking etc.

END USERS AND THEIR CHARACTERISTICS:

- Application administrator/operator; should have complete information and knowledge of the system he is going to work with, beforehand.
- Application user; possibly the passenger or traveler.

PRODUCT FUNCTIONS:

- Ticket booking
- Flight schedules
- Flight fares
- Cancel booking

REQUIREMENT ANALYSIS:

FUNCTIONAL REQUIREMENTS:

Seat Reservation:

- The system supports customers to reserve flight tickets
- Customers can reserve seat and get a digital ticket.

Cancel Reservation:

- Customers can be able to cancel their booking anytime by providing the unique seat number.

Flights' Schedules:

- Customers can check the flight schedule/status from their location to their desired destination.

Flights' Fares:

- Customers can check flight fares based on type of trip [one way or return] and also the class category [business or economy].

Help Desk:

- Help panel available 24/7 to facilitate the customers with any sort of confusion or difficulty.

Login Facility:

- Login feature for administrators.

Updates and Changes:

- Admin can update flight schedules and fares.

NON FUNCTIONAL REQUIREMENTS:**Privacy and Security:**

- Authentic authorization of admin.

Availability:

- The system must provide customers 24*7 hours booking service.

Supportability:

- The system should support multiple seats booking.
- User could choose the class category [i.e. Business/Economy].
- User could decide type of trip [i.e. One-way/Round].
- Generate Digital ticket within 2 - 3 seconds.

Extensibility:

- The system is extensible. New custom features can be added for a particular system environment.

Data integrity:

- Unique seat numbers for each passenger.
- All the customers' information, flight schedules should be stored in organization's Database.

Maintainability:

- Problems occurred in bank transaction/payment should be removed or overcome within seconds. No delays should be faced by the user.
- All sort of errors/bugs handling.

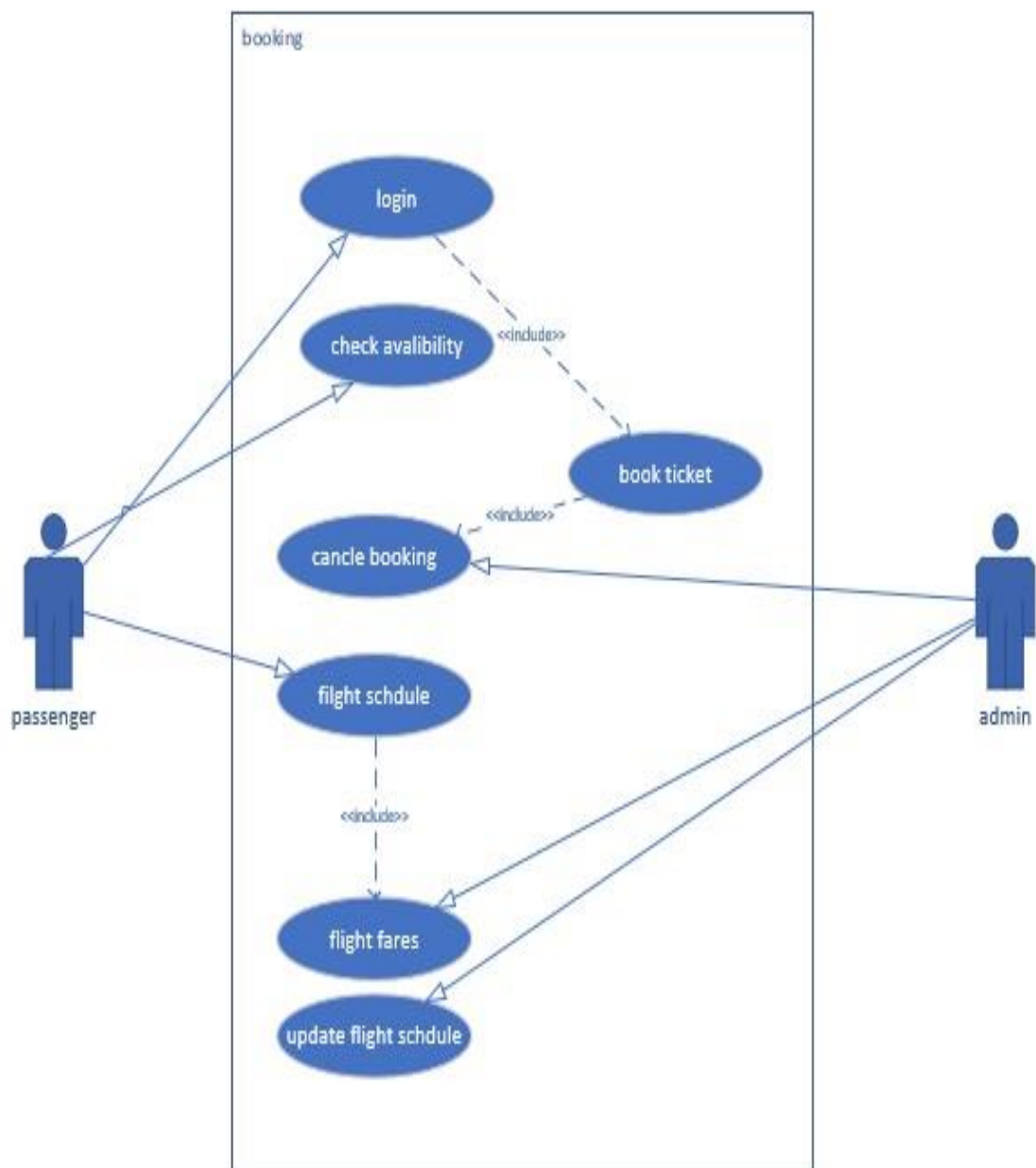
GENERAL CONSTRAINTS:

- The product should provide a user friendly and easy-to-deal-with interface for both kind of end users to work with the application without facing any sort of difficulties.
- The application should also manage all sort of input errors that could possibly be made by the end users.

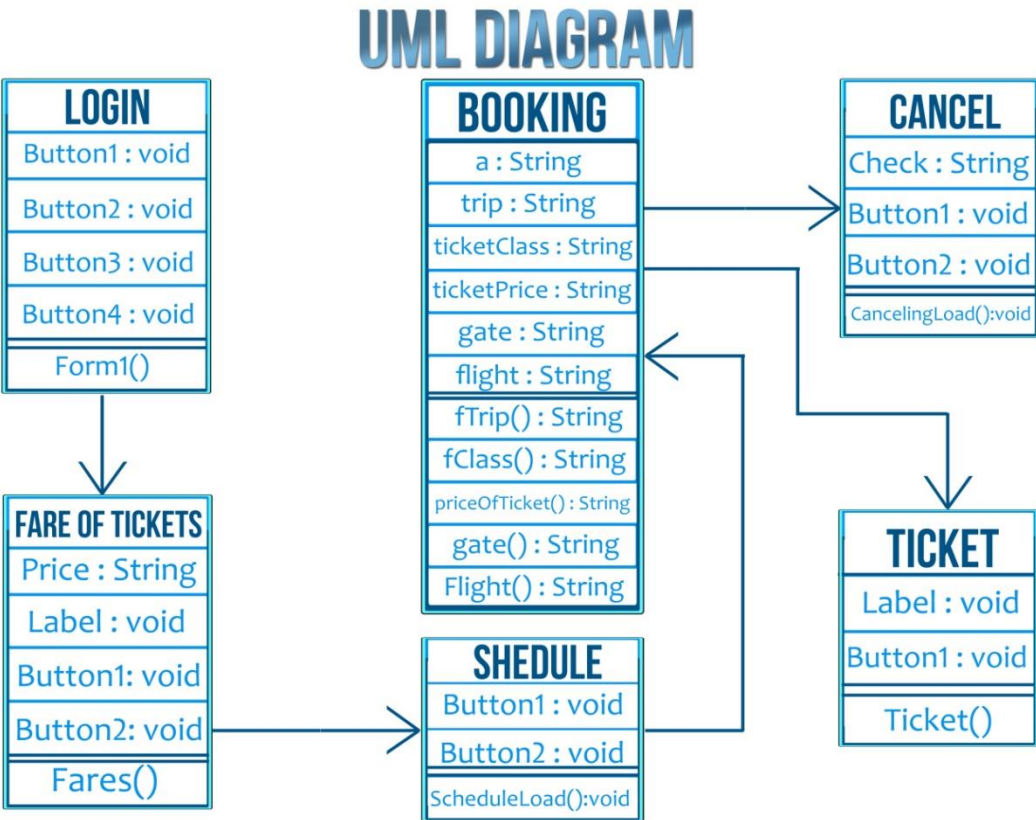
ASSUMPTIONS AND DEPENDENCIES:

- A Database software should be used to keep the track of all sort of records and information.
- The application should be windows application, compatible with all previous and latest windows versions.

USE CASE DIAGRAM



UML DIAGRAM



Assignment 3:

SDLC PHASES AND THEIR REQUIRED TOOLS. & ACTIVITY /SEQUENCE DIAGRAM

Phases:

- Analysis phase.
- Designing phase.
- Database Management phase.
- Project Management phase.
- Documentation.

1. ANALYSIS PHASE :

Tools that can be used :

Tools	Functionality
Process street	Free regular workflow scheduling.
Visure	Reduction total life-cycle costs.
Jama	Jama tool is best for projects with waterfall.

Our analysis tool : Process street.

2. DESIGNING PHASE :

Tools that can be used :

Tools	Functionality
Visual Paradigm	Visual Paradigm is a UML Case tool supporting UML 2 ,SysML and Business process modeling notation from the Object Management Group. In addition to modeling support , it provides report generation and code engineering capabilities including code generations.
Lucid Chart	Lucidchart is a web-based commercial service which allows users to collaborate and work together in real time to create flowcharts, organizational charts, website wireframes, UML designs, mind maps, software prototypes, and many other diagram types.
MS Visio	It is a diagramming and vector graphics application and is part of the Microsoft Office family.

Our design tool : MS Visio.

3. DATABASE MANAGEMENT PHASE :

Tools that can be used :

Tools	Functionality
MS SQL server	In this there are two DBMS sets of tools DBAs and developers : SQL server data tools, for use in developing databases, and SQL Server Management Studio, for use in deploying, monitoring and managing database.
Oracle	Oracle Database is multi-model database management system produced and marketed by Oracle corporation . Commonly used for running online transaction processing, data warehouse and mixed database workloads.
MS Access	Is a database management system from Microsoft that combines the relational Microsoft Jet Database Engine with a graphical user interface and software-development tools.

Our Database Management Tool : MS Access.

4. PROJECT MANAGEMENT PHASE :

Tools that can be used :

Tools	Functionality
Teamwork	For teams of all size that need more robust levels of security.
Workfront	It has features of enterprise work management, issue tracking, document management tracking, time tracking and portfolio management.
MS Project	MS Project is standard tool for maintaining the project plan.

Our Project Management tool : MS Project

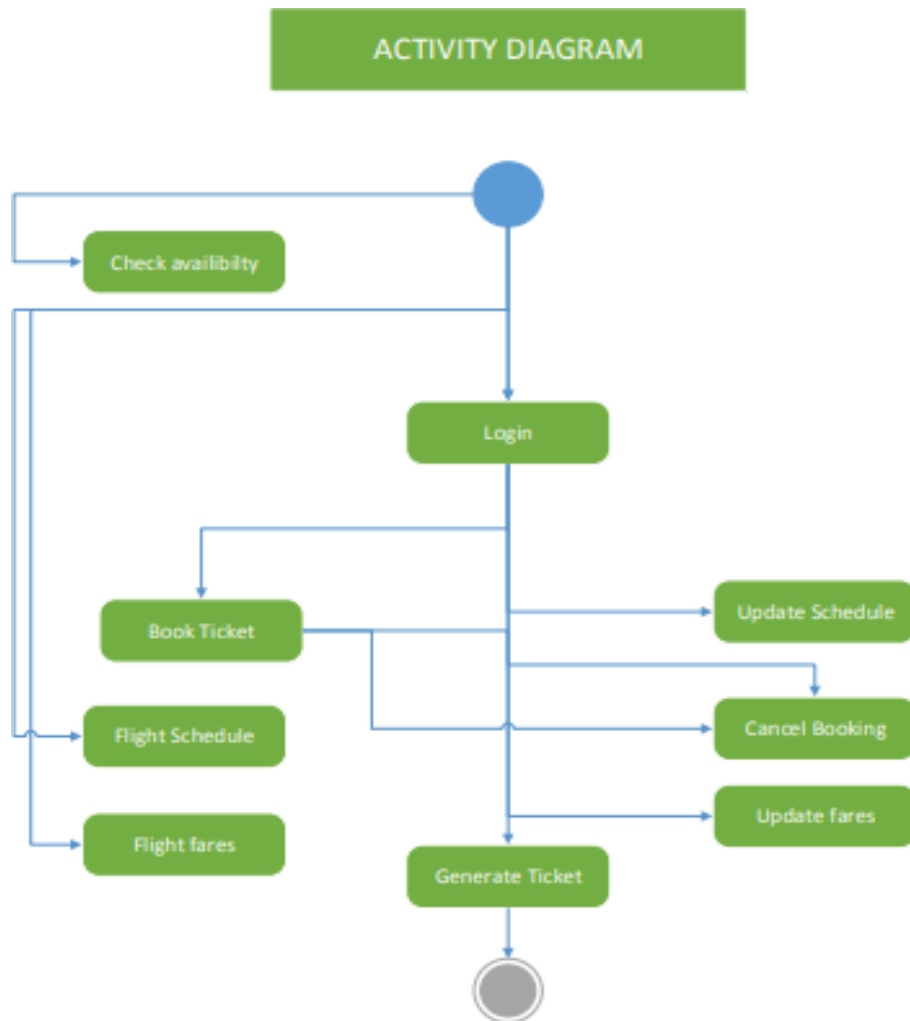
5. DOCUMENTATION TOOL :

Tools that can be used :

Tools	Functionality
Share point	Share point is primarily sold as a document management and storage system, but the product is highly configurable and usage varies substantially between organizations.
Google Docs	Google Docs is a free Web-based application in which documents and spreadsheets can be created, edited and stored online. Files can be accessed from any computer with an internet connection and a full-featured Web browser.
MS Word	MS Word is used for manipulate a text document, such as a resume or a report. Software provide tools for editing, deleting and various types of formatting.

Our Documentation tool : MS Word.

ACTIVITY DIAGRAM:



SEQUENCE DIAGRAM:

