CLIENT	The airline
USER	Airline workers
FUNCTIONAL REQUIREMENTS	R1-Load city information. R2-Show connectivity between a pair of cities. R3-Find the fastest route. R4-Find the route with the lowest operating costs.
CONTEXT OF THE PROBLEM	An airline requires a program that enables efficient flight scheduling, ensuring seamless connectivity between all cities, offering shorter routes, and optimizing layovers when necessary. This program must consider flight times and operational costs to enhance overall efficiency

NAME OR IDENTIFIER	R1-Load city information		
SUMMARY	The requirement is to load information related to an airline. The files that need to be loaded are: cities_Names: This file contains data about the names of the cities. cities_Connections: This file contains connections between cities, operating costs, and flight times associated with those connections. By loading this information, you will have an updated and comprehensive record of the cities served by the airline, available routes, operating costs associated with each route, and estimated flight times between cities.		
INPUTS	Input name	Datatype	Condition of valid values
	cities_Names	txt	The city names should be clearly separated for the program to recognize them correctly.
	cities_Connections	txt	The connections should be between two cities from “cities_names” list. Each connection should include the operating cost and flight time associated with it.
POSTCONDITION	To have the airline information properly loaded into the system. This implies that the list of city names, the connections between them, the associated operating costs for each connection, and the estimated flight times have been accurately and completely stored. After all this, a message is generated that the registration was successful, and it also shows a graphical interface where the connections between cities are displayed.		
OUTPUTS	Output name	Datatype	Format
	registration_successful_message	String	The data of the cities were load without errors
	conections_displayed		

NAME OR IDENTIFIER	R2-Show connectivity between a pair of cities.		
SUMMARY	The requirement is to ensure and show the connectivity between a specific pair of cities, denoted as city1: Departure city that is within the list of cities of the airline. city2: Arrival city that is within the list of cities of the airline. The main objective is to ensure that there is an operational route directly connecting these two cities. By fulfilling this requirement, it guarantees that travelers can travel from "city1" to “city2" and vice versa, either directly or with layovers. This provides a more efficient service.		
INPUTS	Input name	Datatype	Condition of valid values
	city1	String	The city must belong to the list of cities of the airline
	city2	String	The city must belong to the list of cities of the airline.
POSTCONDITION	Have established a direct operational route between those two specific cities, which implies that you can navigate from one to the other. After all this, a message is generated that the connection is successful and show that route.		
OUTPUTS	Output name	Datatype	Format
	connectivity_successful_message	String	Connectivity between the two cities has been successfully established.
	pair_optimized _displayed		

NAME OR IDENTIFIER	R3-Find the fastest route		
SUMMARY	The requirement is to find the fastest route using the available flight time data in the city connections file. The main objective is to determine the route that requires the shortest flight time between a specific origin and destination, between the all the cities.		
POSTCONDITION	The result of the requirement would be to have identified and determined the specific route that offers the shortest flight time between a given origin and destination. An optimal route is obtained, providing accurate information about the minimum flight time required to travel between the selected origin and destination and shows in the graphical interface where the connections between cities are displayed optimized for time.		
OUTPUTS	Output name	Datatype	Format
	optimized_conections_displayed		.

NAME OR IDENTIFIER	R4-Find the route with the lowest operating costs		
SUMMARY	The requirement is to find the route with the lowest operating cost using the available flight operating cost data in the city connections file. The main objective is to identify the route that requires the least financial expenditure in terms of associated operating costs between the cities.		
POSTCONDITION	The postcondition would be to have identified and determined the specific route that offers the lowest operating cost among the specified connections in the city connections file and display them optimized by lowest operating cost on the graphical interface.		
OUTPUTS	Output name	Datatype	Format
	optimized_conections_displayed		.