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Especificacion del problema: Se solicita el diseño de un programa informático que permita a los usuarios planificar y gestionar rutas de transporte a nivel nacional. El objetivo del programa es brindar una herramienta eficiente para facilitar la planificación de viajes y desplazamientos en un contexto de al menos 50 ciudades interconectadas.
El programa se diseñará con una base de datos preestablecida que incluirá las conexiones entre las ciudades, especificando las distancias o tiempos de viaje correspondientes. Estas conexiones estarán predefinidas y no se requerirá que los usuarios agreguen ciudades o administren las conexiones existentes.
El programa permitirá a los usuarios calcular las rutas más convenientes entre dos ciudades concretas, teniendo en cuenta criterios como la distancia o el tiempo de viaje. Se espera que los usuarios puedan obtener información sobre las mejores rutas disponibles sin revelar detalles sobre la implementación o los algoritmos utilizados.

Además, el programa ofrecerá funcionalidades para que los usuarios registren información sobre los viajes realizados por los pasajeros. Esto incluirá datos relevantes como fecha, origen, destino y detalles adicionales. El registro de esta información permitirá un seguimiento preciso de los viajes y proporcionará datos valiosos para la planificación futura.
Se espera que el programa tenga una interfaz intuitiva y fácil de usar, que permita a los usuarios planificar rutas de viaje, acceder a información relevante sobre distancias, tiempos de viaje y otros datos importantes, y registrar información sobre los viajes realizados.

Requerimientos funcionales:

Cliente	transport terminal.
Usuario	travellers

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Requerimientos funcionales	R1: The program allows you to set 50 cities. R2: The program allows establishing connections between existing cities. R3: The program allows to show an image of the cities and their connections. R4: The program allows people to travel from any city. R5: The program allows you to choose the place of destination. R6: The program allows the user to decide which is the shortest path to reach their destination. R8. Upload Data
Contexto del problema	It proposes the design of a computer program that allows users to plan and manage transport routes at the national level. The main objective of the program is to provide an efficient tool that facilitates the planning of trips and displacements in a context of cities of at least 50 interconnected. The program will be based on a pre-established database that will determine the connections between the cities, specifying the corresponding distances or travel times. These connections will be predefined and users will not need to add cities or manage existing connections. The program will allow users to calculate the most convenient routes between two specific cities, taking into account criteria such as distance or travel time. Users are expected to be able to obtain information about the best available routes without revealing details about the implementation or the algorithms used. In addition, the program presents functionalities for users to record information about the trips made by passengers. This relevant data such as date, origin, destination and additional details. Recording this

	information will allow for accurate tracking of trips and provide valuable data for future planning. The program is expected to have an intuitive and easy-to-use interface, which will allow users to plan travel routes, access relevant information on distances, travel times and other important data, and record information about the trips made.

Name or identifier	**R1. InsertCity.**		
Summary	the system allows to create a new city this in the graph is represented as a vertex		
Inputs	**Input name**	**Datatype**	**Selection or repetition condition**
	Name	**T**	**Dif null and don't exist in the system**
General activities necessary to obtain the results	1. Create the vertex that value is the name 2. Search the name in the total cities if exist the program show massage said exist the city. 3. If the value don't exist in the total cities the program create the new vertex and save in the arraylist		
Result or post-condition	The program save the massage		

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Outputs	**Output name**	**Datatype**	**Selection or repetition condition**
	Msg	String	none

Name or identifier	**R2. InsertConection.**		
Summary	the program allows the user to enter the connection between two existing cities		
Inputs	**Input name**	**Datatype**	**Selection or repetition condition**
	cityPrincipal	**T**	**Dif null and don't exist in the system**
	cityDestination	**T**	**Dif null and don't exist in the system**
	mph	**T**	**Mph > 0**
General activities necessary to obtain the results	1. Search both names in the total cities if don't exist the program show massage said don't exist the city. 2. Search the connection in the principal city that don't exist the same whit the destination		

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	3. The program establishes the connection in the city and his distance is the mph		
Result or post-condition	The program save the massage		
Outputs	**Output name**	**Datatype**	**Selection or repetition condition**
	Msg	String	none

Name or identifier	**R3. showImage.**		
Summary	the program shows a picture of the connections between cities		
Inputs	**Input name**	**Datatype**	**Selection or repetition condition**
General activities necessary to obtain the results	1. Whit javaFx the program sow the image whit all cities and connections whit her mphs.		
Result or post-condition	The program show the image.		
Outputs	**Output name**	**Datatype**	**Selection or repetition condition**

	image	png	none

Name or identifier	**R4. InsertVisitStartTravel.**		
Summary	the program allows that user select in the all countrys that decid start to travel		
Inputs	**Input name**	**Datatype**	**Selection or repetition condition**
	NameCity	**T**	**Dif null and exist in the countrys**
General activities necessary to obtain the results	1. Search the country whit the name in the total arraylist the countrys. 2. If the country exist the program show massage the user can move the other cities		
Result or post-condition	The program show the massage.		
Outputs	**Output name**	**Datatype**	**Selection or repetition condition**
	msg	String	none

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Name or identifier	**R4. InsertVisitStartTravel.**		
Summary	the program allows that user select in the all countrys that decid start to travel		
Inputs	**Input name**	**Datatype**	**Selection or repetition condition**
	NameCity	**T**	**Dif null and exist in the countrys**
General activities necessary to obtain the results	1. Search the country whit the name in the total arraylist the countrys. 2. If the country exist the program show massage the user can move the other cities		
Result or post-condition	The program show the massage.		
Outputs	**Output name**	**Datatype**	**Selection or repetition condition**
	msg	String	none

Name or identifier	**R5. InsertVisitStartTravel.**

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Summary	the program allows that user select in the all countrys with the condition that the country select is different thathe decided in the R4.		
Inputs	**Input name**	**Datatype**	**Selection or repetition condition**
	NameCity	**T**	**Dif null and exist in the countrys**
General activities necessary to obtain the results	1. Search the country whit the name in the total arraylist the countrys. 2. If the country exist the program show massage the user can move the city.		
Result or post-condition	The program show the massage.		
Outputs	**Output name**	**Datatype**	**Selection or repetition condition**
	msg	String	none

Name or identifier	**R6. TravelTheCIties.**
Summary	the program allows the user to move to the city he chose in R5 from the city he chose in R4 with the shortest path between mph at

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	the end a list of the shortest paths he can choose to travel is displayed		
Inputs	**Input name**	**Datatype**	**Selection or repetition condition**
General activities necessary to obtain the results	1.Use a shortest path finding algorithm, such as the Dijkstra algorithm to find the shortest path from the city selected in R4 to the city selected in R5		
Result or post-condition	The program show the massage.		
Outputs	**Output name**	**Datatype**	**Selection or repetition condition**
	msg	String	none

Name or identifier	**R8. uploadData.**		
Summary	the program upload data whit the cities and conections		
Inputs	**Input name**	**Datatype**	**Selection or repetition condition**

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General activities necessary to obtain the results	1. upload data file from gson or txt.		
Result or post-condition	the program save the information in the graph		
Outputs	**Output name**	**Datatype**	**Selection or repetition condition**