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IT Graad 12 PAT – Fase 1

Volitant Express



TASK 1A : SCENARIO / SCOPE

Topic: Volitant Express- A program that allows companies to place an order to fly items from one country to another and manages the freight

Purpose of program: More Companies are transporting items globally and there has been an increase in time sensitive deliveries, thus a program is needed that can manage and control this process and make it easy and efficient for users to use.

Possible solution: The program allows a company to easily place an order to transport an item from one country to another and then calculates the cost, time and distance, it also allocates a plane ,perfect for the job, to get the item to the desired destination in a short amount of time. It plans the freight of the selected item for the client company

Scope: My program cannot accept actual payments as it only simulates the transactions. My program cannot accept/ process orders with more than one item in the order. My program cannot validate a real email and accepts that the email is real if the format is correct. My program cannot encrypt companies data to keep it secure from hackers. Some cost calculations and flight data may not be fully accurate therefore total cost calculations and durations may be inaccurate. My program can't be accessed by multiple users at once.

TASK 1B : USER REQUIREMENTS

WHO (Role)	WHAT (Activity)	LIMITATION
Clients (Companies) Placing orders to transport items between 2 countries	They can Register, Login, Change their companies details, receive newsletter emails, place orders for items to be transported between countries, pay online for the order that they have placed, view past payment of orders and unpaid orders, view a log of their history of placing orders at Volitant express	They cannot add new items or categories for shipping, they cannot see summaries of all the data in the system, they can't send emails, they can't see details regarding other companies orders and they cannot see the details of other companies, cannot type custom SQL statements
Admin Manage and control the system	They can add a new plane, update info about planes, add a new item and manage existing items, see detailed info about orders, see companies details, send newsletter emails and see system summaries, change the status of an order	They cannot type custom SQL statements, cannot place orders or manage an order as if they were a company customer
Admin Developer Admin with an extra feature access	They can add a new plane, update info about planes, add a new item and manage existing items, see detailed info about orders, see companies details, send newsletter emails and see system summaries, change the status of an order, they can also type custom SQL statements	They cannot place orders or manage an order as if they were a company customer

TASK 2 : DATABASE DESIGN

tblCompany:

CompanyID	CompanyNa	Password	Email	Government	RegDate	Location Bas	NewsLetter	Establishme	Default Hou	Username
1	Diggers	Pass\$22!	dig@gmail.com	<input checked="" type="checkbox"/>	2025/03/24	South Africa	<input type="checkbox"/>	2022/10/19	44	Testing11
2	RobertTOWN	ERT22@!ROB	robertvdspeel2007@gmail.	<input type="checkbox"/>	2025/03/26	South Africa	<input checked="" type="checkbox"/>	2009/04/17	33	RobertTOWNSA09_512
3	Coco Coconut	CRT#22!_u	10867@hsrandburg.co.za	<input type="checkbox"/>	2025/04/19	Barbados	<input checked="" type="checkbox"/>	2018/09/06	36	CocoBS18_318
4	SkyMine	GhT89pw#!	skyadmin@skymail.org	<input checked="" type="checkbox"/>	2025/04/22	Canada	<input checked="" type="checkbox"/>	2015/06/01	40	SkyMineCA15_103
5	WaveLogic	LoGIC23w%22	wavelogic@techhub.net	<input type="checkbox"/>	2025/04/23	Australia	<input type="checkbox"/>	2011/11/15	38	WaveLogicAE11_229
6	AgroNova	Agro100x\$@1	contact@agronova.biz	<input checked="" type="checkbox"/>	2025/04/21	South Africa	<input checked="" type="checkbox"/>	2016/08/22	42	AgroNovaSA16_608
7	BitBloom	B22@#1Tb44	bitbloom@crypto.io	<input type="checkbox"/>	2025/04/20	Estonia	<input checked="" type="checkbox"/>	2020/03/03	37	BitBloomEA20_397
8	SolarNest	SolN66@33est	solarnest@energygrid.org	<input checked="" type="checkbox"/>	2025/04/24	Kenya	<input type="checkbox"/>	2013/12/09	41	SolarNestKY13_574
9	NetFusion	Nfsecu*@1re0	netfusion@cloudbiz.org	<input checked="" type="checkbox"/>	2025/04/24	Namibia	<input checked="" type="checkbox"/>	2017/07/12	39	NetFusionNA17_283
10	Cargo Path	CarG#352o222	cargo@freightfast.org	<input type="checkbox"/>	2025/04/24	USA	<input type="checkbox"/>	2012/03/08	35	CargoUA12_946
11	HarvestLine	!Har^v1#234!	harvestline@agrinet.co.za	<input checked="" type="checkbox"/>	2025/04/24	South Africa	<input checked="" type="checkbox"/>	2019/10/30	43	HarvestLineSA19_627

Field Name	Data Type	
CompanyID	AutoNumber	The ID of the company
CompanyName	Short Text	Field Size: 30
Password	Short Text	Field Size: 20
Email	Short Text	Field Size: 70
Government Agency	Yes/No	Yes is a government agency that could be used in calculations and other things
RegDate	Date/Time	Date of registration of the company, used for discounts. Format: Short Date
Location Based	Short Text	The country where the parent company is located. Field Size: 44
NewsLetter	Yes/No	If the company wants to reciece occational newsletter emails then YES
Establishment Date	Date/Time	The date that this company was started; used for some discounts. Format: Short Date
Default Hours	Number	The default hours that the spesific company will want a pickup after placing an order
Username	Short Text	Username used to log in; genereated upon company registration. Field size: 20

tblItems:

ItemID	Item Name	Category	T_Cost/kg	Dangerous	Note	Retired
1	Uranium	Minerals	R2 857,33	<input checked="" type="checkbox"/>	Handle with care; radio active	<input type="checkbox"/>
2	Poppies	Flowers	R131,75	<input type="checkbox"/>	None	<input type="checkbox"/>
3	Seafood	Food	R188,22	<input type="checkbox"/>	Store in a cool chamber	<input checked="" type="checkbox"/>
4	Organs	Biological sam	R4 705,48	<input type="checkbox"/>	Handle with extreme caution and care	<input type="checkbox"/>
5	DNA Samples	Biological sam	R941,10	<input type="checkbox"/>	Handle with care and store in a cool place	<input type="checkbox"/>
7	Rose Petals	Flowers	R112,30	<input type="checkbox"/>	Store in dry place	<input type="checkbox"/>
8	Frozen Shrimp	Food	R232,70	<input type="checkbox"/>	Keep frozen at all times	<input type="checkbox"/>
9	Blood Samples	Biological sam	R1 420,00	<input checked="" type="checkbox"/>	Biological hazard, handle with care	<input type="checkbox"/>
10	Bamboo Shoot	Food	R54,90	<input type="checkbox"/>	None	<input type="checkbox"/>
11	Tulips	Flowers	R108,10	<input type="checkbox"/>	None	<input type="checkbox"/>
12	Cadmium	Minerals	R3 500,00	<input checked="" type="checkbox"/>	Toxic; use protective gear	<input type="checkbox"/>
13	Biohazard Was	Biological sam	R2 800,00	<input checked="" type="checkbox"/>	Incinerate securely after use	<input type="checkbox"/>
14	Fish Fillets	Food	R210,20	<input type="checkbox"/>	Refrigerate after opening	<input checked="" type="checkbox"/>
15	Marigolds	Flowers	R95,10	<input type="checkbox"/>	Used in dyes	<input type="checkbox"/>
16	Coal	Minerals	R49,30	<input type="checkbox"/>	Store in dry environment	<input type="checkbox"/>
17	Frozen Beef	Food	R189,45	<input type="checkbox"/>	Keep frozen	<input type="checkbox"/>
18	Coral Specime	Biological sam	R4 600,00	<input type="checkbox"/>	Fragile; store with care	<input type="checkbox"/>
19	Potassium	Minerals	R5 785,44	<input checked="" type="checkbox"/>	Highly reactive with water	<input type="checkbox"/>
20	Sunflowers	Flowers	R104,90	<input type="checkbox"/>	None	<input type="checkbox"/>
21	Milk Powder	Food	R63,70	<input type="checkbox"/>	Store in a dry area	<input type="checkbox"/>
22	Lead Ingots	Minerals	R92,80	<input checked="" type="checkbox"/>	Heavy metal; use gloves	<input type="checkbox"/>
23	Strawberries	Food	R118,00	<input type="checkbox"/>	Perishable; quick transport	<input type="checkbox"/>
24	Specimen Slid	Biological sam	R1 970,00	<input type="checkbox"/>	Handle with clean gloves	<input type="checkbox"/>
25	Crude Salt	Minerals	R45,60	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>
26	Water Lilies	Flowers	R99,50	<input type="checkbox"/>	Keep damp	<input type="checkbox"/>
27	Freeze-dried M	Food	R145,30	<input type="checkbox"/>	Store in cool area	<input type="checkbox"/>
28	Skin Samples	Biological sam	R2 230,00	<input checked="" type="checkbox"/>	Medical transport required	<input type="checkbox"/>
29	Lithium	Minerals	R4 890,20	<input checked="" type="checkbox"/>	Explosive risk, certified handling	<input type="checkbox"/>
30	Carnations	Flowers	R109,00	<input type="checkbox"/>	None	<input type="checkbox"/>
31	Olives	Food	R97,70	<input type="checkbox"/>	Preserve in brine	<input type="checkbox"/>
32	Hair Samples	Biological sam	R1 050,00	<input type="checkbox"/>	Store dry in container	<input type="checkbox"/>
33	Nickel Ore	Minerals	R83,10	<input type="checkbox"/>	Heavy, bulk transport	<input type="checkbox"/>
34	Peonies	Flowers	R113,20	<input type="checkbox"/>	Handle delicately	<input type="checkbox"/>
35	Dried Apricots	Food	R78,00	<input type="checkbox"/>	Store sealed	<input type="checkbox"/>
36	Feather Sampl	Biological sam	R1 320,60	<input type="checkbox"/>	Light; use flat case	<input type="checkbox"/>
37	Zinc Dust	Minerals	R1 740,00	<input checked="" type="checkbox"/>	Can be combustible	<input checked="" type="checkbox"/>
38	Lavender	Flowers	R107,40	<input type="checkbox"/>	Aromatic, store sealed	<input type="checkbox"/>
39	Canned Fish	Food	R134,10	<input type="checkbox"/>	Store at room temperature	<input type="checkbox"/>

tblItems	Field Name	Data Type	
	ItemID	AutoNumber	The ID of the items
	Item Name	Short Text	The name of the item to be transported. Field Size: 40
	Category	Short Text	The Category the product is is. Example: food/minerals/flowers. Field Size: 40
	T_Cost/kg	Currency	The transport cost of the item per kg
	Dangerous	Yes/No	Yes if the product is dangerous, like uranium and not if it is not dangerous, like flowers
	Note	Short Text	Optional field, notes about the item and transport in the item. Field size: 120
	Retired	Yes/No	If yes, then no longer an option to transport

tblPlanes:

tblPlanes	PlaneID	Plane Name	Max Load	Cruising Speed	FuelCost	Max Distance	Retired
+	1	Airbus Beluga	40000	864	R272 810,26	4000	<input type="checkbox"/>
+	2	Boeing 747-8F	140000	917	R470 547,50	8130	<input type="checkbox"/>
+	3	Antonov An-124 Ruslan	150000	800	R602 300,80	4800	<input type="checkbox"/>
+	4	Lockheed C-130 Hercules	19000	540	R112 931,40	3800	<input type="checkbox"/>
+	5	Boeing 737-800 Freighter	21300	850	R64 000,00	5500	<input type="checkbox"/>
+	6	Airbus A321-200 Freighter	27000	870	R50 000,00	4101	<input type="checkbox"/>
+	7	Lockheed L-100 Hercules	22000	540	R50 000,00	2750	<input type="checkbox"/>
+	8	McDonnell Douglas MD-11F	85000	900	R220 400,00	7300	<input type="checkbox"/>
+	9	Ilyushin Il-76TD-90VD	50000	750	R180 000,00	4500	<input type="checkbox"/>
+	10	Airbus A330-200 Freighter	70000	870	R120 000,00	7357	<input type="checkbox"/>
+	11	Antonov An-12	18000	720	R80 000,00	3600	<input checked="" type="checkbox"/>
+	12	Boeing 757-200 Freighter	36000	935	R77 200,00	5800	<input type="checkbox"/>
+	13	Airbus A300-600 Freighter	47000	830	R169 020,00	4000	<input type="checkbox"/>
+	14	Lockheed C-5M Super Galaxy	127460	830	R240 000,00	5506	<input type="checkbox"/>

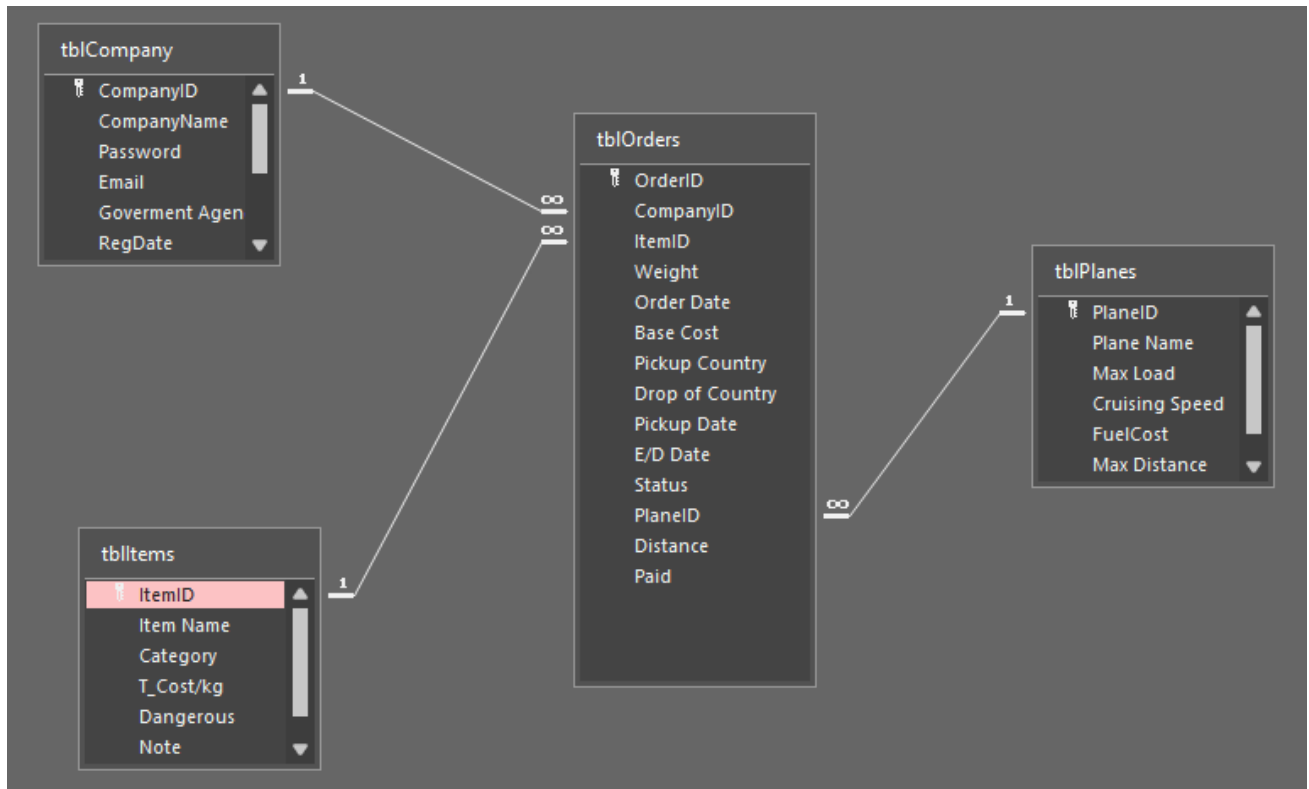
tblPlanes	Field Name	Data Type	Description (Optional)
	PlaneID	AutoNumber	The ID of the plain
	Plane Name	Short Text	The name of the plane. Field size: 40
	Max Load	Number	Max load that the plane can carry in kg
	Cruising Speed	Number	The cruising speed of the aircraft in km/h. This is the speed that is the most likely to be traveled by the aircraft on average during the flight
	FuelCost/h	Number	The cost of the fuel that the aircraft uses. Cost of fuel per hour of flight that the plane flies
	Max Distance	Number	The max distance that the plane can fly in one shot. Max distance exceeded = not valid plane for flight
	Retired	Yes/No	Yes, if the plane is no longer in use by the company

tblOrders:

tblOrders	OrderID	CompanyID	ItemID	Weight	Order Date	Base Cost	Pickup Cour	Drop of Cou	Pickup Date	E/D Date	Status	PlaneID	Distance	Paid
	3	1	1	33	2025/04/24	R777,04	South Africa	Egypt	2025/05/11 07:58:00	2025/05/11 14:58:00	Waiting for Pickup	2	6431	<input checked="" type="checkbox"/>
	4	3	3	120	2025/04/21	R1 800,00	Barbados	South Africa	2025/04/25 10:02:00	2025/04/25 22:54:00	In Transit	10	11200	<input checked="" type="checkbox"/>
	5	3	5	18	2025/04/20	R940,00	South Africa	France	2025/04/24 11:55:00	2025/04/24 21:55:00	In Transit	6	8700	<input checked="" type="checkbox"/>
	6	1	7	250	2025/04/22	R2 500,00	Egypt	Germany	2025/04/27 11:33:00	2025/04/27 14:59:00	Delayed	8	3100	<input type="checkbox"/>
	7	2	4	5	2025/04/23	R4 700,60	South Africa	Namibia	2025/04/26 07:41:00	2025/04/26 09:33:00	Delivered	5	1600	<input checked="" type="checkbox"/>
	8	3	2	20	2025/04/23	R1 731,00	South Africa	UK	2025/04/28 06:19:00	2025/04/28 17:52:00	In Transit	13	9600	<input checked="" type="checkbox"/>
	10	2	8	12	2025/04/21	R1 200,88	South Africa	China	2025/04/24 07:24:00	2025/04/24 18:57:00	In Transit	9	10800	<input checked="" type="checkbox"/>
	11	3	11	45	2025/04/20	R3 600,88	South Africa	India	2025/04/23 07:33:00	2025/04/23 20:44:00	Delivered	7	9500	<input checked="" type="checkbox"/>
	12	1	10	60	2025/04/19	R5 600,00	Egypt	South Africa	2025/04/22 07:17:00	2025/04/22 15:21:00	Delivered	12	6700	<input checked="" type="checkbox"/>
	13	8	14	30	2025/04/24	R2 200,50	South Africa	Canada	2025/04/25 07:24:00	2025/04/25 23:32:00	In Transit	3	13400	<input checked="" type="checkbox"/>
	15	5	9	8000	2025/04/20	R6 783,00	Australia	China	2025/04/26 07:45:00	2025/04/26 14:15:00	Waiting for Pickup	9	8800	<input type="checkbox"/>
	16	6	12	6000	2025/04/23	R3 456,30	South Africa	Germany	2025/04/30 06:30:00	2025/04/30 17:28:00	In Transit	13	9600	<input checked="" type="checkbox"/>
	17	7	18	4500	2025/04/21	R4 934,00	Estonia	South Africa	2025/04/28 11:02:00	2025/04/28 16:42:00	Delivered	7	9500	<input checked="" type="checkbox"/>
	18	8	22	1500	2025/04/24	R6 285,00	Kenya	Namibia	2025/05/01 09:10:00	2025/05/01 10:37:00	In Transit	5	1600	<input type="checkbox"/>
	19	1	25	3000	2025/04/19	R9 283,00	Egypt	Barbados	2025/04/26 10:55:00	2025/04/26 17:04:00	Delayed	8	3100	<input checked="" type="checkbox"/>
	20	2	27	5000	2025/04/23	R2 856,44	South Africa	France	2025/04/30 07:22:00	2025/04/30 16:49:00	In Transit	6	8700	<input checked="" type="checkbox"/>
	21	3	29	3600	2025/04/20	R3 778,98	Barbados	USA	2025/04/27 06:48:00	2025/04/27 09:48:00	Waiting for Pickup	2	3600	<input type="checkbox"/>
	22	4	31	12000	2025/04/22	R9 984,31	Canada	Japan	2025/04/29 08:05:00	2025/04/29 19:50:00	In Transit	13	13400	<input checked="" type="checkbox"/>
	23	5	33	6700	2025/04/21	R5 445,00	Australia	South Africa	2025/04/28 11:40:00	2025/04/28 14:03:00	Delivered	12	6700	<input checked="" type="checkbox"/>
	24	6	36	4000	2025/04/24	R9 900,00	South Africa	UK	2025/05/01 09:55:00	2025/05/01 20:47:00	In Transit	3	13400	<input checked="" type="checkbox"/>
	25	7	38	4000	2025/04/20	R2 572,00	Estonia	Canada	2025/04/27 06:12:00	2025/04/27 20:05:00	Waiting for Pickup	3	13400	<input type="checkbox"/>

Field Name	Data Type	Description (Optional)
OrderID	AutoNumber	The ID number of the order
CompanyID	Number	ID of the company that placed the order
ItemID	Number	ID of the item that will be transported
Weight	Number	The weight of the order in kg
Order Date	Date/Time	The date that the order was places as a date. Format: Short Date
Base Cost	Currency	Base cost for the transportation of the items. Differs for orders and depends on many factors.
Pickup Country	Short Text	The country where the order will be picked up. Field Size: 50
Drop of Country	Short Text	The country where the order should be dropped(the destination) Field Size: 50
Pickup Date	Date/Time	Date and time when the order will be picked up at the pickup location. Format: General Date
E/D Date	Date/Time	The Expected/ Deliverd date of the order. Order not Delivered=Expected dat; Order Delivered= Delivered Date. Format: General Date
Status	Short Text	Waiting for pickup/ In transit/ Delivered/Delayed. This is the current status of the order. Field size: 20
PlaneID	Number	ID of the plane used for the trip
Distance	Number	The Total Distance of the flight from the pickup to the destination country in km (kilometers)
Paid	Yes/No	Order can only be processed if the company has paid. Yes=Paid

Relationship:



TASK 3A : CLASS DESCRIPTION AND CLASS DIAGRAM

Tdistance
Tdistance will receive the Coordinates of the two countries and also the drop off and pickup counties names. The distance will the be calculated between these 2 countries using the Haversine formula. Afterwords the ToString will be created that will contain info regarding the trip like coordinates on earth, countries and the distance of the flight. The distance is used in regards to planning the trip, costs and plane
Attributes
-fLatitudeStart, fLongitudeEnd, fLatitudeStart, fLongitudeEnd, fDistance : real; -fPickupCountry, fDropOfCountry: string;
Methods
+ Constructor Create(pLat1, pLat2, pLong1, pLong2: real; fPickupCountry, fDropOfCountry: string); -CalculateDistance : real; - RealCoordinates: string; + ToString : string; + GetDisrance : real;

TASK 3B : TEXT FILES(s)

Name of text file	Country_Coordinates.txt
Purpose	To store the coordinates of every country in the world
Format	CountryCode#Latitude#Longitude#Name
Extract of data	ZA#-30.559482#22.937506#South Africa

TASK 3C : ARRAYS

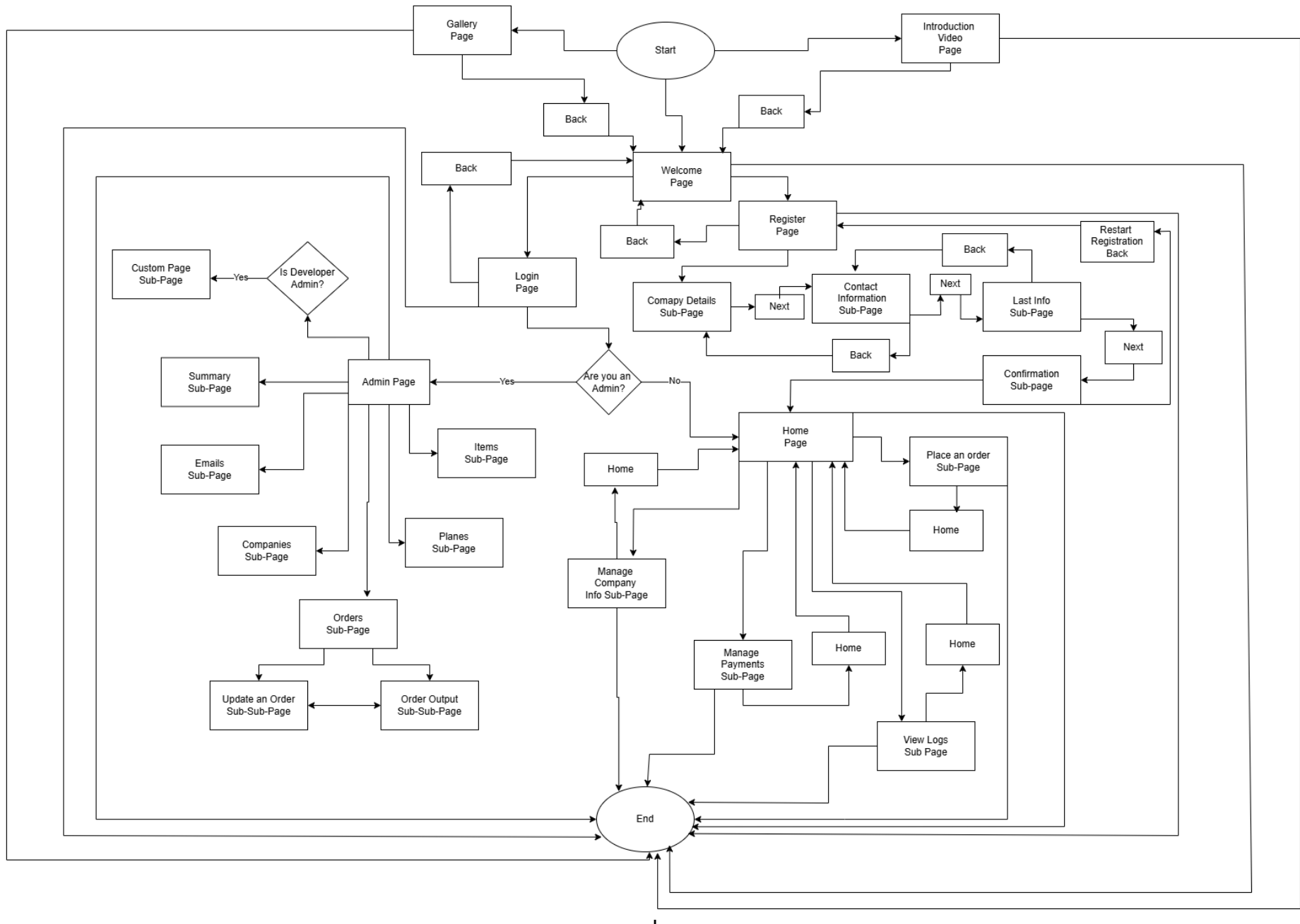
Latitude = North/ South of the equator

Longitude = East/ West of Greenwich

Declaration	arrCountryName: array[1..245] of string; arrCountryCode : array[1..245] of string; arrLatitude: array[1..245] of real; arrLongitude : array[1..245] of real;
Populate arrays	Populate from Country_Coordinates.txt text file Stores the coordinates of all the countries that is stored in the applicable txt file
Processing	<ul style="list-style-type: none">-Sort the arrays alphabetically from A to Z using their names-Search for countries that contain a part of a word in their name or search using their country codes-Convert the latitude/ longitude into radians when reading into the array for calculations use-Find countries in a latitude/ longitude range-Use country code to load country flag when registering

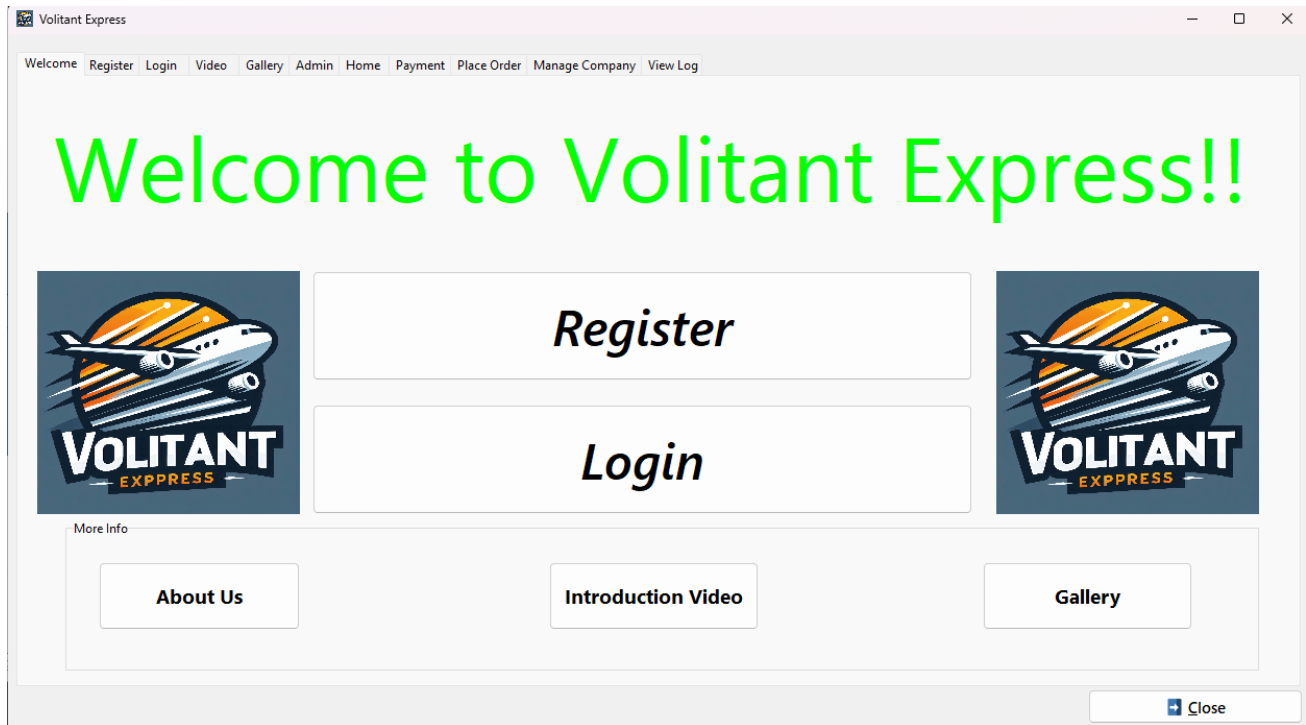
TASK 4A : NAVIGATION / FLOW DIAGRAM

See the next page please

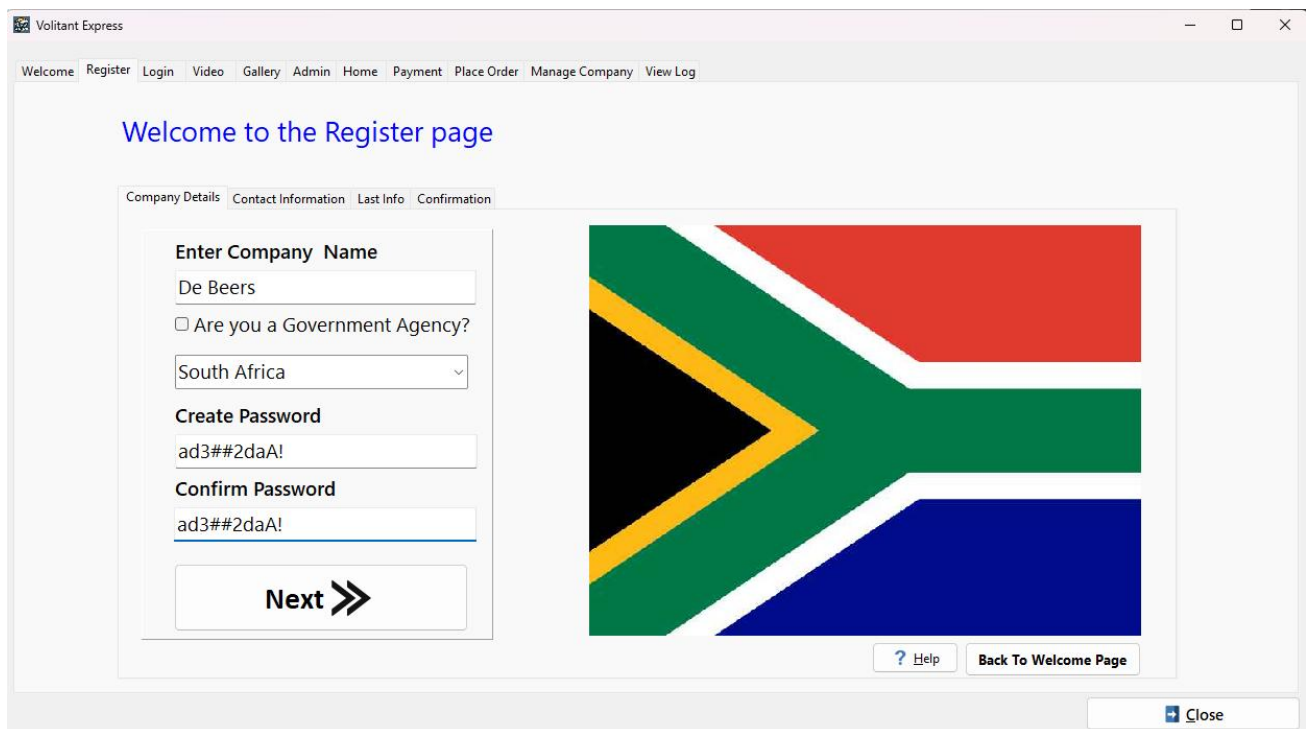


TASK 4B : GUI DESIGN

tsWelcome



tsRegister



Volitant Express

Welcome

Register

Login

Video

Gallery

Admin

Home

Payment

Place Order

Manage Company

View Log

Welcome to the Register page

Company Details

Contact Information

Last Info

Confirmation


Enter Email Address

DebearsTransport@debeers.co.za

☒ Subscribe to Newsletter?

Back

Next >>



? Help

Back To Welcome Page

Close

Volitant Express

Welcome

Register

Login

Video

Gallery

Admin

Home

Payment

Place Order

Manage Company

View Log

Welcome to the Register page

Company Details

Contact Information

Last Info

Confirmation

Select date of your Company's Establishment


1934/06/12

Default hours after order for Pickup

73

Back

Next >>



? Help

Back To Welcome Page

Close

Volitant Express

Welcome Register Login Video Gallery Admin Home Payment Place Order Manage Company View Log

Welcome to the Register page

Company Details Contact Information Last Info Confirmation

Confirm Registration

Here is your generated Username

Your Password:

Your Password:

Company Age:

Other Info: 0

☐ The data provided is true and accurate

Restart Registration

? Help Back To Welcome Page

Close

✓ Register!!!

tsLogin

Volitant Express

Welcome Register Login Video Gallery Admin Home Payment Place Order Manage Company View Log

Welcome to the Login Page

Enter Username

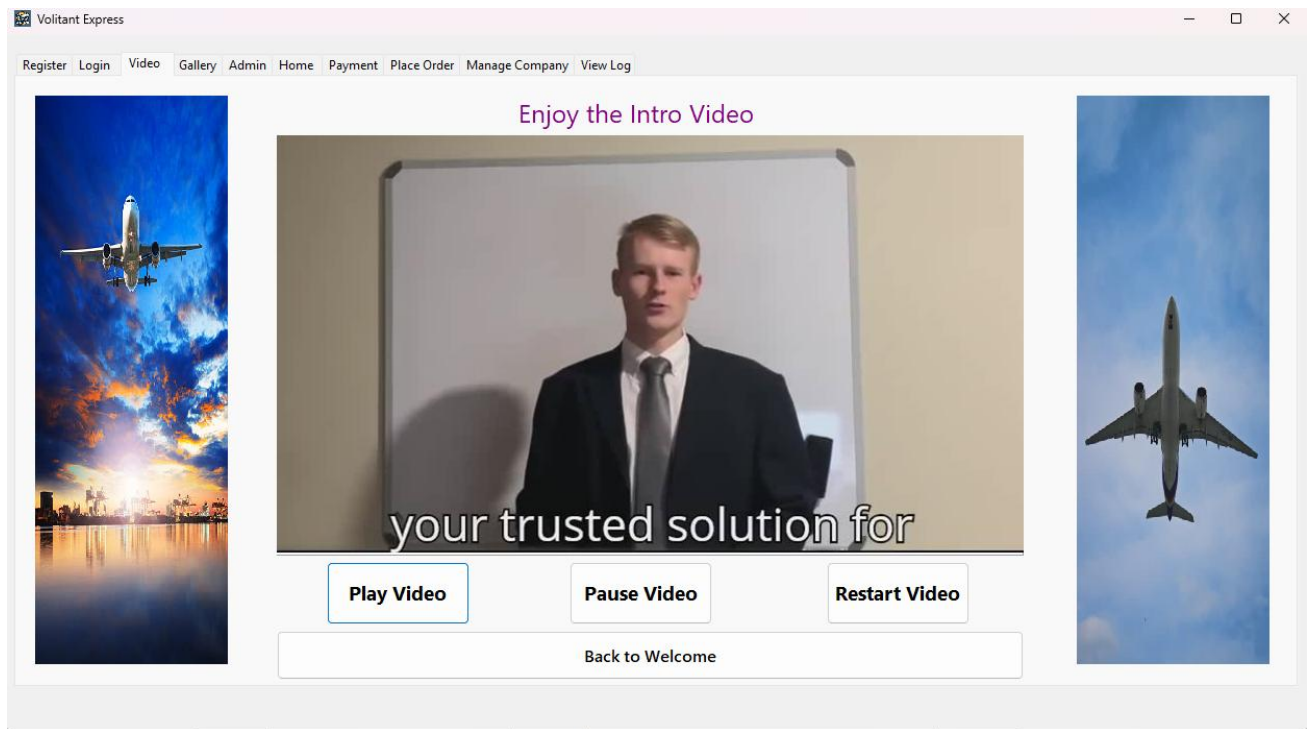
Enter Password

Login

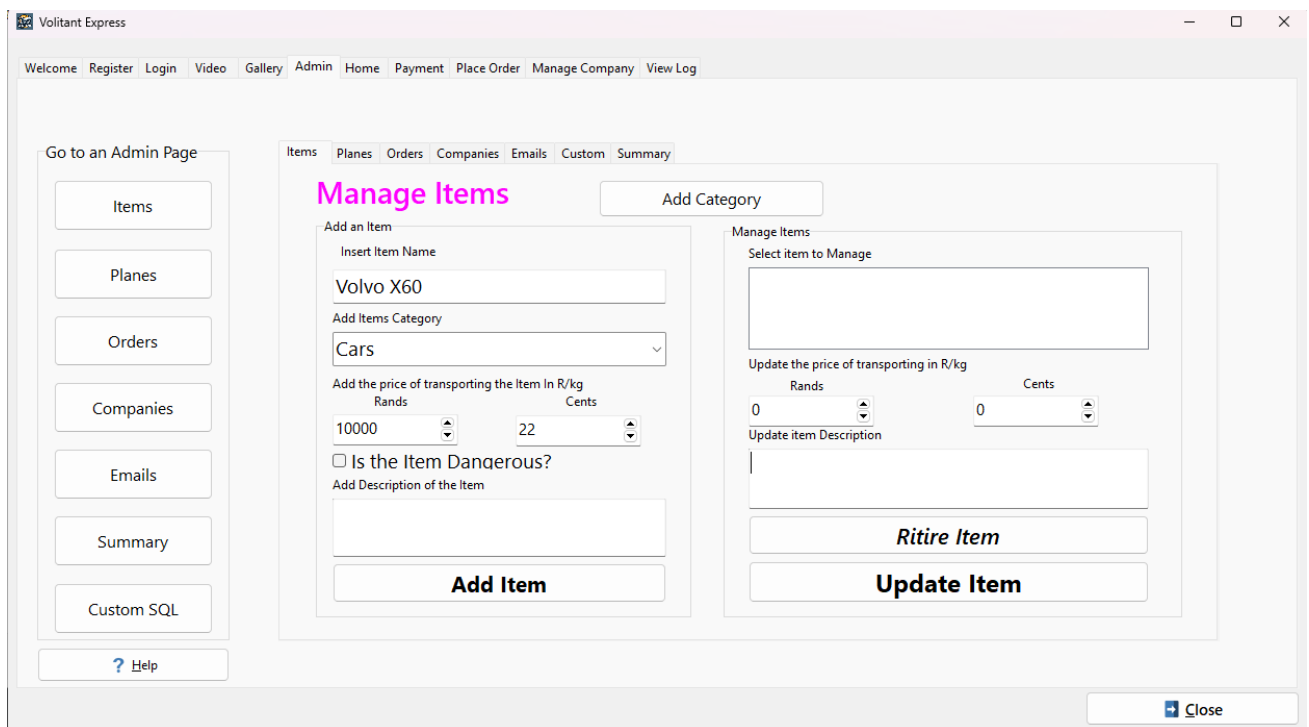
? Help Back to Welcome Page

Close

tsIntroVideo



tsAdmin



Volitant Express

Welcome
Register
Login
Video
Gallery
Admin
Home
Payment
Place Order
Manage Company
View Log

Go to an Admin Page

Items
Planes
Orders
Companies
Emails
Summary
Custom SQL

Items
Planes
Orders
Companies
Emails
Custom
Summary

Manage Planes

Add a Plane

Add Plane Name

Add Plane max Load in kg

0

Add Plane Cruising speed in km/h

0

Add Planes max Distance in km

0

Add Plane Fuel Cost per hour

Rand

0

Cents

0

Add Plane

Manage Planes

Select a plane to Update

Update Plane Fuel Cost per Hour

Rands

0

Cents

0

☐ Retire Plane

Update Plane

Volitant Express

Welcome
Register
Login
Video
Gallery
Admin
Home
Payment
Place Order
Manage Company
View Log

Go to an Admin Page

Items
Planes
Orders
Companies
Emails
Summary
Custom SQL

? Help

Items
Planes
Orders
Companies
Emails
Custom
Summary

Orders

Update an Order
Order Output

Update Order

Enter a company name to search (Optional)

Enter company name to search
Clear

Search for Orders

Select order to update:

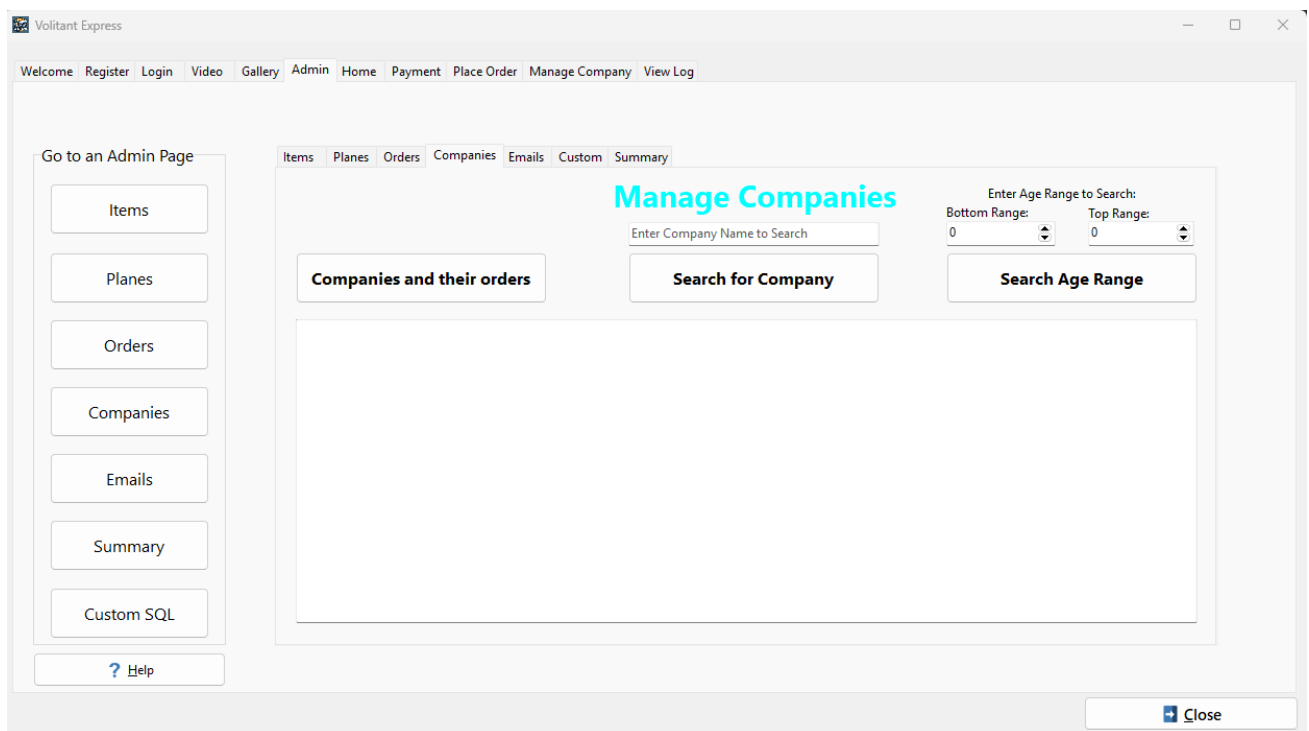
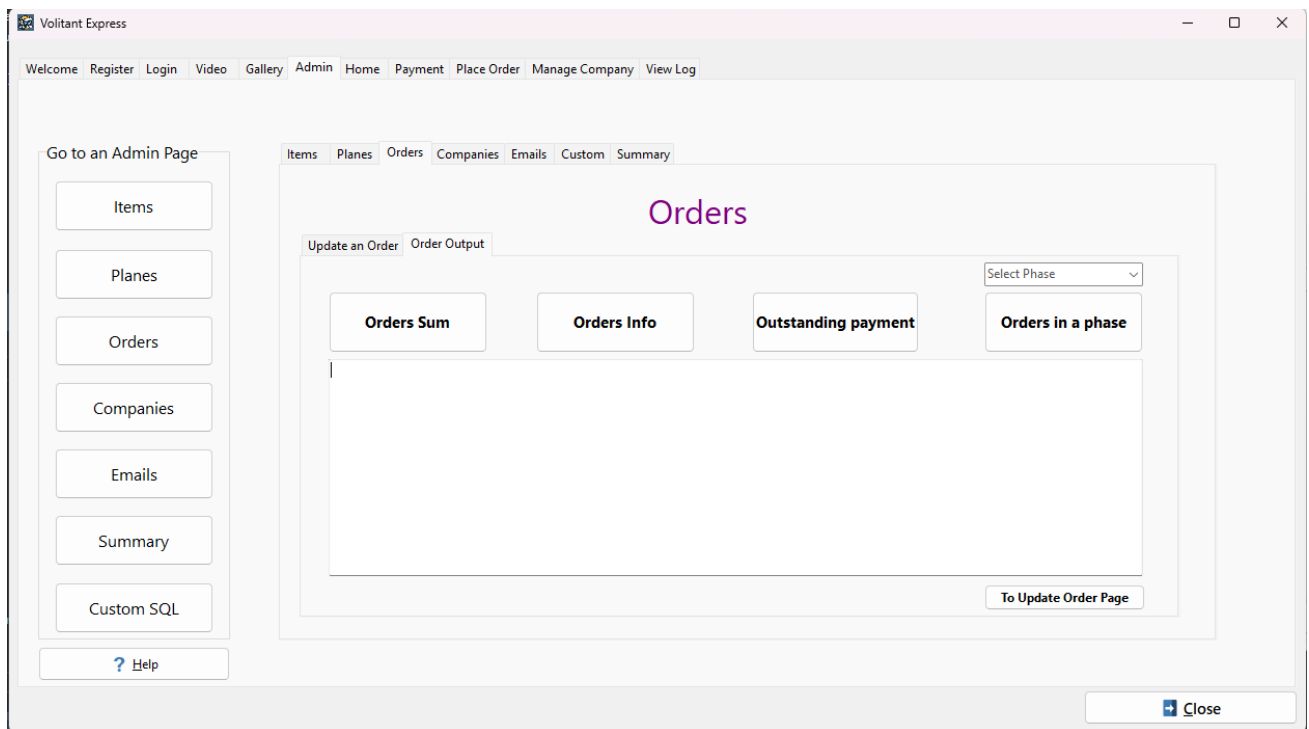
Select Order status

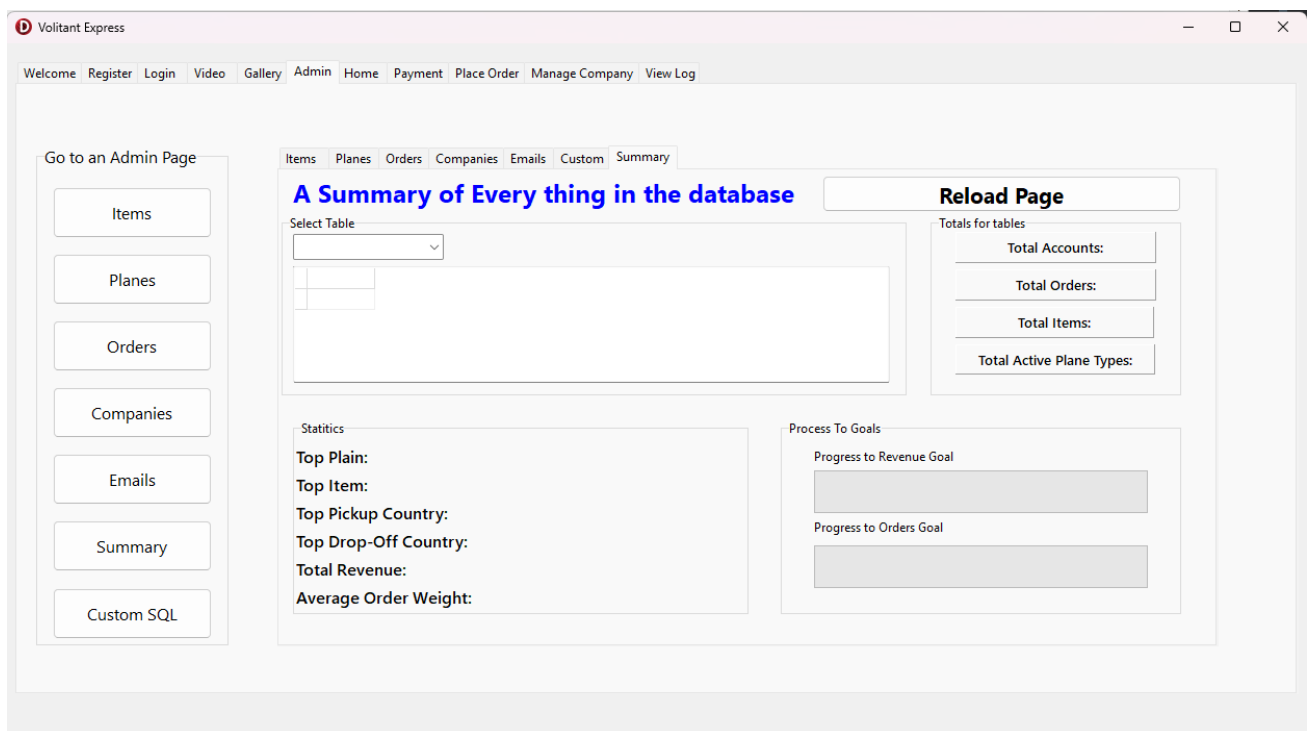
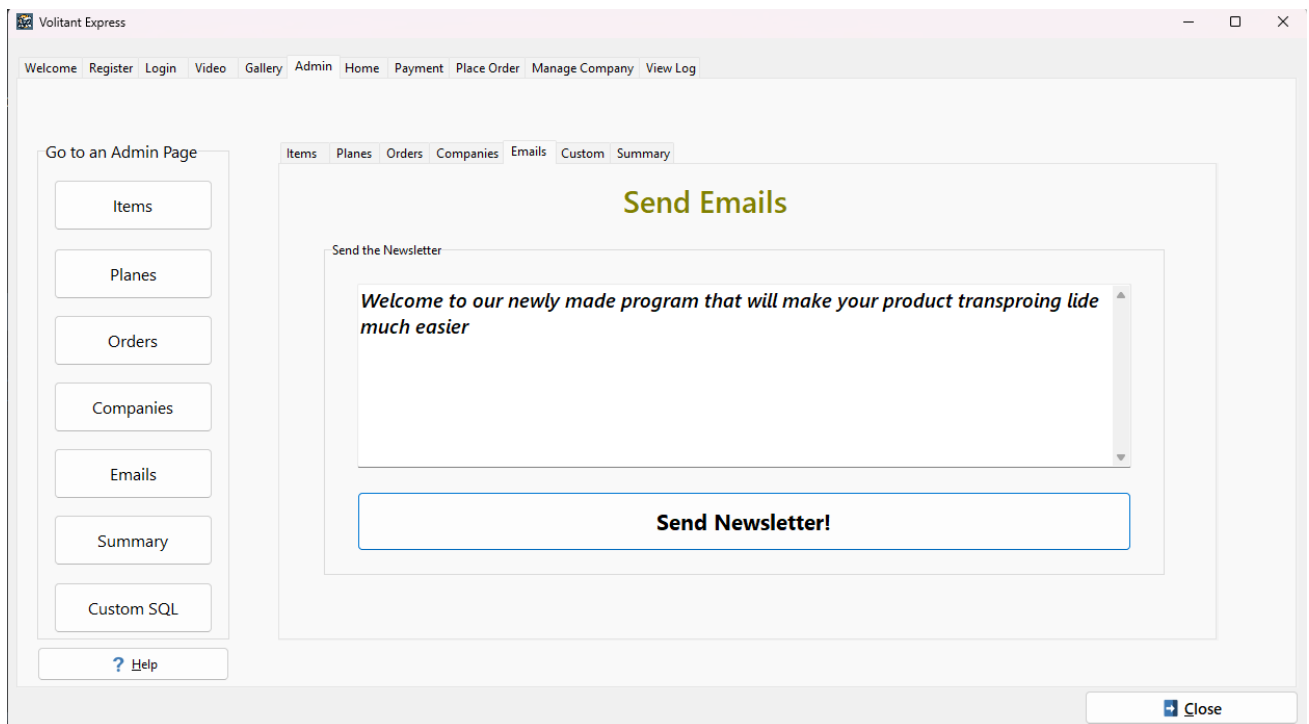
☐ Waiting for delivery
☐ In Transit
☒ Delivered

Update Status

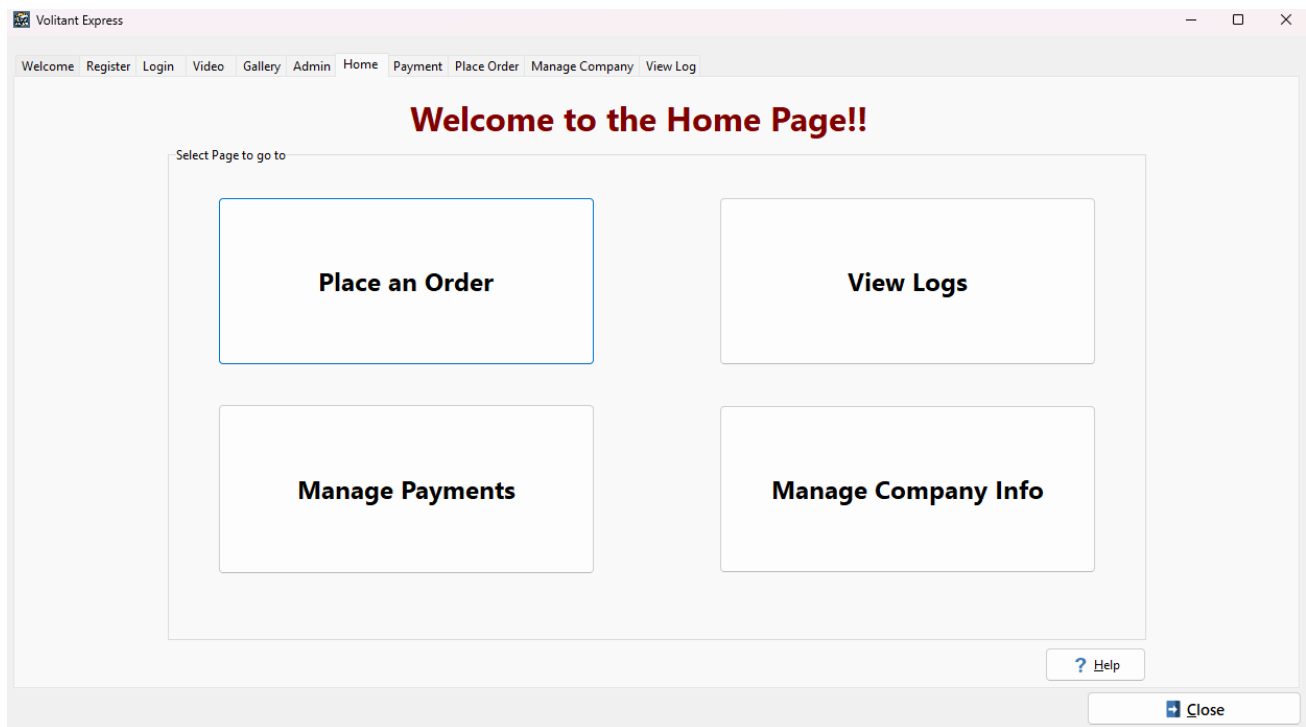
Go to Orders Output Page

Close

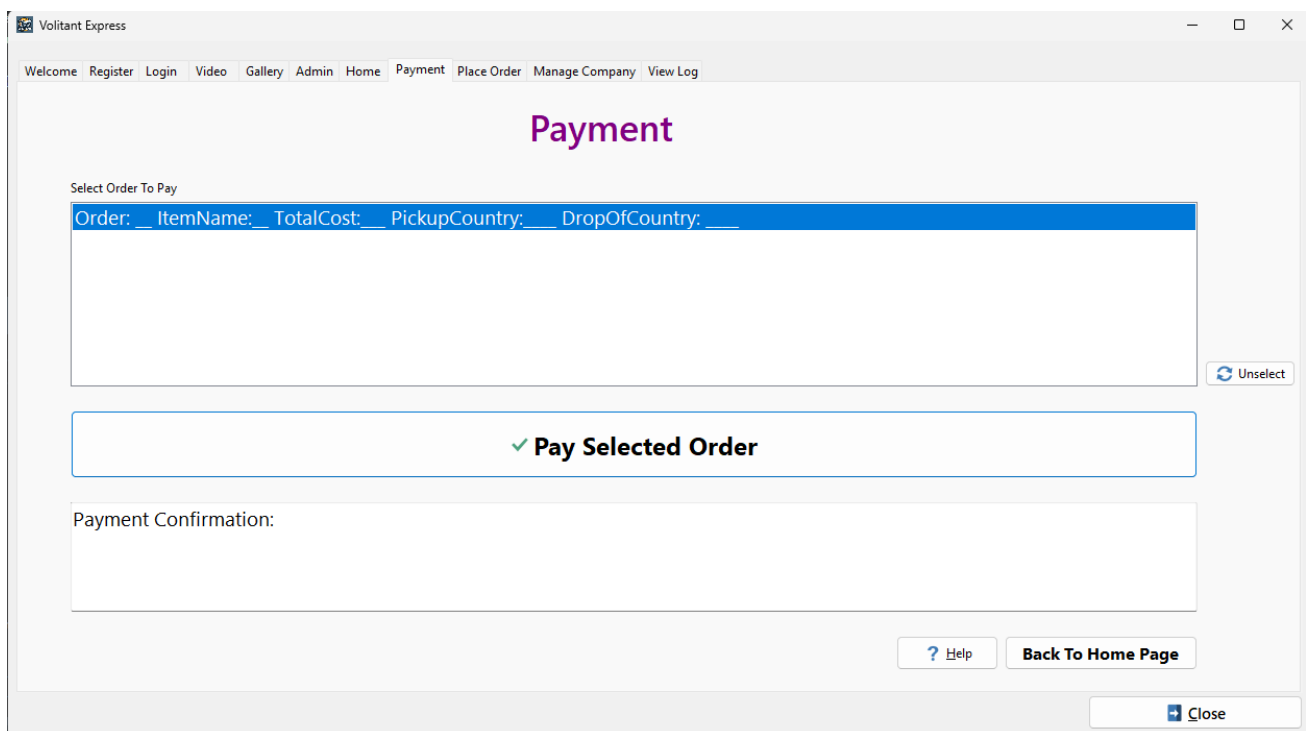




tsHome



tsPayment



TASK 5 : IPO – SOFTWARE DESIGN TOOL

TASK 5 : INPUT:

TabSheet 1: tsRegister

Volitant Express

Welcome Register Login Video Gallery Admin Home Payment Place Order Manage Company View Log

Welcome to the Register page

Company Details Contact Information Last Info Confirmation

Enter Company Name

☐ Are you a Government Agency?

Select Country Based ▼

Create Password

Confirm Password

Next >>

Back To Welcome Page

Volitant Express

Welcome Register Login Video Gallery Admin Home Payment Place Order Manage Company View Log


Welcome to the Register page

Company Details Contact Information Last Info Confirmation

Enter Email Address

☐ Subscribe to Newsletter?

Next >>



Back To Welcome Page

Volitant Express

Welcome Register Login Video Gallery Admin Home Payment Place Order Manage Company View Log

Welcome to the Register page

Company Details Contact Information Last Info Confirmation

Select date of your Company's Establishment


2025/04/02

Default hours after order for Pickup

24

Next >>

Back To Welcome Page



Volitant Express

Welcome Register Login Video Gallery Admin Home Payment Place Order Manage Company View Log

Welcome to the Register page

Company Details Contact Information Last Info Confirmation

Confirm Registration

Here is your generated Username

Your Password:

Company Age:

Other Info: 0

☐ The data provided is true and accurate

Restart Registration

Back To Welcome Page

✓ Register!!!

*Most of the components on the last page is for output use, only the checkbox is for input use

Source	Data Type	Format (size, M/F for gender, yyyy/mm/dd)	GUI Component
Keyboard	sCName: string	Store as a string, less than 30 characters. This is the persons name	edtCName
Mouse Click	bGAgency : Boolean	If checked, true, then the company is a Government agency, else (False) the company is not a government agency	chkGovernment
Keyboard	sPasswordCreate : string	Store as a string, shorter than 20 characters and longer than 6	edtCreatePassword
Keyboard	sPasswordConfirm: string	Match the password entered in the first password edit	edtConfirmPass
Keyboard	sEmailReg : string	Valid email address; validated/ Must include an @ Must not be longer than 70 characters	edtRegEmail
Mouse click	bNewsLetter: Boolean	If checked (True) then the company will be subscribed to the Newsletter, if left unchecked, the user will not be subscribed	chkNewsLetter
Mouse/Keyboard	dDateOfEstablishment; Tdate	Yyyy/mm/dd on my home PC *Could differ on another PC, however this will not effect the program Store as a date variable that the user selects from the date time picker	dptEstablishedDate
Mouse/Keyboard	iDefaultHours; integer	Stored in hours Integer for the default hours to use from when an order is placed and when it is to be picked up A number of hours between 24 and 300	sedRegDefaultHours
Mosue	bConfirmTrue, Boolean	If the checkbox is selected = True; then the user confirms that the info that they provided is true and accurate	chkConfirmRegInfo

TabSheet 2: tsAdmin

The screenshot shows the 'Volitant Express' application window. The top navigation bar includes links: Welcome, Register, Login, Video, Gallery, Admin, Home, Payment, Place Order, Manage Company, and View Log. The 'Admin' section is active, showing a sidebar with 'Go to an Admin Page' links: Items, Planes, Orders, Companies, Emails, Summary, and Custom SQL. The main content area is titled 'Manage Items' and has sub-tabs: Items, Planes, Orders, Companies, Emails, Custom, and Summary. The 'Items' tab is selected.

The 'Manage Items' section is divided into two main panels. The left panel, 'Add an Item', contains:

- 'Insert Item Name' text box with 'Poppies' entered.
- 'Add Items Category' dropdown menu with 'Flowers' selected.
- 'Add the price of transporting the Item in R/kg' section with 'Rands' (444) and 'Cents' (5) spinners.
- 'Is the Item Dangerous?' checkbox (unchecked).
- 'Add Description of the Item' text box with 'Keep Cool' entered.
- 'Add Item' button.

The right panel, 'Manage Items', contains:

- 'Select item to Manage' dropdown menu (empty).
- 'Update the price of transporting in R/kg' section with 'Rands' (0) and 'Cents' (0) spinners.
- 'Update item Description' text box (empty).
- 'Delete Item' button.
- 'Update Item' button.

Source	Data Type	Format (size, M/F for gender, yyyy/mm/dd)	GUI Component
Keyboard	sAddItemName : string	Store as a plane string; less than 40 characters	edtItemAddName
Mouse/ keyboard	sItemCategory: string	Store as a string, will be limited to what is in the combo box. A category must be less than 40 characters	cmbItemCategory Add
Mouse/ keyboard	itemRands: integer	The rands of the items price, more that 1 and less than 15000	sedAdditemRands
Mouse/Keyboard	itemCents: integer	The cents of the items price, should be between 0 and 99	sedAdditemCents
Mouse	bDangerous: Boolean	If the item is dangerous, like radioactive items, them select so that it is True	chkDangerousItemAdd
Keybaord	sAddDescription	A description of the item being added, includes transport notes and other things. Optional. Should be less than 120 characters	redAddDescription

Source	Data Type	Format (size, M/F for gender, yyyy/mm/dd)	GUI Component
Mouse/keyboard	ItemUpdateRands: integer	The rands of the items price, more than 1 and less than 15000	sedUpdateItemRands
Mouse/Keyboard	ItemUpdateCents: integer	The cents of the items price, should be between 0 and 99	sedUpdateItemCents
Keyboard	sUpdateItemDescription: string	An update to the description and notes of an item. Stored as a string with a length of 120 characters or shorter	redUpdateItem

TASK 5 : VALIDATION:

Input validated	Validation type and description	Associated error message
Register		
Password	Format, Range check <ul style="list-style-type: none"> - Longer than 6 characters - Shorter or equal to that 20 characters (Use length function in Delphi) <ul style="list-style-type: none"> - Should contain a number - Should contain a special characters - Should contain a capital Letter (Use IN function in Delphi to check that there is one of each present in the password inputted string) Presence Check: *Here I am also checking for NULL as if nothing was entered, none of the conditions would be met	Enter a valid password with a length of 6-20 characters; containing a number, a special character and a capital letter.
Company Name	Presence Validation Name Should not be empty; name not equal to an empty string	Enter a name
Company Name	Range Check; Length, should be larger than 1 and smaller or equal to 30 characters	Name Length should be between 1 and 30 characters
Company Name	Format Check; Last Character may not be a space	The last character of the name may not be a space
Company Name	Format Check; Check that the entered name only contains alphabet	Only alphabet characters and certain characters are allowed in the name

Input validated	Validation type and description	Associated error message
Register		
	characters and certain special characters such as a . or - using IN[]	
Country Based	Presence Check; Test if a value was selected in the selection component use .itemindex	Please select a country from the select country based combobox
Confirmed Password	Format Check; Must match the Create Password edit exactly	Passwords do not match
Email Address	Presence Check; Check that an email address was entered	Please enter an email address
Email	Format Check; Check that the email address is valid: <ul style="list-style-type: none"> - Must contain 1 @ - Must not have any spaces - Must have a .Something - Must be 70 characters or shorter in length (Range Check) 	Please enter a valid email address: Your email address: <ul style="list-style-type: none"> - Must contain 1 @ - Must not have any spaces - Must have a .Something - Must be 70 characters or shorter in length
Date of establishment	Range Check; Check that the Companies date of establishment is not in the future	Please enter/select a valid date of establishment
All of the entered data is true and valid	presence Check; A confirmation in the form of a checkbox and Boolean where the checkbox must be selected and therefore True to allow the company to complete their registration	You must confirm that the information that you entered in the registration process is true and accurate

Admin		
Item name	Format Check; Should only contain alphabet characters and spaces	Please enter a valid item name
Item Category	Presence Check; Test that an item category has been selected	Please select the category that the item falls into
Price for transportation	Range Check; Check that it is a value larger than R0 and smaller than R15000	Enter a valid cost for transport; between R 1 and R 15000

Description of item	Range Check; Check that the description if item is not longer than 120 characters	Item description should be less than 120 characters. Current: __ characters
Item to manage	presence Check; An item must be selected to manage that item, itemindex must be larger than -1	Please select an item to manage
Updated item price	Range Check; Check that it is a value larger than R0 and smaller than R15000	Enter a valid cost for transport; between R 0 and R 15000
Updated Description of item	Check that the description if item is not longer than 120 characters	Item description should be less than 120 characters. Current: __ characters
Text file containing categories	A type of presence check (existence check); Check to see if the txt file that contains the item categories exists; text file data type	Item_Categories.txt not found. A new file to replace it has been created. Add new categories to this file

TASK 5 : PROCESSING:

What processing will be done	Algorithms, formulas, etc.
List:	Algorithms: (How will the processing be done)
1 Match (Choose) a plane for a specific order	
2 Send the newsletter	
3 Choose and load images to the gallery	
4 Log Into the account	
5 Calculate the total Cost of an order	

<p>6 Create a Username for the Company</p>	<p>Algorithm 1</p> <p>Company Name \leftarrow input from user Country Based \leftarrow Input from user Year Established \leftarrow Input from user as the date that the company was established Random Number \leftarrow Randomly generated 3 digit number</p> <p>Pos \leftarrow Pos(' ', Company Name) // (Position Of ' ' in Company Name)</p> <p>NameUse \leftarrow Company Name</p> <p>If Pos = 0 then Begin if Length(Company Name) > 14 then begin NameUse \leftarrow Copy(NameUse, 1, 14); end; End else begin NameUse \leftarrow Copy(Nameuse, 1, Pos-1) end;</p> <p>CountryBased \leftarrow Uppercase(CountryBased[1] + CountryBased[Length(CountryBased)])</p> <p>Year_Established_int \leftarrow YearOf(Year Established) YearEstablished_String \leftarrow InttoStr(Year_Established_int[3]) + Inttostr(Year_Established_int [4])</p> <p>Username \leftarrow Company Name + CountryBased + YearEstablished_String + '_' + random Number</p>
<p>7 Check that there are no invalid characters in the password</p>	<p>Algorithm 2</p> <p>sRegisterPassword \leftarrow Input from user arrAllowedCharacters \leftarrow Array populated at startup; contains allowed characters</p> <p>Loop for cChar IN sRegisterPassword begin</p>

	<pre> bErrorCharacter←True Loop for c in arrAllowedCharacters begin if (cChar = c) then bErrorCharacter ← False; Break ; // Not from curriculum, will however, improve performance end; if bErrorCharacter = True then begin ShowMessage('Invalid/Unsupported character in Password') ; exit; end; end; </pre>
8 Sort the countries according to the alphabet from A to Z	<pre> Algorithm 3 iCount←245 arrCountryName← input from txt file arrCountryCode← input from txt file arrLatitude← input from txt file arrLongitude← input from txt file iKeep←0 sKeep←" Loop for iOut from 1 to (iCount-1) begin Loop for iIn from iOut+1 to lcount begin if Uppercase(arrCountryName[iIn]) < Uppercase(arrCountryName[iOut]) then begin sKeep← arrCountryName[iOut]; arrCountryName[iOut]← arrCountryName[iIn]; arrCountryName[iIn]← sKeep sKeep← arrCountryCode[iOut]; </pre>

	<pre> arrCountryCode[iOut]← arrCountryCode[iIn]; arrCountryCode[iIn]← sKeep iKeep← arrLatitude[iOut]; arrLatitude[iOut]← arrLatitude[iIn]; arrLatitude[iIn]← iKeep; iKeep← arrLongitude[iOut]; arrLongitude[iOut]← arrLongitude[iIn]; arrLongitude[iIn]← iKeep; end; end; end;</pre>
9 List all the orders of each company	<pre> Algorithm 4 sItemName←" tblCompany.First while not end of tblCompany begin tblOrders.First richedit.lines.add(#10+tblCompany['CompanyName'] + #9+ tblCompany['Location Based']+ #10) while not end of tblOrders begin if tblCompany['CompanyID'] = tblOrders['CompanyID'] then begin tblItems.First; bFound←False; while not (end of tblItems) and (bFound = False) Do begin if tblOrders['ItemID'] = tblItems['ItemID'] then begin</pre>

	<pre> bFound←True; sItemName← tblItems['Item Name'] richedit.lines.add(tblOrders['Weight'] + #9 + tblOrders['Drop of Country'] + #9 + tblOrders['Pickup Country'] + sItemName) end else tblItems.Next; end; sItemName←""; tblOrders.Next; end; tblCompany.Next end; end; </pre>
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TASK 5 : OUTPUT:

TabSheet 1: tsRegister

Volitant Express

Welcome Register Login Video Gallery Admin Home Payment Place Order Manage Company View Log

Welcome to the Register page

Company Details Contact Information Last Info Confirmation

Confirm Registration

Here is your generated Username

Your Password:

Company Age:

Other Info: 0

☐ The data provided is true and accurate

Restart Registration

Back To Welcome Page

Register!!!

Data to Output	Format (Type, size)	Output Component
Username	Display the generated username of the user in the Colour red. Display as a string data type. Format: Name of Company (First word of name) and cutoff on length of 14 characters + First character of Country Based as a capital + last character of Country Based as a capital + last two digits of year Established + 3 digit generated number The Total length will have to be 21 characters or shorter	edtGUsername
Password	Display the Password; use Navy colour. Display as a string Your Password: _____	pnlConfirmPass
Company Age	Calculate the company's age today using their establishment date	sedCompanyAgeConfirm
Government Agency	Yes/No selected Display as a string Government Agency: YES/NO	redConfirmRegInfo
Country Based	Display as a string Country Based: _____	redConfirmRegInfo
Email	Display as a string Email: _____@_____	redConfirmRegInfo

Data to Output	Format (Type, size)	Output Component
Newsletter	Yes/No selected Display as a str Newsletter: YES/NO	redConfirmRegInfo
Default Hours	Display as a integer + a string Default hours: __ h	redConfirmRegInfo

TabSheet 2: tsAdmin

Data Output	Format (Type, size)	Output Component
A tables contents	Displayed according to the format of the table, as the data is stored	dbgDifferentTables
Company Name, Item name, Plane name	When clicking on a record from tblOrders, display all the foreign data that relates to that record underneath each other. Display as a string: Company Name: _____ Item Name: _____ Plane Name: _____	Showmessage dialogue
Total Accounts counts	The total accounts of companies as a string and integer Format: Total Accounts: ____	pnlTotalAccounts
Total Orders of the System count	The total amount of orders placed as a string and integer Format:	pnlTotalOrders

Data Output	Format (Type, size)	Output Component
	Total Orders: ____	
Total Items that can be transported	The total items displayed as a string and an integer Format: Total Items: ____	pmlTotalItems
The total active plane types that Volitant Express uses	Only plane types that are NOT retired will be counted. Display as a string and an integer Format: Total Active Plane Types: ____	pnlTotalActivePlanes
The most used plane model	Output as a string Format: Top Plain: ____	lblTopPlain
The most popular item that is shipped	Output as a string Format: Top Item: ____	lblTopItem
The most used Pickup Country	Output as a string Format: Top Pickup Country: ____	lblTopPickupC
The most accessed drop-off country	Output as a string: Format: Top Drop-Off Country: ____	lblTopDropOffC
The total revenue that Volitant Express has made	Output as a real; that is currency formatted to 2 decimal places Format: Total revenue: ____	lblTotalRevenue
The average weight of an order in kg	Displayed as a real with 2 decimals Format: Average order weight: ____ kg	lblAverageWeight
Volitant Expresses progress to reaching their revenue goal	Progress displayed in a progress bar that is green. It calculates how far the company has come with their progress and plots it on the bar	PBRevenue
Volitant Expresses progress to reaching their total orders goal	Progress displayed in a progress bar that is green. It calculates how far the company has come with their progress and plots it on the bar	PBorders