

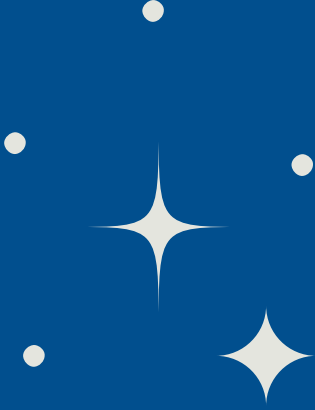
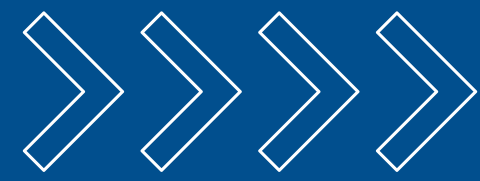


# TRANSPORINDO

## Export Documents

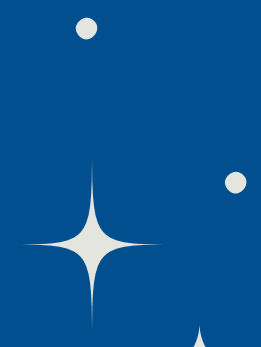
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Made by Group 3: Aaron Gho, Austin Kane, Jeffrey Kurniawan,  
Nicholas Ananda H



# CHAPTER 1

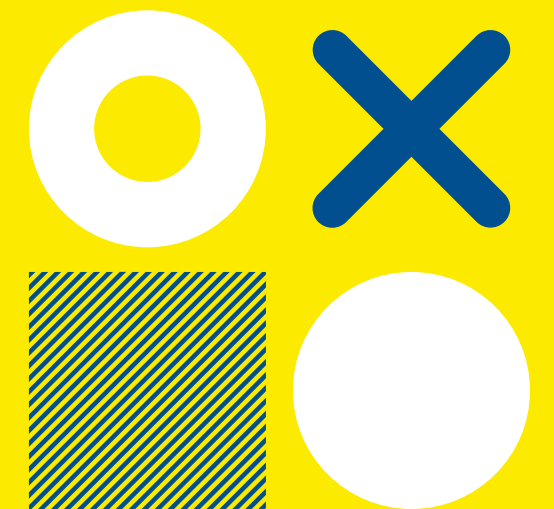
## THE DESCRIPTION OF CASE USED



# DESKRIPSI PERUSAHAAN

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TRANSPORINDO Export Documents adalah perusahaan yang menyediakan layanan ekspor untuk mendukung kelancaran aktivitas perdagangan internasional. Sebagai penyedia layanan administratif yang berhubungan langsung dengan dokumen-dokumen penting, seperti bill of lading, invoice, dan sertifikat ekspor, keakuratan dan validitas data menjadi prioritas utama perusahaan.



# LATAR BELAKANG

Dalam operasionalnya, TRANSPORINDO menghadapi tantangan besar dalam pengelolaan database yang kompleks. Salah satu masalah utama yang sering muncul adalah ketidakakuratan data dan duplikasi informasi dalam tabel database. Misalnya, data pelanggan atau transaksi yang tercatat dua kali dapat mengakibatkan ketidaksesuaian laporan keuangan dan memengaruhi kepercayaan pelanggan. Selain itu, kesalahan informasi, seperti alamat yang salah atau nomor dokumen yang tidak sesuai, dapat menyebabkan keterlambatan dalam proses ekspor dan potensi sanksi administratif.

Permasalahan ini timbul karena beberapa faktor, antara lain:

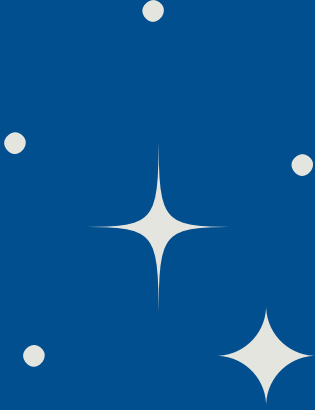
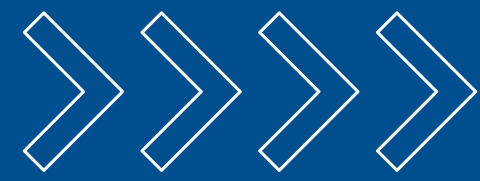
1. Proses input manual yang rentan terhadap human err
2. Data Duplikat yang mempengaruhi keuangan





# TUJUAN

1. Memastikan Keakuratan Data: Mencegah adanya kesalahan informasi dalam tabel database yang dapat mengganggu proses dokumentasi ekspor.
2. Menghilangkan Duplikasi Data: Membangun sistem deteksi otomatis untuk mendeteksi dan menghapus data yang terduplikasi, sehingga mempermudah pencarian dan pelacakan informasi.
3. Menghilangkan anomali-anomali yang ada pada tabel



# CHAPTER 2

## Sample Data (In - Uniformal) With Description



LOGO COMPANY

07/Desember/2024

To : 321 River Rd, Auckland

Cc : logistics@pac.nz

Name & Address Exportir : Pacific Logistics, New Zealand

DESCRIPTION OF GOODS : Clothing & Textiles

GROSS WEIGHT : 28.4 kg

Number and Des of Packages : 12 cartons

Total Container : 1 x 40ft high cube

Port of Loading : Auckland

Port of Discharge : Sydney

CONSIGNEE : Pacific Wear

B/L NOTIFY : Textile Notify

MARKING : TEXT-321

SERVICE CONTRACT No. : SC67895

CONTAINER STATUS : Full

VESSEL : MV Thunder

LOADING DATE : 2024-12-08

BOOKING NO. : BK011

CONTAINER & SEAL NO. : PONU9876543, SEAL894

**SPECIAL CONDITIONS : Waterproof packaging needed**

Original Phytosanitary Cert. Issued by government authority with earlier issuing date than on board date of B/L (Very important)

**DOCUMENTS REQUIRED: Invoice**

TRANSPORINDO DOCUMENTS :

- FULL SET OF CLEAN ON BOARD BILL OF LADING AND 2 NON – NEGOTIABLE COPIES
- GSP FORM AK CERTIFICATE IN DUPLICATE
- FUMIGATION CERTIFICATE IN DUPLICATE BY GOVERNMENT AUTHORITY
- PHYTOSANITARY FROM QUARANTINE WITH EARLIER ISSUING DATE THAN ON BOARD DATE OF B/L (VERY IMPORTANT)
- ORIGINAL ASEAN-KOREA FREE TRADE AREA PREFERENTIAL TARIFF CERTIFICATE OF ORIGIN (FORM AK) ISSUED BY LISTED AUTHORITY AND OFFICIAL.
- ICO CERTIFICATE IN DUPLICATE

Best Regards,

Form kita merupakan form yang berbentuk mendekati surat. Disini terdapat beberapa hal yang nantinya akan dimasukkan ke dalam tabel uniform.

1. **Tanggal Transaksi** : merupakan tanggal dimana seseorang terekap melakukan transaksi di perusahaan
2. **To** : alamat dari perusahaan yang akan dikirimkan produk
3. **Cc** : email untuk mengirimkan salinan email kepada penerima tambahan selain penerima utama.
4. **Name And Address Exportir** : nama dan alamat dari orang yang melakukan export
5. **Description of Goods** : Deskripsi Produk yang akan dikirim
6. **Gross Weight** : berat produknya
7. **Number and Des Of packages** : Jumlah dan bentuk paket
8. **Total Container** : berapa container yang dibutuhkan untuk mengirim produk ini
9. **Port of Loading** : Port awalan atau port yang dipakai untuk shipping
10. **Port of discharge** : Port Tujuan atau port yang menerima shipping
11. **Consignee** : pihak yang menerima barang yang dikirim oleh pengirim atau shipper
12. **B/L Notify** : pihak yang akan dihubungi ketika barang sudah tiba di tujuan
13. **Marking** : Kode penandaan pada produk
14. **Service Contract No** : perjanjian tertulis yang mengatur hubungan kerja antara pemberi kerja dan pekerja

15. **Container Status** : Kondisi Container yang mengangkut barang kiriman
16. **Vessel**: Kode Kapal yang digunakan untuk mengangkut barang dalam jumlah besar melalui laut
17. **Loading Date**: Tanggal waktu produk berada dishipping
18. **Booking no** : No pemesanan ke perusahaan
19. **Container and Seal No**: no Container dan sealnya
20. **Special Conditions**: kondisi spesial yang harus dipenuhi untuk pengiriman paket
21. **Documents Required**: Dokumen yang dibutuhkan

LOGO COMPANY

07/Desember/2024

To : 321 River Rd, Auckland

Cc : logistics@pac.nz

Name & Addres Exportir : Pacific Logistics, New Zealand

DESCRIPTION OF GOODS : Clothing & Textiles

GROSS WEIGHT : 28.4 kg

Number and Des of Packages : 12 cartons

Total Container : 1 x 40ft high cube

Port of Loading : Auckland

Port of Discharge : Sydney

CONSIGNEE : Pacific Wear

B/L NOTIFY : Textile Notify

MARKING : TEXT-321

SERVICE CONTRACT No. : SC67895

CONTAINER STATUS : Full

VESSEL : MV Thunder

LOADING DATE : 2024-12-08

BOOKING NO. : BK011

CONTAINER & SEAL NO. : PONU9876543, SEAL894

SPECIAL CONDITIONS : Waterproof packaging needed

Original Phytosanitary Cert. Issued by government authority with earlier issuing date than on board date of B/L (Very important)

DOCUMENTS REQUIRED: Invoice

TRANSPORINDO DOCUMENTS :

FULL SET OF CLEAN ON BOARD BILL OF LADING AND 2 NON – NEGOTIABLE COPIES

GSP FORM AK CERTIFICATE IN DUPLICATE

FUMIGATION CERTIFICATE IN DUPLICATE BY GOVERNMENT AUTHORITY

PHYTOSANITARY FROM QUARANTINE WITH EARLIER ISSUING DATE THAN ON BOARD DATE OF B/L (VERY IMPORTANT)

ORIGINAL ASEAN-KOREA FREE TRADE AREA PREFERENTIAL TARIFF CERTIFICATE OF ORIGIN (FORM AK) ISSUED BY LISTED AUTHORITY AND OFFICIAL.

ICO CERTIFICATE IN DUPLICATE

Best Regards,

SAMPEL  
DATA  
1 & 2

LOGO COMPANY

25 November 2024

To : 123 Elm St, London

Cc : info@abc.com

Name & Addres Exportir : Global Exports USA

DESCRIPTION OF GOODS : Consumer Electronics

GROSS WEIGHT : 15.6 kg

Number and Des of Packages : 2 cartons

Total Container : 1 x 20ft container

Port of Loading : New York

Port of Discharge : Southampton

CONSIGNEE : ABC Ltd.

B/L NOTIFY : Notify Co.

MARKING : ELEC-001

SERVICE CONTRACT No. : SC12345

CONTAINER STATUS : Full

VESSEL : MV Ocean Star

LOADING DATE : 2024-11-26

BOOKING NO. : BK001

CONTAINER & SEAL NO. : MAEU1234567 & BK001

SPECIAL CONDITIONS : Handle with care

Original Phytosanitary Cert. Issued by government authority with earlier issuing date than on board date of B/L (Very important)

DOCUMENTS REQUIRED: Invoice, Packing List

TRANSPORINDO DOCUMENTS :

FULL SET OF CLEAN ON BOARD BILL OF LADING AND 2 NON – NEGOTIABLE COPIES

GSP FORM AK CERTIFICATE IN DUPLICATE

FUMIGATION CERTIFICATE IN DUPLICATE BY GOVERNMENT AUTHORITY

PHYTOSANITARY FROM QUARANTINE WITH EARLIER ISSUING DATE THAN ON BOARD DATE OF B/L (VERY IMPORTANT)

ORIGINAL ASEAN-KOREA FREE TRADE AREA PREFERENTIAL TARIFF CERTIFICATE OF ORIGIN (FORM AK) ISSUED BY LISTED AUTHORITY AND OFFICIAL.

ICO CERTIFICATE IN DUPLICATE

Best Regards,



LOGO COMPANY

06/Desember/2024  
To : 678 Coral St, Berlin  
Cc : office@euro.de

Name & Addres Exportir : Euro Shipping Co., Germany

DESCRIPTION OF GOODS : Industrial Equipment

GROSS WEIGHT : 75.0 kg

Number and Des of Packages : 4 wooden crates

Total Container : 1 x 40ft container

Port of Loading : Hamburg

Port of Discharge : Rotterdam

CONSIGNEE : Euro Equip

B/L NOTIFY : Germany Notify

MARKING : INDUST-001

SERVICE CONTRACT No. : SC67894

CONTAINER STATUS : Full

VESSEL : MV Thunderstorm

LOADING DATE : 2024-12-07

BOOKING NO. : BK010

CONTAINER & SEAL NO. : APLU8765432, SEAL893

SPECIAL CONDITIONS : Requires extra padding

Original Phytosanitary Cert. Issued by government authority with earlier issuing date than on board date of B/L (Very important)

DOCUMENTS REQUIRED: Invoice

TRANSPORINDO DOCUMENTS :

FULL SET OF CLEAN ON BOARD BILL OF LADING AND 2 NON – NEGOTIABLE COPIES

GSP FORM AK CERTIFICATE IN DUPLICATE

FUMIGATION CERTIFICATE IN DUPLICATE BY GOVERNMENT AUTHORITY

PHYTOSANITARY FROM QUARANTINE WITH EARLIER ISSUING DATE THAN ON BOARD DATE OF B/L (VERY IMPORTANT)

ORIGINAL ASEAN-KOREA FREE TRADE AREA PREFERENTIAL TARIFF CERTIFICATE OF ORIGIN (FORM AK) ISSUED BY LISTED AUTHORITY AND OFFICIAL.

ICO CERTIFICATE IN DUPLICATE

Best Regards,

SAMPEL  
DATA  
3 & 4

LOGO COMPANY

05/Desember/2024  
To : 890 Palm Ave, Mexico  
Cc : trade@latam.mx

Name & Addres Exportir : LATAM Traders, Mexico City

DESCRIPTION OF GOODS : Pharmaceuticals

GROSS WEIGHT : 45.0 kg

Number and Des of Packages : 8 pallets

Total Container : 2 x 20ft containers

Port of Loading : Veracruz

Port of Discharge : Hamburg

CONSIGNEE : LATAM Pharma

B/L NOTIFY : Pharma Notify

MARKING : PHARMA-678

SERVICE CONTRACT No. : SC67893

CONTAINER STATUS : Full

VESSEL : MV Silver Tide

LOADING DATE : 2024-12-06

BOOKING NO. : BK009

CONTAINER & SEAL NO. : OOCL1239876, SEAL892

SPECIAL CONDITIONS : Fragile

Original Phytosanitary Cert. Issued by government authority with earlier issuing date than on board date of B/L (Very important)

DOCUMENTS REQUIRED: Bill of Lading

TRANSPORINDO DOCUMENTS :

FULL SET OF CLEAN ON BOARD BILL OF LADING AND 2 NON – NEGOTIABLE COPIES

GSP FORM AK CERTIFICATE IN DUPLICATE

FUMIGATION CERTIFICATE IN DUPLICATE BY GOVERNMENT AUTHORITY

PHYTOSANITARY FROM QUARANTINE WITH EARLIER ISSUING DATE THAN ON BOARD DATE OF B/L (VERY IMPORTANT)

ORIGINAL ASEAN-KOREA FREE TRADE AREA PREFERENTIAL TARIFF CERTIFICATE OF ORIGIN (FORM AK) ISSUED BY LISTED AUTHORITY AND OFFICIAL.

ICO CERTIFICATE IN DUPLICATE

Best Regards,

9

LOGO COMPANY

04/Desember/2024

To : 123 Bay St, Mumbai

Cc : contact@xyz.in

Name & Addres Exportir : Indian Goods Export, Mumbai

DESCRIPTION OF GOODS : Organic Food Products

GROSS WEIGHT : 30.0 kg

Number and Des of Packages : 3 crates

Total Container : 1 x 40ft high cube

Port of Loading : Mumbai

Port of Discharge : London

CONSIGNEE : XYZ India

B/L NOTIFY : India Notify

MARKING : FOOD-123

SERVICE CONTRACT No. : SC67892

CONTAINER STATUS : Partial

VESSEL : MV Green Wave

LOADING DATE : 2024-12-05

BOOKING NO. : BK008

CONTAINER & SEAL NO. : MSKU3456789,SEAL891

SPECIAL CONDITIONS : Keep dry

Original Phytosanitary Cert. Issued by government authority with earlier issuing date than on board date of B/L (Very important)

DOCUMENTS REQUIRED: Packing List

TRANSPORINDO DOCUMENTS :

FULL SET OF CLEAN ON BOARD BILL OF LADING AND 2 NON – NEGOTIABLE COPIES

GSP FORM AK CERTIFICATE IN DUPLICATE

FUMIGATION CERTIFICATE IN DUPLICATE BY GOVERNMENT AUTHORITY

PHYTOSANITARY FROM QUARANTINE WITH EARLIER ISSUING DATE THAN ON BOARD DATE OF B/L (VERY IMPORTANT)

ORIGINAL ASEAN-KOREA FREE TRADE AREA PREFERENTIAL TARIFF CERTIFICATE OF ORIGIN (FORM AK) ISSUED BY LISTED AUTHORITY AND OFFICIAL.

ICO CERTIFICATE IN DUPLICATE

Best Regards,

SAMPEL

DATA

5 & 6

LOGO COMPANY

03/Desember/2024

To : 456 Maple Rd, Tokyo

Cc : shipping@abc.jp

Name & Addres Exportir : Asia Pacific Traders, Tokyo

DESCRIPTION OF GOODS : Electronics Accessories

GROSS WEIGHT : 12.5 kg

Number and Des of Packages : 10 boxes

Total Container : 1 x 20ft container

Port of Loading : Tokyo

Port of Discharge : Los Angeles

CONSIGNEE : AP Traders

B/L NOTIFY : Notify Asia

MARKING : ELEC-005

SERVICE CONTRACT No. : SC67891

CONTAINER STATUS : Full

VESSEL : MV Rising Sun

LOADING DATE : 2024-12-04

BOOKING NO. : BK007

CONTAINER & SEAL NO. : CMAU6543210 , SEAL890

SPECIAL CONDITIONS : Handle with care

Original Phytosanitary Cert. Issued by government authority with earlier issuing date than on board date of B/L (Very important)

DOCUMENTS REQUIRED: Invoice

TRANSPORINDO DOCUMENTS :

FULL SET OF CLEAN ON BOARD BILL OF LADING AND 2 NON – NEGOTIABLE COPIES

GSP FORM AK CERTIFICATE IN DUPLICATE

FUMIGATION CERTIFICATE IN DUPLICATE BY GOVERNMENT AUTHORITY

PHYTOSANITARY FROM QUARANTINE WITH EARLIER ISSUING DATE THAN ON BOARD DATE OF B/L (VERY IMPORTANT)

ORIGINAL ASEAN-KOREA FREE TRADE AREA PREFERENTIAL TARIFF CERTIFICATE OF ORIGIN (FORM AK) ISSUED BY LISTED AUTHORITY AND OFFICIAL.

ICO CERTIFICATE IN DUPLICATE

Best Regards,

10

LOGO COMPANY

29/November/2024

To : 654 Cedar Ln, Sydney  
Cc : transport@jkl.au

Name & Address Exportir : Oceanic Traders, Sydney  
DESCRIPTION OF GOODS : Clothing and Textiles

GROSS WEIGHT : 24.8 kg

Number and Des of Packages : 15 pallets

Total Container : 1 x 40ft high cube

Port of Loading : Sydney

Port of Discharge : Singapore

CONSIGNEE : JKL Ltd.  
B/L NOTIFY : Textile Notify  
MARKING : TEXT-654  
SERVICE CONTRACT No. : SC22445

CONTAINER STATUS : Partial  
VESSEL : MV Yellow Star  
LOADING DATE : 2024-11-30  
BOOKING NO. : BK005

CONTAINER & SEAL NO. : TRLU2345678, SEAL654

**SPECIAL CONDITIONS : Waterproof packaging needed**

Original Phytosanitary Cert. Issued by government authority with earlier issuing date than on board date of B/L (Very important)

**DOCUMENTS REQUIRED: Invoice**

TRANSPORINDO DOCUMENTS :

- FULL SET OF CLEAN ON BOARD BILL OF LADING AND 2 NON – NEGOTIABLE COPIES
- GSP FORM AK CERTIFICATE IN DUPLICATE
- FUMIGATION CERTIFICATE IN DUPLICATE BY GOVERNMENT AUTHORITY
- PHYTOSANITARY FROM QUARANTINE WITH EARLIER ISSUING DATE THAN ON BOARD DATE OF B/L (VERY IMPORTANT)
- ORIGINAL ASEAN-KOREA FREE TRADE AREA PREFERENTIAL TARIFF CERTIFICATE OF ORIGIN (FORM AK) ISSUED BY LISTED AUTHORITY AND OFFICIAL.
- ICO CERTIFICATE IN DUPLICATE

Best Regards,

# SAMPEL DATA 7 & 8

LOGO COMPANY

1/December/2024  
To : 789 Oak Ave, Paris  
Cc : admin@xyz.fr

Name & Address Exportir : Euro Goods, Paris  
DESCRIPTION OF GOODS : Automotive Spare Parts

GROSS WEIGHT : 60.3 kg

Number and Des of Packages : 4 wooden crates

Total Container : 1 x 20ft container

Port of Loading : Le Havre

Port of Discharge : New York

CONSIGNEE : XYZ Traders  
B/L NOTIFY : Cargo Notify  
MARKING : AUTO-789  
SERVICE CONTRACT No. : SC67890

CONTAINER STATUS : Full  
VESSEL : MV Fast Horizon  
LOADING DATE : 2024-12-01  
BOOKING NO. : HK006

CONTAINER & SEAL NO. : COSU5678901, SEAL789

**SPECIAL CONDITIONS : Reinforced crating**

Original Phytosanitary Cert. Issued by government authority with earlier issuing date than on board date of B/L (Very important)

**DOCUMENTS REQUIRED: Invoice**

TRANSPORINDO DOCUMENTS :

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- ICO CERTIFICATE IN DUPLICATE

Best Regards,

LOGO COMPANY

28 November 2024

To : 321 Pine St, Dubai]  
Cc : trade@ghi.ac

~~Name & Address Exporter~~ : Middle East Exporters, Dubai  
DESCRIPTION OF GOODS : Pharmaceuticals

GROSS WEIGHT : 52.7 kg

Number and Des of Packages : 5 shrink-wrapped packages

Total Container : 2 x 20ft containers

Port of Loading : Jebel Ali

Port of Discharge : Hamburg

CONSIGNEE : GHI Pharma  
B/L NOTIFY : Med Notify  
MARKING : PHARMA-321  
SERVICE CONTRACT No. : SC11223

CONTAINER STATUS : FULL

VESSEL : MV White Dove  
LOADING DATE : 2024-11-29  
BOOKING NO. : BK004

CONTAINER & SEAL NO. : HLCU7890123, SEAL321

SPECIAL CONDITIONS : Fragile

Original Phytosanitary Cert. Issued by government authority with earlier issuing date than on board date of B/L (Very important)

DOCUMENTS REQUIRED: Bill of Lading, Invoice

TRANSPORINDO DOCUMENTS :

- FULL SET OF CLEAN ON BOARD BILL OF LADING AND 2 NON – NEGOTIABLE COPIES
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- FUMIGATION CERTIFICATE IN DUPLICATE BY GOVERNMENT AUTHORITY
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- ORIGINAL ASEAN-KOREA FREE TRADE AREA PREFERENTIAL TARIFF CERTIFICATE OF ORIGIN (FORM AK) ISSUED BY LISTED AUTHORITY AND OFFICIAL.
- ICO CERTIFICATE IN DUPLICATE

Best Regards,

# SAMPEL DATA 9 & 10

LOGO COMPANY

25 November 2024

To : 123 Elm St, London  
Cc : info@abc.com

~~Name & Address Exporter~~ : Global Exports, USA  
DESCRIPTION OF GOODS : Consumer Electronics

GROSS WEIGHT : 15.6 kg

Number and Des of Packages : 2 cartons

Total Container : 1 x 20ft container

Port of Loading : New York

Port of Discharge : Southampton

CONSIGNEE : ABC Ltd.  
B/L NOTIFY : Notify Co.  
MARKING : ELEC-001  
SERVICE CONTRACT No. : SC12345

CONTAINER STATUS : Full  
VESSEL : MV Ocean Star  
LOADING DATE : 2024-11-26  
BOOKING NO. :

CONTAINER & SEAL NO. : MAEU1234567 & BK001

SPECIAL CONDITIONS : Handle with care

Original Phytosanitary Cert. Issued by government authority with earlier issuing date than on board date of B/L (Very important)

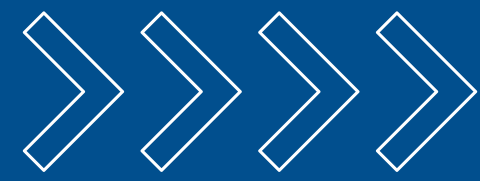
DOCUMENTS REQUIRED: Invoice, Packing List

TRANSPORINDO DOCUMENTS :

- FULL SET OF CLEAN ON BOARD BILL OF LADING AND 2 NON – NEGOTIABLE COPIES
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- ORIGINAL ASEAN-KOREA FREE TRADE AREA PREFERENTIAL TARIFF CERTIFICATE OF ORIGIN (FORM AK) ISSUED BY LISTED AUTHORITY AND OFFICIAL.
- ICO CERTIFICATE IN DUPLICATE

Best Regards,





# Chapter 3

## The list of anomalies may occur.



X

ANOMALI INSERTION

Anomali Insertion

Date	To Address	CC Address	Exporter Name & Address	Description of Goods	Gross Weight	Number and Description of Packages	Total Container	Port of Loading	Port of Discharge	Consignee	BL Notify	Marking	Service Contract No	Container Status	Vessel	Loading Date	Booking No	Container Seal No	Special Conditions	Documents Required
25/11/2024	123 Elm St, London	info@abc.com	Global Exports,USA	Consumer Electronics	15.6 kg	2 cartons	1 x 20ft container	New York	Southampton	ABC Ltd.	Notify Co.	ELEC-001	SC12345	Full	MV Ocean Star	2024-11-26	BK001	MAEU1234567 , SEAL123	Handle with care	Invoice, Packing List
25/11/2024	123 Elm St, London	info@abc.com	Global Exports,USA	Consumer Electronics	15.6 kg	2 cartons	1 x 20ft container	New York	Southampton	ABC Ltd.	Notify Co.	ELEC-001	SC12345	Full	MV Ocean Star	2024-11-26	BK001	MAEU1234567 , SEAL123	Handle with care	Invoice, Packing List
28/11/2024	321 Pine St, Dubai	trade@ghi.ae	Middle East Exporters, Dubai	Pharmaceuticals	52.7 kg	5 shrink-wrapped packages	2 x 20ft containers	Jebel Ali	Hamburg	GHI Pharma	Med Notify	PHARMA-321	SC11223	Full	MV White Dove	2024-11-29	BK004	HLCU7890123, SEAL321	Fragile	Bill of Lading, Invoice
29/11/2024	654 Cedar Ln, Sydney	transport@jkl.au	Oceanic Traders, Sydney	Clothing and Textiles	24.8 kg	15 pallets	1 x 40ft high cube	Sydney	Singapore	JKL Ltd.	Textile Notify	TEXT-654	SC22445	Partial	MV Yellow Star	2024-11-30	BK005	TRLU2345678, SEAL654	Waterproof packaging needed	Invoice
1/12/2024	789 Oak Ave, Paris	admin@xyz.fr	Euro Goods, Paris	Automotive Spare Parts	60.3 kg	4 wooden crates	1 x 20ft container	Le Havre	New York	XYZ Traders	Cargo Notify	AUTO-789	SC67890	Full	MV Fast Horizon	2024-12-02	BK006	COSU5678901, SEAL789	Requires extra padding	Invoice
03/12/2024	456 Maple Rd, Tokyo	shipping@abc.jp	Asia Pacific Traders, Tokyo	Electronics Accessories	12.5 kg	10 boxes	1 x 20ft container	Tokyo	Los Angeles	AP Traders	Notify Asia	ELEC-005	SC67891	Full	MV Rising Sun	2024-12-04	BK007	CMAU6543210 , SEAL890	Handle with care	Invoice
04/12/2024	123 Bay St, Mumbai	contact@xyz.in	Indian Goods Export, Mumbai	Organic Food Products	30.0 kg	3 crates	1 x 40ft high cube	Mumbai	London	XYZ India	India Notify	FOOD-123	SC67892	Partial	MV Green Wave	2024-12-05	BK008	MSKU3456789,SEAL891	Keep dry	Packing List
05/12/2024	890 Palm Ave, Mexico	trade@latam.mx	LATAM Traders, Mexico City	Pharmaceuticals	45.0 kg	8 pallets	2 x 20ft containers	Veracruz	Hamburg	LATAM Pharma	Pharma Notify	PHARMA-678	SC67893	Full	MV Silver Tide	2024-12-06	BK009	OOCL1239876, SEAL892	Fragile	Bill of Lading
06/12/2024	678 Coral St, Berlin	office@euro.de	Euro Shipping Co., Germany	Industrial Equipment	75.0 kg	4 wooden crates	1 x 40ft container	Hamburg	Rotterdam	Euro Equip	Germany Notify	INDUST-001	SC67894	Full	MV Thunderstorm	2024-12-07	BK010	APLU8765432, SEAL893	Requires extra padding	Invoice
07/12/2024	321 River Rd, Auckland	logistics@pac.nz	Pacific Logistics, New Zealand	Clothing & Textiles	28.4 kg	12 cartons	1 x 40ft high cube	Auckland	Sydney	Pacific Wear	Textile Notify	TEXT-321	SC67895	Full	MV Thunder	2024-12-08	BK011	PONU9876543, SEAL894	Waterproof packaging needed	Invoice
				Beverages																

Penjelasan

Apabila kita ingin menambahkan produk baru maka akan terjadi anomali insertion dikarenakan akan ada beberapa kolom yang NULL disebabkan oleh insertion yang kita buat. Contoh kita ingin menginput beverages tapi belum ada yang order beverages maka kolom lain akan terisi NULL inilah yang dinamakan anomali insertion.

## ✗ ANOMALI UPDATE

Anomali Update				
Date	To Address	CC Address	Exporter Name & Address	Description of Goods
25/11/2024	123 Elm St, London	info@abc.com	Global Exports,USA	Consumer Electronics
25/11/2024	123 Elm St, London	info@abc.com	Global Exports,USA	Consumer Electronics

### Penjelasan

Apabila kita ingin mengupdate baris 1 kolom number and description of packages dari 2 kartons menjadi 4 kartons, secara otomatis kita harus mengubah juga baris ke 2 kolom number and description of packages dari 2 kartons ke 4 kartons juga. Inilah update anomaly

# X ANOMALI DELETION

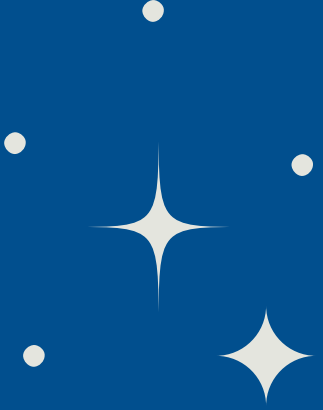
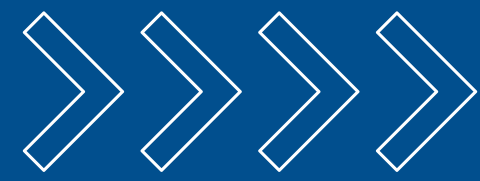
Anomali Delete									
Date	To Address	CC Address	Exporter Name & Address	Description of Goods	Gross Weight	Number and Description of Packages	Total Container	Port of Loading	Port of Discharge
25/11/2024	123 Elm St, London	info@abc.com	Global Exports,USA	Consumer Electronics	15.6 kg	2 cartons	1 x 20ft container	New York	Southampton
25/11/2024	123 Elm St, London	info@abc.com	Global Exports,USA	Consumer Electronics	15.6 kg	2 cartons	1 x 20ft container	New York	Southampton
28/11/2024	321 Pine St, Dubai	trade@ghi.ae	Middle East Exporters, Dubai	Pharmaceuticals	52.7 kg	5 shrink-wrapped packages	2 x 20ft containers	Jebel Ali	Hamburg
29/11/2024	654 Cedar Ln, Sydney	transport@jkl.au	Oceanic Traders, Sydney	Clothing and Textiles	24.8 kg	15 pallets	1 x 40ft high cube	Sydney	Singapore
1/12/2024	789 Oak Ave, Paris	admin@xyz.fr	Euro Goods, Paris	Automotive Spare Parts	60.3 kg	4 wooden crates	1 x 20ft container	Le Havre	New York
03/12/2024	456 Maple Rd, Tokyo	shipping@abc.jp	Asia Pacific Traders, Tokyo	Electronics Accessories	12.5 kg	10 boxes	1 x 20ft container	Tokyo	Los Angeles
04/12/2024	123 Bay St, Mumbai	contact@xyz.in	Indian Goods Export, Mumbai	Organic Food Products	30.0 kg	3 crates	1 x 40ft high cube	Mumbai	London
05/12/2024	890 Palm Ave, Mexico	trade@latam.mx	LATAM Traders, Mexico City	Pharmaceuticals	45.0 kg	8 pallets	2 x 20ft containers	Veracruz	Hamburg
06/12/2024	678 Coral St, Berlin	office@euro.de	Euro Shipping Co., Germany	Industrial Equipment	75.0 kg	4 wooden crates	1 x 40ft container	Hamburg	Rotterdam
07/12/2024	321 River Rd, Auckland	logistics@pac.nz	Pacific Logistics, New Zealand	Clothing & Textiles	28.4 kg	12 cartons	1 x 40ft high cube	Auckland	Sydney

Penjelasan
<p>Apabila kita ingin menghapus produk automotive spare parts karena sudah tidak tersedia lagi maka kita juga harus menghapus satu baris karena mereka merupakan satu kesatuan. Inilah delete anomaly yang terjadi di tabel ini</p>



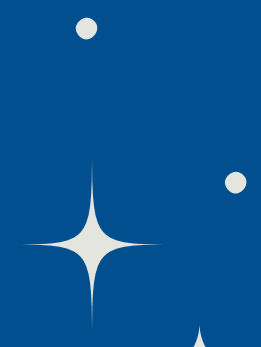
# X FUNCTIONAL DEPEDENCIES

Functional Dependencies
1. <b>Booking No</b> → To Address, CC Address, Exporter Name & Address, Description of Goods, Gross Weight, Number and Description of Packages, Total Container, Port of Loading, Port of Discharge, Consignee, BL Notify, Marking, Service Contract No, Container Status, Vessel, Loading Date, Booking No, Container Seal No, Special Conditions, Documents Required
2. <b>Exporter Name</b> → Exporter Address
3. <b>Vessel</b> → Port_of_Loading, Port_of_Discharge, Loading_Date
4. <b>Consignee</b> → To Address, CC Address, BL Notify
5. <b>Service Contract No</b> → Container Status, Special Conditions, container no , seal no
6. <b>Marking</b> → Gross Weight, Number and Description of Packages, Total Container,Documents Required,Description Of goods
7. <b>Container No</b> -> Seal no
Yang menjadi Primary key dari tabel kami adalah booking no mengingat booking no dapat menjelaskan semua kolom yang ada di tabel kami.



# Chapter 4

## Implementation of normalization (detail step by step of normalization from un-normal form).





TABEL UTAMA

Date	To Address	CC Address	Exporter Name & Address	Description of Goods	Gross Weight	Number and Description of Packages	Total Container	Port of Loading	Port of Discharge
25/11/2024	123 Elm St, London	info@abc.com	Global Exports,USA	Consumer Electronics	15.6 kg	2 cartons	1 x 20ft container	New York	Southampton
25/11/2024	123 Elm St, London	info@abc.com	Global Exports,USA	Consumer Electronics	15.6 kg	2 cartons	1 x 20ft container	New York	Southampton
28/11/2024	321 Pine St, Dubai	trade@ghi.ae	Middle East Exporters, Dubai	Pharmaceuticals	52.7 kg	5 shrink-wrapped packages	2 x 20ft containers	Jebel Ali	Hamburg
29/11/2024	654 Cedar Ln, Sydney	transport@jkl.au	Oceanic Traders, Sydney	Clothing and Textiles	24.8 kg	15 pallets	1 x 40ft high cube	Sydney	Singapore
1/12/2024	789 Oak Ave, Paris	admin@xyz.fr	Euro Goods, Paris	Automotive Spare Parts	60.3 kg	4 wooden crates	1 x 20ft container	Le Havre	New York
03/12/2024	456 Maple Rd, Tokyo	shipping@abc.jp	Asia Pacific Traders, Tokyo	Electronics Accessories	12.5 kg	10 boxes	1 x 20ft container	Tokyo	Los Angeles
04/12/2024	123 Bay St, Mumbai	contact@xyz.in	Indian Goods Export, Mumbai	Organic Food Products	30.0 kg	3 crates	1 x 40ft high cube	Mumbai	London
05/12/2024	890 Palm Ave, Mexico	trade@latam.mx	LATAM Traders, Mexico City	Pharmaceuticals	45.0 kg	8 pallets	2 x 20ft containers	Veracruz	Hamburg
06/12/2024	678 Coral St, Berlin	office@euro.de	Euro Shipping Co., Germany	Industrial Equipment	75.0 kg	4 wooden crates	1 x 40ft container	Hamburg	Rotterdam
07/12/2024	321 River Rd, Auckland	logistics@pac.nz	Pacific Logistics, New Zealand	Clothing & Textiles	28.4 kg	12 cartons	1 x 40ft high cube	Auckland	Sydney

Consignee	BL Notify	Marking	Service Contract No	Container Status	Vessel	Loading Date	Booking No	Container Seal No	Special Conditions	Documents Required
ABC Ltd.	Notify Co.	ELEC-001	SC12345	Full	MV Ocean Star	2024-11-26	BK001	MAEU1234567 , SEAL123	Handle with care	Invoice, Packing List
ABC Ltd.	Notify Co.	ELEC-001	SC12345	Full	MV Ocean Star	2024-11-26	BK001	MAEU1234567 , SEAL123	Handle with care	Invoice, Packing List
GHI Pharma	Med Notify	PHARMA-321	SC11223	Full	MV White Dove	2024-11-29	BK004	HLCU7890123, SEAL321	Fragile	Bill of Lading, Invoice
JKL Ltd.	Textile Notify	TEXT-654	SC22445	Partial	MV Yellow Star	2024-11-30	BK005	TRLU2345678, SEAL654	Waterproof packaging needed	Invoice
XYZ Traders	Cargo Notify	AUTO-789	SC67890	Full	MV Fast Horizon	2024-12-02	BK006	COSU5678901, SEAL789	Requires extra padding	Invoice
AP Traders	Notify Asia	ELEC-005	SC67891	Full	MV Rising Sun	2024-12-04	BK007	CMAU6543210 , SEAL890	Handle with care	Invoice
XYZ India	India Notify	FOOD-123	SC67892	Partial	MV Green Wave	2024-12-05	BK008	MSKU3456789,SEAL891	Keep dry	Packing List
LATAM Pharma	Pharma Notify	PHARMA-678	SC67893	Full	MV Silver Tide	2024-12-06	BK009	OOCL1239876, SEAL892	Fragile	Bill of Lading
Euro Equip	Germany Notify	INDUST-001	SC67894	Full	MV Thunderstorm	2024-12-07	BK010	APLU8765432, SEAL893	Requires extra padding	Invoice
Pacific Wear	Textile Notify	TEXT-321	SC67895	Full	MV Thunder	2024-12-08	BK011	PONU9876543, SEAL894	Waterproof packaging needed	Invoice



Date	To Address	CC Address	Exporter Address	Exporter Name	Description of Goods	Gross Weight	Number of Packages	Description of Packages	Total Container	Port of Loading
25/11/2024	123 Elm St, London	info@abc.com	USA	Global Exports	Consumer Electronics	15.6 kg	2	cartons	1 x 20ft container	New York
25/11/2024	123 Elm St, London	info@abc.com	USA	Global Exports	Consumer Electronics	15.6 kg	2	cartons	1 x 20ft container	New York
25/11/2024	123 Elm St, London	info@abc.com	USA	Global Exports	Consumer Electronics	15.6 kg	2	cartons	1 x 20ft container	New York
25/11/2024	123 Elm St, London	info@abc.com	USA	Global Exports	Consumer Electronics	15.6 kg	2	cartons	1 x 20ft container	New York
28/11/2024	321 Pine St, Dubai	trade@ghi.ae	Dubai	Middle East Exporters	Pharmaceuticals	52.7 kg	5	shrink-wrapped	2 x 20ft containers	Jebel Ali
28/11/2024	321 Pine St, Dubai	trade@ghi.ae	Dubai	Middle East Exporters	Pharmaceuticals	52.7 kg	5	shrink-wrapped	2 x 20ft containers	Jebel Ali
29/11/2024	654 Cedar Ln, Sydney	transport@jkl.au	Sydney	Oceanic Traders	Clothing and Textiles	24.8 kg	15	pallets	1 x 40ft high cube	Sydney
01/12/2024	789 Oak Ave, Paris	admin@xyz.fr	Paris	Euro Goods	Automotive Spare Parts	60.3 kg	4	wooden crates	1 x 20ft container	Le Havre
03/12/2024	456 Maple Rd, Tokyo	shipping@abc.jp	Tokyo	Asia Pacific Traders	Electronics Accessories	12.5 kg	10	boxes	1 x 20ft container	Tokyo
04/12/2024	123 Bay St, Mumbai	contact@xyz.in	Mumbai	Indian Goods Export	Organic Food Products	30.0 kg	3	crates	1 x 40ft high cube	Mumbai
05/12/2024	890 Palm Ave, Mexico	trade@latam.mx	Mexico City	LATAM Traders	Pharmaceuticals	45.0 kg	8	pallets	2 x 20ft containers	Veracruz
06/12/2024	678 Coral St, Berlin	office@euro.de	Germany	Euro Shipping Co.	Industrial Equipment	75.0 kg	4	wooden crates	1 x 40ft container	Hamburg
07/12/2024	321 River Rd, Auckland	logistics@pac.nz	New Zealand	Pacific Logistics	Clothing & Textiles	28.4 kg	12	cartons	1 x 40ft high cube	Auckland

Port of Discharge	Consignee	BL Notify	Marking	Service Contract No	Container Status	Vessel	Loading Date	Booking No	Container No	Seal No	Special Conditions	Documents Required
Southampton	ABC Ltd.	Notify Co.	ELEC-001	SC12345	Full	MV Ocean Star	2024-11-26	BK001	MAEU1234567	SEAL123	Handle with care	Invoice
Southampton	ABC Ltd.	Notify Co.	ELEC-001	SC12345	Full	MV Ocean Star	2024-11-26	BK001	MAEU1234567	SEAL123	Handle with care	Packing List
Southampton	ABC Ltd.	Notify Co.	ELEC-001	SC12345	Full	MV Ocean Star	2024-11-26	BK001	MAEU1234567	SEAL123	Handle with care	Invoice
Southampton	ABC Ltd.	Notify Co.	ELEC-001	SC12345	Full	MV Ocean Star	2024-11-26	BK001	MAEU1234567	SEAL123	Handle with care	Packing List
Hamburg	GHI Pharma	Med Notify	PHARMA-321	SC11223	Full	MV White Dove	2024-11-29	BK004	HLCU7890123	SEAL321	Fragile	Bill of Lading
Hamburg	GHI Pharma	Med Notify	PHARMA-321	SC11223	Full	MV White Dove	2024-11-29	BK004	HLCU7890123	SEAL321	Fragile	Invoice
Singapore	JKL Ltd.	Textile Notify	TEXT-654	SC22445	Partial	MV Yellow Star	2024-11-30	BK005	TRLU2345678	SEAL654	Waterproof packaging needed	Invoice
New York	XYZ Traders	Cargo Notify	AUTO-789	SC67890	Full	MV Fast Horizon	2024-12-02	BK006	COSU5678901	SEAL789	Requires extra padding	Invoice
Los Angeles	AP Traders	Notify Asia	ELEC-005	SC67891	Full	MV Rising Sun	2024-12-04	BK007	CMAU6543210	SEAL890	Handle with care	Invoice
London	XYZ India	India Notify	FOOD-123	SC67892	Partial	MV Green Wave	2024-12-05	BK008	MSKU3456789	SEAL891	Keep dry	Packing List
Hamburg	LATAM Pharma	Pharma Notify	PHARMA-678	SC67893	Full	MV Silver Tide	2024-12-06	BK009	OOCL1239876	SEAL892	Fragile	Bill of Lading
Rotterdam	Euro Equip	Germany Notify	INDUST-001	SC67894	Full	MV Thunderstorm	2024-12-07	BK010	APLU8765432	SEAL893	Requires extra padding	Invoice
Sydney	Pacific Wear	Textile Notify	TEXT-321	SC67895	Full	MV Thunder	2024-12-08	BK011	PONU9876543	SEAL894	Waterproof packaging needed	Invoice

Penjelasan

Tabel uniform perlu melakukan perubahan untuk mencapai 1NF dikarenakan syarat dari 1NF tidak boleh ada yang multivariabel di kolomnya sedangkan untuk kolom exporter address dan name, number of packages and description, documents required, container and seal no merupakan kolom yang multivariate jadi harus kita tambahkan kolom untuk exporter,number and description of packages dan container&seal. Sedangkan untuk documents required kita perlu menambahkan baris agar tidak multivariate.



Date	To Address	CC Address	Exporter Address	Exporter Name	Description of Goods	Gross Weight	Number of Packages	Description of Packages	Total Container	Port of Loading
25/11/2024	123 Elm St, London	info@abc.com	USA	Global Exports	Consumer Electronics	15.6 kg	2	cartons	1 x 20ft container	New York
25/11/2024	123 Elm St, London	info@abc.com	USA	Global Exports	Consumer Electronics	15.6 kg	2	cartons	1 x 20ft container	New York
25/11/2024	123 Elm St, London	info@abc.com	USA	Global Exports	Consumer Electronics	15.6 kg	2	cartons	1 x 20ft container	New York
25/11/2024	123 Elm St, London	info@abc.com	USA	Global Exports	Consumer Electronics	15.6 kg	2	cartons	1 x 20ft container	New York
28/11/2024	321 Pine St, Dubai	trade@ghi.ae	Dubai	Middle East Exporters	Pharmaceuticals	52.7 kg	5	shrink-wrapped	2 x 20ft containers	Jebel Ali
28/11/2024	321 Pine St, Dubai	trade@ghi.ae	Dubai	Middle East Exporters	Pharmaceuticals	52.7 kg	5	shrink-wrapped	2 x 20ft containers	Jebel Ali
29/11/2024	654 Cedar Ln, Sydney	transport@jkl.au	Sydney	Oceanic Traders	Clothing and Textiles	24.8 kg	15	pallets	1 x 40ft high cube	Sydney
01/12/2024	789 Oak Ave, Paris	admin@xyz.fr	Paris	Euro Goods	Automotive Spare Parts	60.3 kg	4	wooden crates	1 x 20ft container	Le Havre
03/12/2024	456 Maple Rd, Tokyo	shipping@abc.jp	Tokyo	Asia Pacific Traders	Electronics Accessories	12.5 kg	10	boxes	1 x 20ft container	Tokyo
04/12/2024	123 Bay St, Mumbai	contact@xyz.in	Mumbai	Indian Goods Export	Organic Food Products	30.0 kg	3	crates	1 x 40ft high cube	Mumbai
05/12/2024	890 Palm Ave, Mexico	trade@latam.mx	Mexico City	LATAM Traders	Pharmaceuticals	45.0 kg	8	pallets	2 x 20ft containers	Veracruz
06/12/2024	678 Coral St, Berlin	office@euro.de	Germany	Euro Shipping Co.	Industrial Equipment	75.0 kg	4	wooden crates	1 x 40ft container	Hamburg
07/12/2024	321 River Rd, Auckland	logistics@pac.nz	New Zealand	Pacific Logistics	Clothing & Textiles	28.4 kg	12	cartons	1 x 40ft high cube	Auckland

Port of Discharge	Consignee	BL Notify	Marking	Service Contract No	Container Status	Vessel	Loading Date	Booking No	Container No	Seal No	Special Conditions	Documents Required
Southampton	ABC Ltd.	Notify Co.	ELEC-001	SC12345	Full	MV Ocean Star	2024-11-26	BK001	MAEU1234567	SEAL123	Handle with care	Invoice
Southampton	ABC Ltd.	Notify Co.	ELEC-001	SC12345	Full	MV Ocean Star	2024-11-26	BK001	MAEU1234567	SEAL123	Handle with care	Packing List
Southampton	ABC Ltd.	Notify Co.	ELEC-001	SC12345	Full	MV Ocean Star	2024-11-26	BK001	MAEU1234567	SEAL123	Handle with care	Invoice
Southampton	ABC Ltd.	Notify Co.	ELEC-001	SC12345	Full	MV Ocean Star	2024-11-26	BK001	MAEU1234567	SEAL123	Handle with care	Packing List
Hamburg	GHI Pharma	Med Notify	PHARMA-321	SC11223	Full	MV White Dove	2024-11-29	BK004	HLCU7890123	SEAL321	Fragile	Bill of Lading
Hamburg	GHI Pharma	Med Notify	PHARMA-321	SC11223	Full	MV White Dove	2024-11-29	BK004	HLCU7890123	SEAL321	Fragile	Invoice
Singapore	JKL Ltd.	Textile Notify	TEXT-654	SC22445	Partial	MV Yellow Star	2024-11-30	BK005	TRLU2345678	SEAL654	Waterproof packaging needed	Invoice
New York	XYZ Traders	Cargo Notify	AUTO-789	SC67890	Full	MV Fast Horizon	2024-12-02	BK006	COSU5678901	SEAL789	Requires extra padding	Invoice
Los Angeles	AP Traders	Notify Asia	ELEC-005	SC67891	Full	MV Rising Sun	2024-12-04	BK007	CMAU6543210	SEAL890	Handle with care	Invoice
London	XYZ India	India Notify	FOOD-123	SC67892	Partial	MV Green Wave	2024-12-05	BK008	MSKU3456789	SEAL891	Keep dry	Packing List
Hamburg	LATAM Pharma	Pharma Notify	PHARMA-678	SC67893	Full	MV Silver Tide	2024-12-06	BK009	OOCL1239876	SEAL892	Fragile	Bill of Lading
Rotterdam	Euro Equip	Germany Notify	INDUST-001	SC67894	Full	MV Thunderstorm	2024-12-07	BK010	APLU8765432	SEAL893	Requires extra padding	Invoice
Sydney	Pacific Wear	Textile Notify	TEXT-321	SC67895	Full	MV Thunder	2024-12-08	BK011	PONU9876543	SEAL894	Waterproof packaging needed	Invoice

Penjelasan

Seperti yang kita lihat pada functional dependency tabel ini, semua data bisa dijelaskan oleh primary key, yaitu Booking No. Oleh karena itu, pada normalisasi 2NF tabel belum perlu untuk dipisahkan.



TABEL 3NF

Shipments Table							
Booking No	Date	Exporter Name	Marking	Consignee	Service Contract No	Vessel	Container No
BK001	25/11/2024	Global Exports	ELEC-001	ABC Ltd.	SC12345	MV Ocean Star	MAEU1234567
BK004	28/11/2024	Middle East Exporters	PHARMA-321	GHI Pharma	SC11223	MV White Dove	HLCU7890123
BK005	29/11/2024	Oceanic Traders	TEXT-654	JKL Ltd.	SC22445	MV Yellow Star	TRLU2345678
BK006	01/12/2024	Euro Goods	AUTO-789	XYZ Traders	SC67890	MV Fast Horizon	COSU5678901
BK007	03/12/2024	Asia Pacific Traders	ELEC-005	AP Traders	SC67891	MV Rising Sun	CMAU6543210
BK008	04/12/2024	Indian Goods Export	FOOD-123	XYZ India	SC67892	MV Green Wave	MSKU3456789
BK009	05/12/2024	LATAM Traders	PHARMA-678	LATAM Pharma	SC67893	MV Silver Tide	OOCL1239876
BK010	06/12/2024	Euro Shipping Co.	INDUST-001	Euro Equip	SC67894	MV Thunderstorm	APLU8765432
BK011	07/12/2024	Pacific Logistics	TEXT-321	Pacific Wear	SC67895	MV Thunder	PONU9876543

Exporter Details Table	
Exporter Name	Exporter Address
Global Exports	USA
Middle East Exporters	Dubai
Oceanic Traders	Sydney
Euro Goods	Paris
Asia Pacific Traders	Tokyo
Indian Goods Export	Mumbai
LATAM Traders	Mexico City
Euro Shipping Co.	Germany
Pacific Logistics	New Zealand

Container Details	
Container No	Seal No
MAEU1234567	SEAL123
HLCU7890123	SEAL321
TRLU2345678	SEAL654
COSU5678901	SEAL789
CMAU6543210	SEAL890
MSKU3456789	SEAL891
OOCL1239876	SEAL892
APLU8765432	SEAL893
PONU9876543	SEAL894

Service Table			
Service Contract No	Container No	Special Conditions	Container Status
SC12345	MAEU1234567	Handle with care	Full
SC11223	HLCU7890123	Fragile	Full
SC22445	TRLU2345678	Waterproof packaging needed	Partial
SC67890	COSU5678901	Requires extra padding	Full
SC67891	CMAU6543210	Handle with care	Full
SC67892	MSKU3456789	Keep dry	Partial
SC67893	OOCL1239876	Fragile	Full
SC67894	APLU8765432	Requires extra padding	Full
SC67895	PONU9876543	Waterproof packaging needed	Full

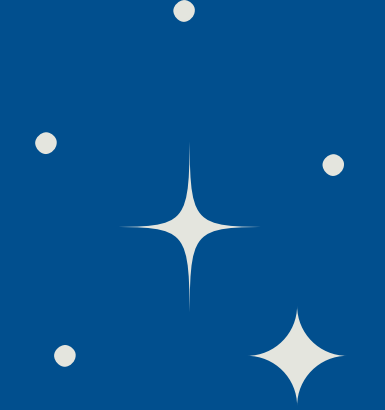
Consignee Details Table			
Consignee	To Address	BL Notify	CC Address
ABC Ltd.	123 Elm St, London	Notify Co.	info@abc.com
GHI Pharma	321 Pine St, Dubai	Med Notify	trade@ghi.ae
JKL Ltd.	654 Cedar Ln, Sydney	Textile Notify	transport@jkl.au
XYZ Traders	789 Oak Ave, Paris	Cargo Notify	admin@xyz.fr
AP Traders	456 Maple Rd, Tokyo	Notify Asia	shipping@abc.jp
XYZ India	123 Bay St, Mumbai	India Notify	contact@xyz.in
LATAM Pharma	890 Palm Ave, Mexico	Pharma Notify	trade@latam.mx
Euro Equip	678 Coral St, Berlin	Germany Notify	office@euro.de
Pacific Wear	321 River Rd, Auckland	Textile Notify	logistics@pac.nz

Vessel Table			
Vessel	Port of Loading	Port of Discharge	Loading Date
MV Ocean Star	New York	Southampton	2024-11-26
MV White Dove	Jebel Ali	Hamburg	2024-11-29
MV Yellow Star	Sydney	Singapore	2024-11-30
MV Fast Horizon	Le Havre	New York	2024-12-02
MV Rising Sun	Tokyo	Los Angeles	2024-12-04
MV Green Wave	Mumbai	London	2024-12-05
MV Silver Tide	Veracruz	Hamburg	2024-12-06
MV Thunderstorm	Hamburg	Rotterdam	2024-12-07
MV Thunder	Auckland	Sydney	2024-12-08

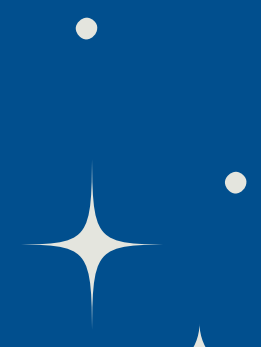
Product Details Table						
Marking	Description of Goods	Gross Weight	Number of Packages	Description of Packages	Total Container	Documents Required
ELEC-001	Consumer Electronics	15.6 kg	2	cartons	1 x 20ft container	Invoice
PHARMA-321	Pharmaceuticals	52.7 kg	5	shrink-wrapped packages	2 x 20ft containers	Bill of Lading
TEXT-654	Clothing and Textiles	24.8 kg	15	pallets	1 x 40ft high cube	Invoice
AUTO-789	Automotive Spare Parts	60.3 kg	4	wooden crates	1 x 20ft container	Invoice
ELEC-005	Electronics Accessories	12.5 kg	10	boxes	1 x 20ft container	Invoice
FOOD-123	Organic Food Products	30.0 kg	3	crates	1 x 40ft high cube	Packing List
PHARMA-678	Pharmaceuticals	45.0 kg	8	pallets	2 x 20ft containers	Bill of Lading
INDUST-001	Industrial Equipment	75.0 kg	4	wooden crates	1 x 40ft container	Invoice
TEXT-321	Clothing & Textiles	28.4 kg	12	cartons	1 x 40ft high cube	Invoice

Penjelasan

Karena tabel sudah ternormalisasi 2NF, maka tahap selanjutnya adalah 3NF, mengikuti Functional Depedency, tabel utama dipisahkan menjadi beberapa tabel, sehingga dihasilkan tabel 3NF yang mana akan menghindari terjadinya anomali-anomali yang sebelumnya terjadi pada tabel utama



# Chapter 5 The ERD of refined database with conclusions.





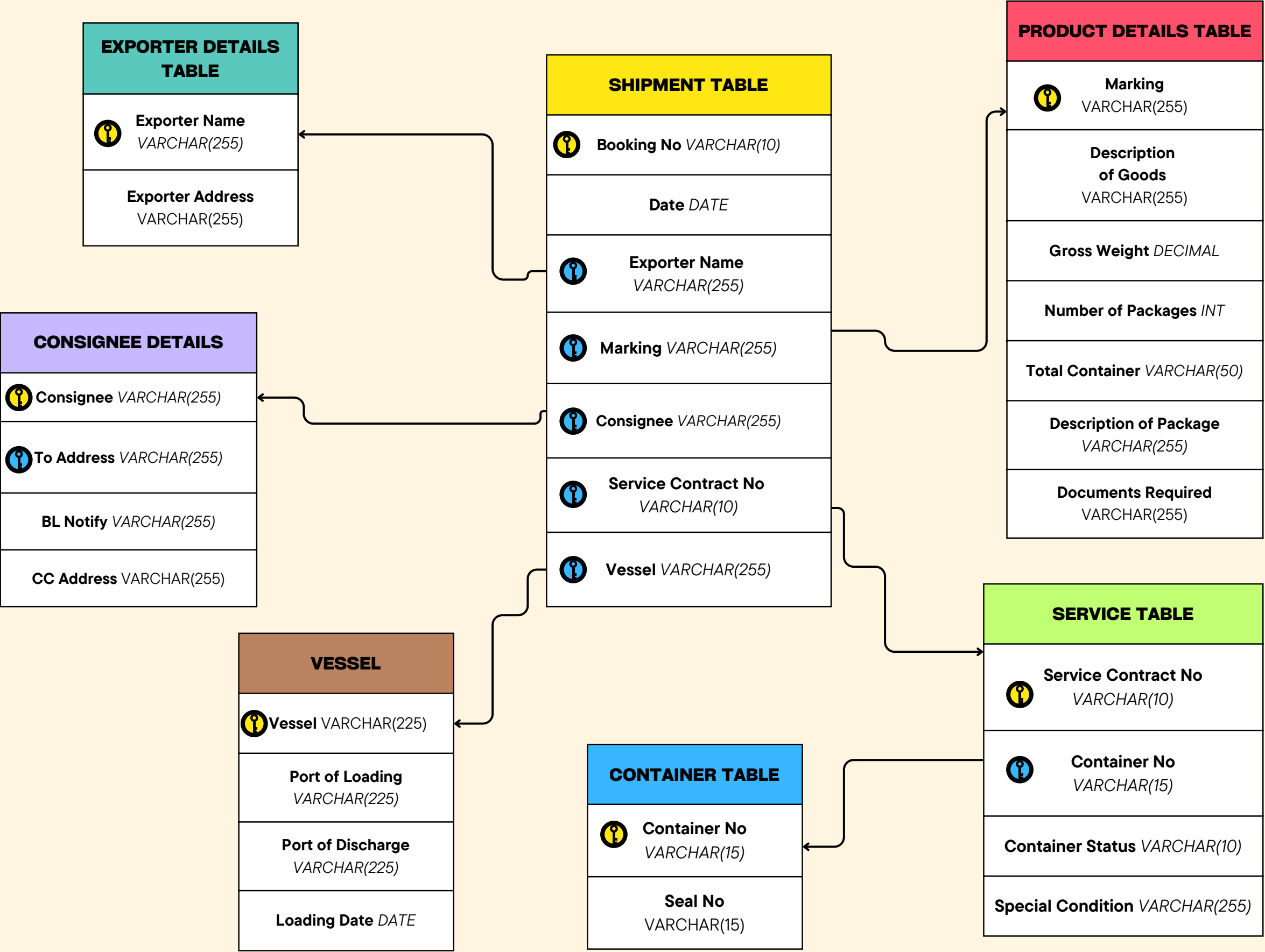
# Entity Relationship Diagram



= PRIMARY KEY



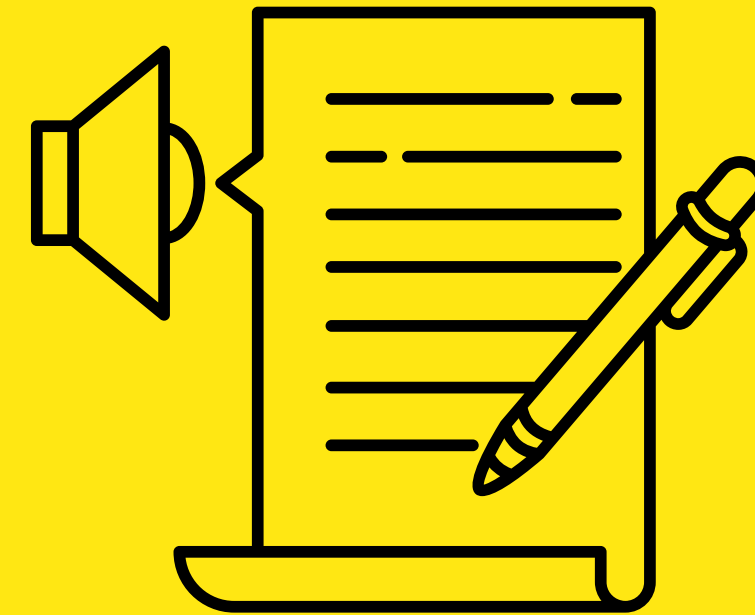
= FOREIGN KEY





**Entity Relationship Diagram** dibuat berdasarkan tabel yang telah dibuat dari 3NF dengan konsiderasi Functional Dependencies yang dimiliki tiap atribut.

ERD dapat menggambarkan **hubungan antar tabel dan juga primary/foreign key** yang menghubungkan atau menjelaskan komponen antar tabel.



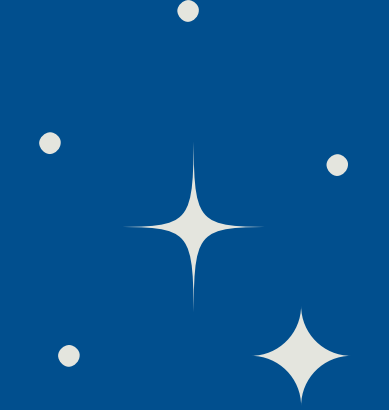
## Definisi

## Penjelasan

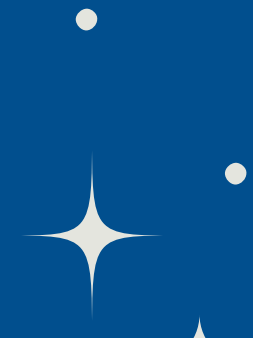


**Shipment Table** merupakan tabel utama yang dapat menjelaskan keseluruhan atribut yang ada pada tabel2 lain.

- Exporter Name : Menjelaskan keseluruhan Exporter Detail Table
- Marking : Menjelaskan Product Details Table
- Consignee : Menjelaskan Consignee Details Table
- Service Contract No. : Menjelasakn Service Table
  - Container No. : Menjelaskan Container Table
- Vessel : Menjelasakn Vessel Table



# Chapter 6 SQL CODE



## Create Database

```
1 CREATE DATABASE AOL;  
2
```

## Create Table Shipments

```
1 CREATE TABLE Shipments (  
2 BookingNo VARCHAR(10),  
3 Date DATE,  
4 ExporterName VARCHAR(255),  
5 Marking VARCHAR(255),  
6 Consignee VARCHAR(255),  
7 ServiceContractNo VARCHAR(10),  
8 Vessel VARCHAR(255),  
9 PRIMARY KEY (BookingNo)  
10 );
```

## Create Table ExporterDetails

```
1 CREATE TABLE ExporterDetails (  
2 ExporterName VARCHAR(255),  
3 ExporterAddress VARCHAR(255),  
4 PRIMARY KEY (ExporterName)  
5 );
```

## Create Table ProductDetails

```
1 CREATE TABLE ProductDetails (  
2 Marking VARCHAR(255),  
3 DescriptionOfGoods VARCHAR(255),  
4 GrossWeight DECIMAL(10, 2),  
5 NumberOfPackages INT,  
6 DescriptionOfPackages VARCHAR(255),  
7 TotalContainer VARCHAR(50),  
8 DocumentsRequired VARCHAR(255),  
9 PRIMARY KEY (Marking)  
10 );
```

## Create Table Container

```
1 CREATE TABLE Container (  
2 ContainerNo VARCHAR(15),  
3 SealNo VARCHAR(15),  
4 PRIMARY KEY (ContainerNo)  
5 );
```

## Create Table Service

```
1 CREATE TABLE Service (  
2 ServiceContractNo VARCHAR(10),  
3 ContainerNo VARCHAR(15),  
4 ContainerStatus VARCHAR(10),  
5 SpecialConditions VARCHAR(255),  
6 PRIMARY KEY (ServiceContractNo),  
7 FOREIGN KEY (ContainerNo)  
8 REFERENCES Container(ContainerNo)  
9 );
```

## Create Table ConsigneeDetails

```
1 CREATE TABLE ConsigneeDetails (  
2 Consignee VARCHAR(255),  
3 ToAddress VARCHAR(255),  
4 BLNotify VARCHAR(255),  
5 CCAddress VARCHAR(255),  
6 PRIMARY KEY (Consignee)  
7 );
```

## Create Table Vessel

```
1 CREATE TABLE Vessel (  
2 Vessel VARCHAR(255),  
3 PortOfLoading VARCHAR(255),  
4 PortOfDischarge VARCHAR(255),  
5 LoadingDate DATE,  
6 PRIMARY KEY (Vessel)  
7 );
```

1	INSERT INTO Shipments (BookingNo, Date, ExporterName, Marking, Consignee, ServiceContractNo, Vessel)	1	INSERT INTO ExporterDetails (ExporterName, ExporterAddress)
2	VALUES	2	VALUES
3	('BK001', '2024-11-25', 'Global Exports', 'ELEC-001', 'ABC Ltd.', 'SC12345', 'MV Ocean Star'),	3	('Global Exports', 'USA'),
4	('BK004', '2024-11-28', 'Middle East Exporters', 'PHARMA-321', 'GHI Pharma', 'SC11223', 'MV White Dove')	4	('Middle East Exporters', 'Dubai'),
5	('BK005', '2024-11-29', 'Oceanic Traders', 'TEXT-654', 'JKL Ltd.', 'SC22445', 'MV Yellow Star'),	5	('Oceanic Traders', 'Sydney'),
6	('BK006', '2024-12-01', 'Euro Goods', 'AUTO-789', 'XYZ Traders', 'SC67890', 'MV Fast Horizon'),	6	('Euro Goods', 'Paris'),
7	('BK007', '2024-12-03', 'Asia Pacific Traders', 'ELEC-005', 'AP Traders', 'SC67891', 'MV Rising Sun'),	7	('Asia Pacific Traders', 'Tokyo'),
8	('BK008', '2024-12-04', 'Indian Goods Export', 'FOOD-123', 'XYZ India', 'SC67892', 'MV Green Wave'),	8	('Indian Goods Export', 'Mumbai'),
9	('BK009', '2024-12-05', 'LATAM Traders', 'PHARMA-678', 'LATAM Pharma', 'SC67893', 'MV Silver Tide'),	9	('LATAM Traders', 'Mexico City'),
10	('BK010', '2024-12-06', 'Euro Shipping Co.', 'INDUST-001', 'Euro Equip', 'SC67894', 'MV Thunderstorm'),	10	('Euro Shipping Co.', 'Germany'),
11	('BK011', '2024-12-07', 'Pacific Logistics', 'TEXT-321', 'Pacific Wear', 'SC67895', 'MV Thunder');	11	('Pacific Logistics', 'New Zealand');

1	INSERT INTO ProductDetails (Marking, DescriptionOfGoods, GrossWeight, NumberOfPackages, DescriptionOfPackages, TotalContainer, DocumentsRequired)		
2	VALUES		
3	('ELEC-001','Consumer Electronics', 15.6, 2, 'cartons', '1 x 20ft container', 'Invoice'),		
4	('PHARMA-321','Pharmaceuticals', 52.7, 5, 'shrink-wrapped packages', '2 x 20ft containers', 'Bill of Lading'),		
5	('TEXT-654','Clothing and Textiles', 24.8, 15, 'pallets', '1 x 40ft high cube', 'Invoice'),		
6	('AUTO-789','Automotive Spare Parts', 60.3, 4, 'wooden crates', '1 x 20ft container', 'Invoice'),		
7	('ELEC-005','Electronics Accessories', 12.5, 10, 'boxes', '1 x 20ft container', 'Invoice'),	1	INSERT INTO Container (ContainerNo, SealNo)
8	('FOOD-123','Organic Food Products', 30.0, 3, 'crates', '1 x 40ft high cube', 'Packing List'),	2	VALUES
9	('PHARMA-678','Pharmaceuticals', 45.0, 8, 'pallets', '2 x 20ft containers', 'Bill of Lading'),	3	('MAEU1234567', 'SEAL123'),
10	('INDUST-001','Industrial Equipment', 75.0, 4, 'wooden crates', '1 x 40ft container', 'Invoice'),	4	('HLCU7890123', 'SEAL321'),
11	('TEXT-321','Clothing & Textiles', 28.4, 12, 'cartons', '1 x 40ft high cube', 'Invoice');	5	('TRLU2345678', 'SEAL654'),



```

1 INSERT INTO Service (ServiceContractNo, ContainerNo, ContainerStatus, SpecialConditions)
2 VALUES
3 ('SC12345', 'MAEU1234567', 'Full', 'Handle with care'),
4 ('SC11223', 'HLCU7890123', 'Full', 'Fragile'),
5 ('SC22445', 'TRLU2345678', 'Partial', 'Waterproof packaging needed'),
6 ('SC67890', 'COSU5678901', 'Full', 'Requires extra padding'),
7 ('SC67891', 'CMAU6543210', 'Full', 'Handle with care'),|
8 ('SC67892', 'MSKU3456789', 'Partial', 'Keep dry'),
9 ('SC67893', 'OOCL1239876', 'Full', 'Fragile'),
10 ('SC67894', 'APLU8765432', 'Full', 'Requires extra padding'),
11 ('SC67895', 'PONU9876543', 'Full', 'Waterproof packaging needed');

```

```

1 INSERT INTO AddressDetail (ToAddress, CCAddress)
2 VALUES
3 ('123 Elm St, London', 'info@abc.com'),
4 ('321 Pine St, Dubai', 'trade@ghi.ae'),
5 ('654 Cedar Ln, Sydney', 'transport@jkl.au'),
6 ('789 Oak Ave, Paris', 'admin@xyz.fr'),
7 ('456 Maple Rd, Tokyo', 'shipping@abc.jp'),
8 ('123 Bay St, Mumbai', 'contact@xyz.in'),
9 ('890 Palm Ave, Mexico', 'trade@latam.mx'),
10 ('678 Coral St, Berlin', 'office@euro.de'),
11 ('321 River Rd, Auckland', 'logistics@pac.nz');

```

```

1 INSERT INTO ConsigneeDetails (Consignee, ToAddress, BLNotify,CCAddress)
2 VALUES
3 ('ABC Ltd.', '123 Elm St, London', 'Notify Co.', 'info@abc.com'),
4 ('GHI Pharma', '321 Pine St, Dubai', 'Med Notify', 'trade@ghi.ae'),
5 ('JKL Ltd.', '654 Cedar Ln, Sydney', 'Textile Notify', 'transport@jkl.au'),
6 ('XYZ Traders', '789 Oak Ave, Paris', 'Cargo Notify', 'admin@xyz.fr'),
7 ('AP Traders', '456 Maple Rd, Tokyo', 'Notify Asia', 'shipping@abc.jp'),
8 ('XYZ India', '123 Bay St, Mumbai', 'India Notify', 'contact@xyz.in'),
9 ('LATAM Pharma', '890 Palm Ave, Mexico', 'Pharma Notify', 'trade@latam.mx'),
10 ('Euro Equip', '678 Coral St, Berlin', 'Germany Notify', 'office@euro.de'),
11 ('Pacific Wear', '321 River Rd, Auckland', 'Textile Notify', 'logistics@pac.nz');

```

```

1 INSERT INTO Vessel (Vessel, PortOfLoading, PortOfDischarge, LoadingDate)
2 VALUES
3 ('MV Ocean Star', 'New York', 'Southampton', '2024-11-26'),
4 ('MV White Dove', 'Jebel Ali', 'Hamburg', '2024-11-29'),|
5 ('MV Yellow Star', 'Sydney', 'Singapore', '2024-11-30'),
6 ('MV Fast Horizon', 'Le Havre', 'New York', '2024-12-02'),
7 ('MV Rising Sun', 'Tokyo', 'Los Angeles', '2024-12-04'),
8 ('MV Green Wave', 'Mumbai', 'London', '2024-12-05'),
9 ('MV Silver Tide', 'Veracruz', 'Hamburg', '2024-12-06'),
10 ('MV Thunderstorm', 'Hamburg', 'Rotterdam', '2024-12-07'),
11 ('MV Thunder', 'Auckland', 'Sydney', '2024-12-08');

```

Vessel	PortOfLoading	PortOfDischarge	LoadingDate
MV Fast Horizon	Le Havre	New York	2024-12-02
MV Green Wave	Mumbai	London	2024-12-05
MV Ocean Star	New York	Southampton	2024-11-26
MV Rising Sun	Tokyo	Los Angeles	2024-12-04
MV Silver Tide	Veracruz	Hamburg	2024-12-06
MV Thunder	Auckland	Sydney	2024-12-08
MV Thunderstorm	Hamburg	Rotterdam	2024-12-07
MV White Dove	Jebel Ali	Hamburg	2024-11-29
MV Yellow Star	Sydney	Singapore	2024-11-30

Consignee	ToAddress	BLNotify	CCAddress
ABC Ltd.	123 Elm St, London	Notify Co.	info@abc.com
AP Traders	456 Maple Rd, Tokyo	Notify Asia	shipping@abc.jp
Euro Equip	678 Coral St, Berlin	Germany Notify	office@euro.de
GHI Pharma	321 Pine St, Dubai	Med Notify	trade@ghi.ae
JKL Ltd.	654 Cedar Ln, Sydney	Textile Notify	transport@jkl.au
LATAM Pharma	890 Palm Ave, Mexico	Pharma Notify	trade@latam.mx
Pacific Wear	321 River Rd, Auckland	Textile Notify	logistics@pac.nz
XYZ India	123 Bay St, Mumbai	India Notify	contact@xyz.in
XYZ Traders	789 Oak Ave, Paris	Cargo Notify	admin@xyz.fr

ExporterName	ExporterAddress
Asia Pacific Traders	Tokyo
Euro Goods	Paris
Euro Shipping Co.	Germany
Global Exports	USA
Indian Goods Export	Mumbai
LATAM Traders	Mexico City
Middle East Exporters	Dubai
Oceanic Traders	Sydney
Pacific Logistics	New Zealand

	Table	Action	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/>	addressdetail	★ Browse Structure Search Insert Empty Drop	9	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/>	consigneedetails	★ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/>	container	★ Browse Structure Search Insert Empty Drop	9	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/>	exporterdetails	★ Browse Structure Search Insert Empty Drop	9	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/>	productdetails	★ Browse Structure Search Insert Empty Drop	9	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/>	service	★ Browse Structure Search Insert Empty Drop	9	InnoDB	utf8mb4_general_ci	32.0 KiB	-
<input type="checkbox"/>	shipments	★ Browse Structure Search Insert Empty Drop	9	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/>	vessel	★ Browse Structure Search Insert Empty Drop	9	InnoDB	utf8mb4_general_ci	16.0 KiB	-



BookingNo	Date	ExporterName	Marking	Consignee	ServiceContractNo	Vessel
BK001	2024-11-25	Global Exports	ELEC-001	ABC Ltd.	SC12345	MV Ocean Star
BK004	2024-11-28	Middle East Exporters	PHARMA-321	GHI Pharma	SC11223	MV White Dove
BK005	2024-11-29	Oceanic Traders	TEXT-654	JKL Ltd.	SC22445	MV Yellow Star
BK006	2024-12-01	Euro Goods	AUTO-789	XYZ Traders	SC67890	MV Fast Horizon
BK007	2024-12-03	Asia Pacific Traders	ELEC-005	AP Traders	SC67891	MV Rising Sun
BK008	2024-12-04	Indian Goods Export	FOOD-123	XYZ India	SC67892	MV Green Wave
BK009	2024-12-05	LATAM Traders	PHARMA-678	LATAM Pharma	SC67893	MV Silver Tide
BK010	2024-12-06	Euro Shipping Co.	INDUST-001	Euro Equip	SC67894	MV Thunderstorm
BK011	2024-12-07	Pacific Logistics	TEXT-321	Pacific Wear	SC67895	MV Thunder

ServiceContractNo	ContainerNo	ContainerStatus	SpecialConditions
SC11223	HLCU7890123	Full	Fragile
SC12345	MAEU1234567	Full	Handle with care
SC22445	TRLU2345678	Partial	Waterproof packaging needed
SC67890	COSU5678901	Full	Requires extra padding
SC67891	CMAU6543210	Full	Handle with care
SC67892	MSKU3456789	Partial	Keep dry
SC67893	OOCL1239876	Full	Fragile
SC67894	APLU8765432	Full	Requires extra padding
SC67895	PONU9876543	Full	Waterproof packaging needed

Marking	DescriptionOfGoods	GrossWeight	NumberOfPackages	DescriptionOfPackages	TotalContainer	DocumentsRequired
AUTO-789	Automotive Spare Parts	60.30	4	wooden crates	1 x 20ft container	Invoice
ELEC-001	Consumer Electronics	15.60	2	cartons	1 x 20ft container	Invoice
ELEC-005	Electronics Accessories	12.50	10	boxes	1 x 20ft container	Invoice
FOOD-123	Organic Food Products	30.00	3	crates	1 x 40ft high cube	Packing List
INDUST-001	Industrial Equipment	75.00	4	wooden crates	1 x 40ft container	Invoice
PHARMA-321	Pharmaceuticals	52.70	5	shrink-wrapped packages	2 x 20ft containers	Bill of Lading
PHARMA-678	Pharmaceuticals	45.00	8	pallets	2 x 20ft containers	Bill of Lading
TEXT-321	Clothing & Textiles	28.40	12	cartons	1 x 40ft high cube	Invoice
TEXT-654	Clothing and Textiles	24.80	15	pallets	1 x 40ft high cube	Invoice

ContainerNo	SealNo
APLU8765432	SEAL893
CMAU6543210	SEAL890
COSU5678901	SEAL789
HLCU7890123	SEAL321
MAEU1234567	SEAL123
MSKU3456789	SEAL891
OOCL1239876	SEAL892
PONU9876543	SEAL894
TRLU2345678	SEAL654



**Thank You**