**Seaport Simulator for Logistic Operations and Port Charges**

1. Vessel Module
2. Cargo Module
3. Stevedore Module
4. Rail Module
5. Land Module
6. Miscellaneous Module

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| --- | --- | --- | --- | --- |
| **Vessel** | **Cargo** | **Stevedore** | **Rail** | **Land** |
|  |  |  |  |  |
| **LOGISTICS SIMULATOR** | |  | **COST SIMULATOR** | |
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|  | |  |  | |
| Vessel Logistics Simulator | |  | Vessel Cost Simulator | |
| Cargo Logistics Simulator | |  | Cargo Cost Simulator | |
| Stevedore Logistics Simulator | |  | Stevedore Cost Simulator | |
| Railway Logistics Simulator | |  | Railway Cost Simulator | |
| Land Logistics Simulator | |  | Land Cost Simulator | |
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**The details about each module will be discussed in details.**

1. **Vessel Module**

**Vessel Module**

**Vessel Logistics Simulator Vessel Cost Simulator**

The Vessel Module is to Simulate and predict the Logistic planning’s and Cost involved in port operations related to the vessels.

**Vessel Logistics Simulator**

The Vessel Logistics Simulator is to predict the vessel operation related planning. Based on the input parameter given, it will furnish the following details:

1. **The preferred and eligible berths at which the vessel can be berthed.**

- This will give minimum two and maximum five suitable berths. This is based on the Vessel Dimensions (Length, Draft, Beam), Cargo carried by the vessel. These details entered by the user will be validated with the Berth Master

1. **How long the vessel need to Stay at Berth?**

– This will be based on the Norms of the cargo selected by the user from the Cargo Master

**Vessel Cost Simulator**

1. **Three categories of Vessel Related Charges** – Port Dues, Pilotage, Berth Hire
2. **Port dues** are calculated from the Port Due Master- referring the GT and Trade Type
3. **Pilotage** is calculated from the Pilotage Master as per the GT Group/Cargo Type and Trade Type
4. **Berth Hire** is calculated per hour, hence the Stay At Berth calculated from the Cargo Norms to be used for this. The charges are as per the Berth Hire Master.

**SQL Tables for Reference**

1. Port Dues
2. Pilotage
3. Berth Hire
4. Berth Master
5. Cargo Master
6. Exchange Rate Master

**The Input Field Structure for the Vessel Module**

These inputs fields are for both Vessel Simulator and Cost Simulator.

| Input Fields | Field Type | Condition | Reference |
| --- | --- | --- | --- |
| Vessel Name | Open AlphaNumeric field | Not Mandatory | Not referred for any purpose |
| Trade Type | Buttons | Mandatory | Buttons for choosing Coastal or Foreign |
| GRT/GT | Open Integer field | Mandatory | Important field for calculating the Vessel Related Charges |
| Beam | Open float field | Mandatory | Important field for deciding with Dock the vessel can be berthed. The entrance channel of the Bharathi Dock, Ambedkar Dock and Jawahar dock from the berth master to be considered for this |
| LOA | Open float field | Mandatory | Important field for deciding at which berth the vessel can be berthed.  The Berth Length from the berth master to be considered for filtering the choice of the berth |
| Draft | Open float field | Mandatory | Important field for deciding at which berth the vessel can be berthed.  The draft of the berth from the berth master to be considered for filtering the choice of the berth. |
| Cargo | List field | Mandatory | Important field for deciding how long the vessel will stay at berth, based on the Norm of the Cargo.  The Norm field from the cargo master to be considered. |
|  |  |  |  |

Once the fields are entered, there will be two Tabs – each for Vessel Logistic Simulator and Vessel Cost Simulator.

The expected output from the **Vessel Logistic Simulator** is :-

**Preferred Berths:** <Min Two berths to Maximum Five Berths> - the berth Name will be displayed here

**Stay at Berth:** <Stay in Hours> based on the per day cargo norms for the cargo chosen

The expected output from the **Vessel Cost Simulator** is:-

While calculating the Vessel Related Charges, the exchange rate to be taken from the table and that table may update the values from the Web.

**Port Dues** (in INR)

**Pilotage** (in INR)

**Berth Hire** (in INR)