



# **The cargo(rice) import business in Singapore**

with weather conditions

The causes of damage to rice

Damage from weather

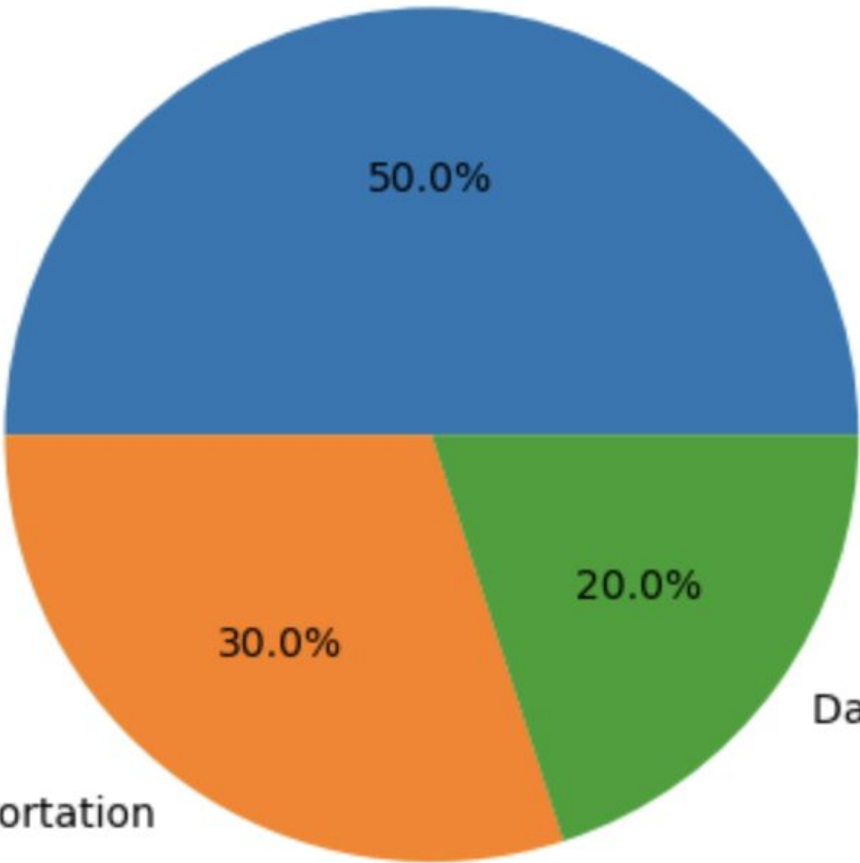
50.0%

20.0%

Damage from storage

30.0%

Damage from transportation



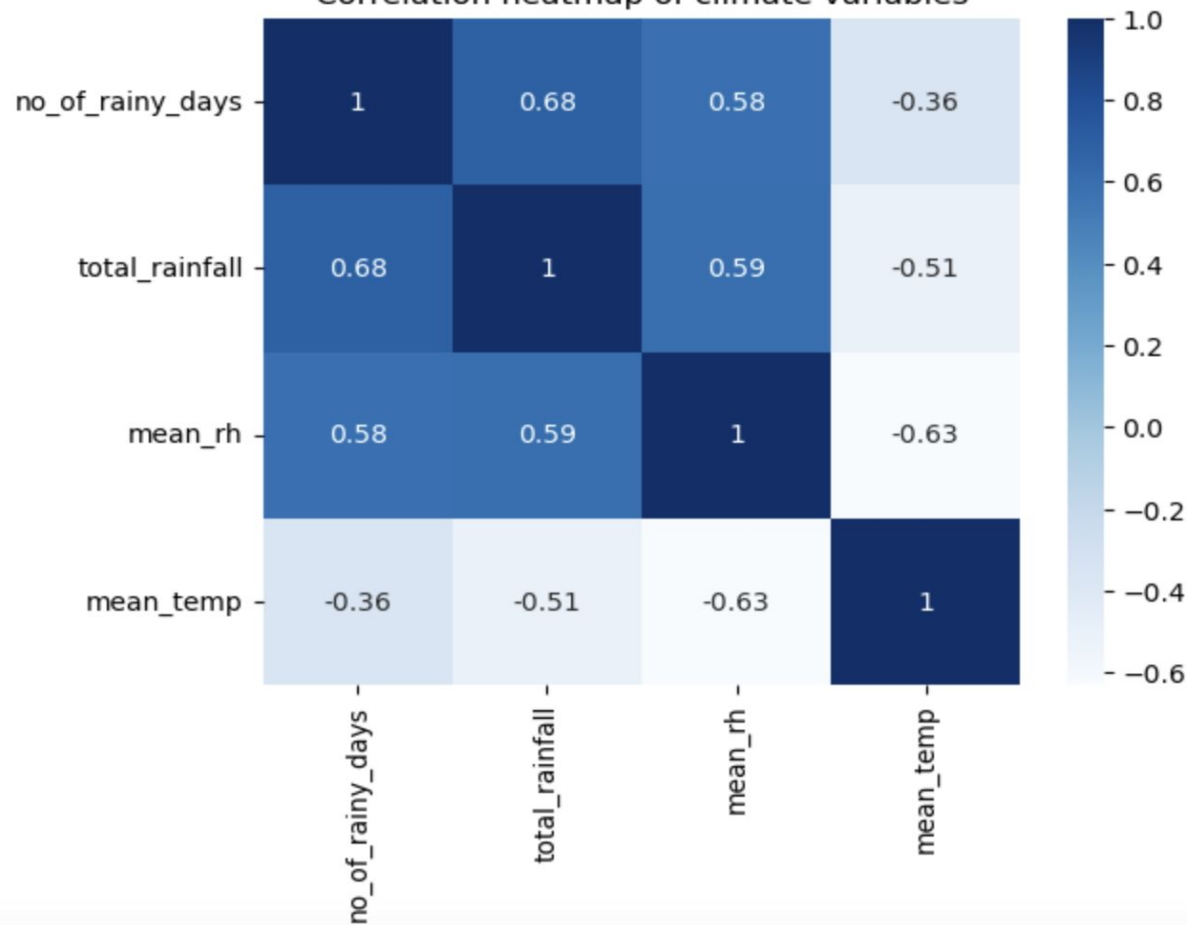


# Problem Statement

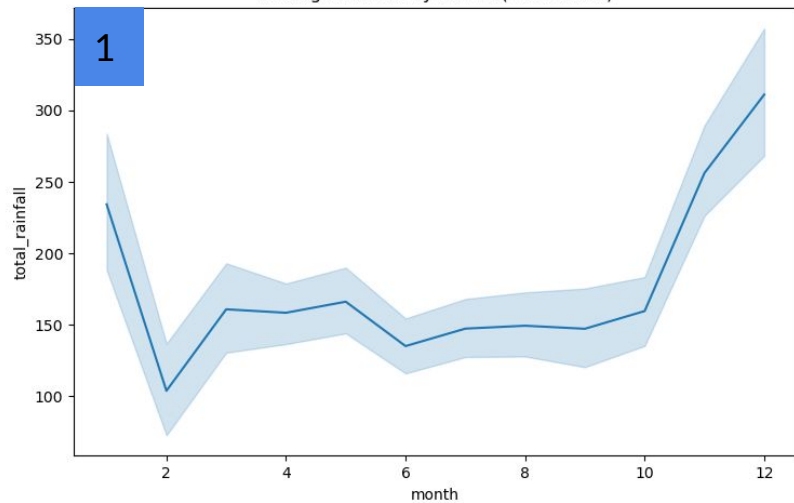
**In the unloading of goods (rice) from ships, which will be affected by the weather, there are two main problems**

1. **Delays:** Weather conditions, such as storms, strong winds, and heavy rain, can make it difficult or impossible to unload goods from ships. This can lead to **delays** in the delivery of goods, which can increase costs for shippers.
2. **Product quality:** Bad weather can also **damage cargoes(rice)**, such as rice. This can lead to quality problems, such as mold or ilage, which can also increase costs for shippers.

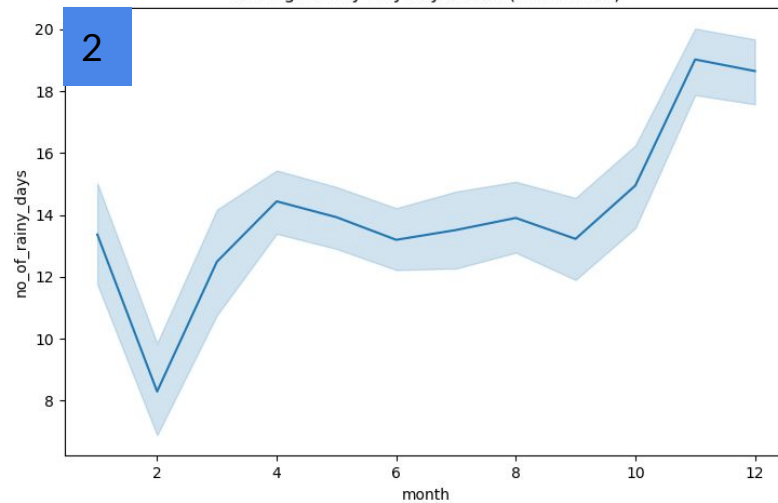
Correlation heatmap of climate variables



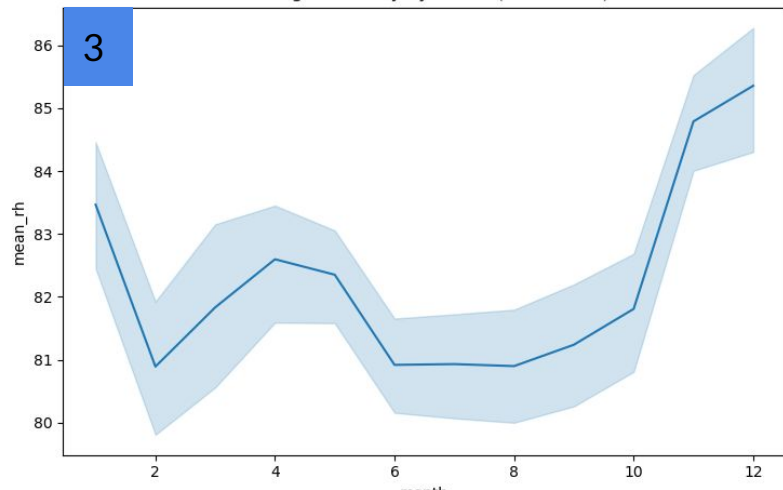
Average Rainfall by Month (1982-2022)



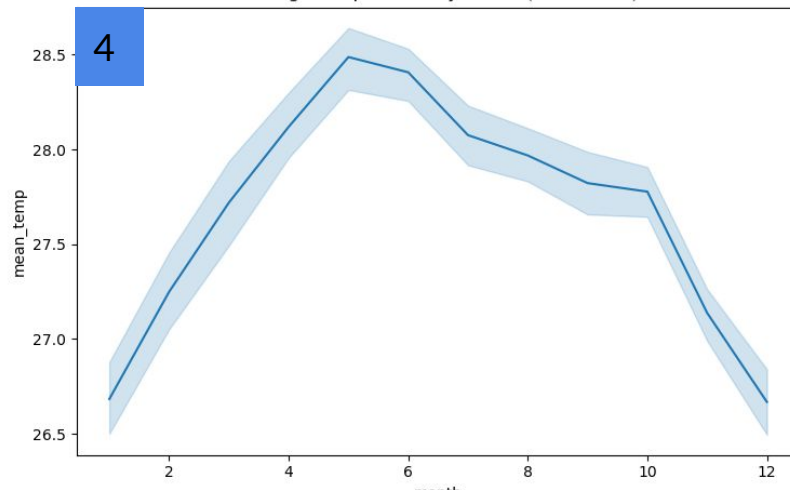
Average Rainy Days by Month (1982-2022)



Average Humidity by Month (1982-2022)



Average Temperature by Month (1982-2022)





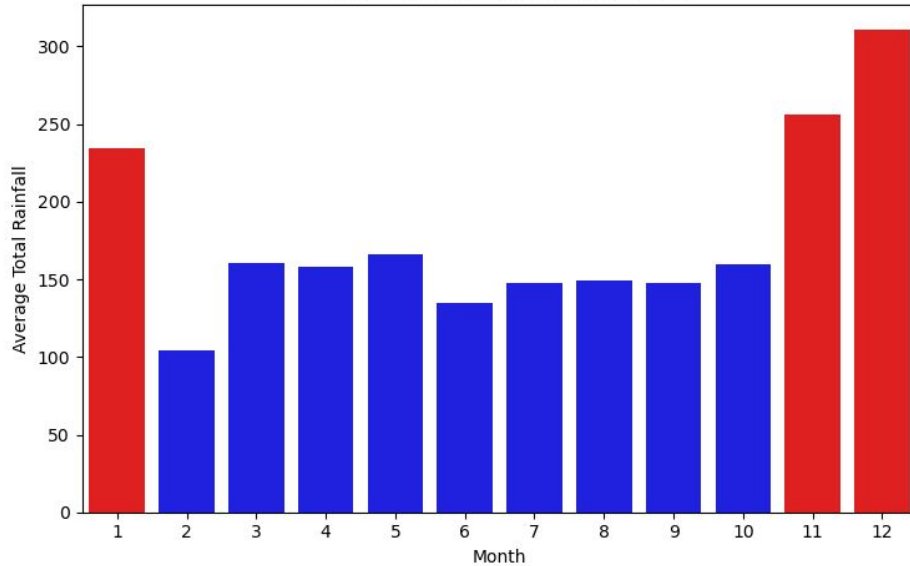
From the above Line chart , it can be observed that the amount of rainfall, Total number of rainfall including relative humidity, **increases in the same direction**

**And all three of these are factors that would lead to damage to the cargo.**

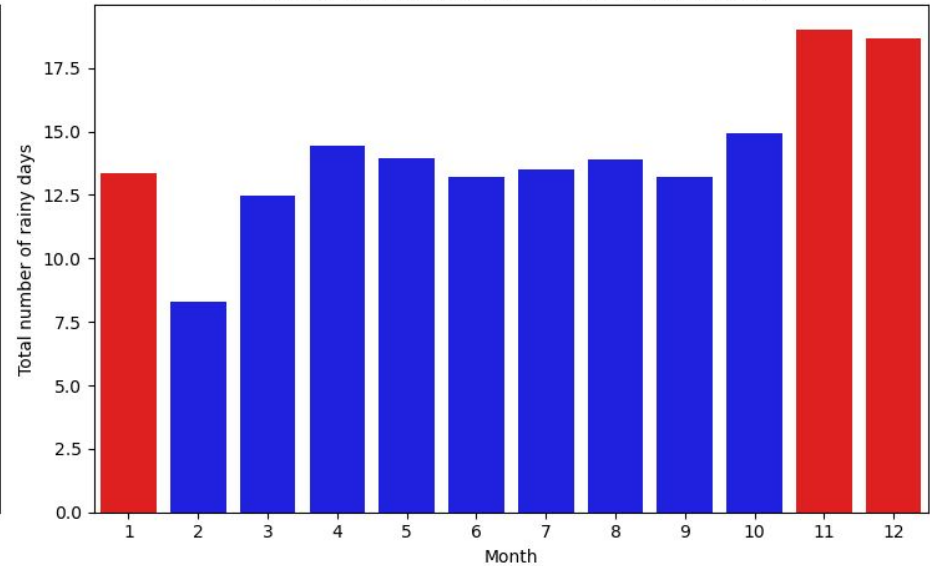



## The average amount of rainfall that falls in each month.

Average Total Rainfall in each month



Average Total number of rainy days in each month



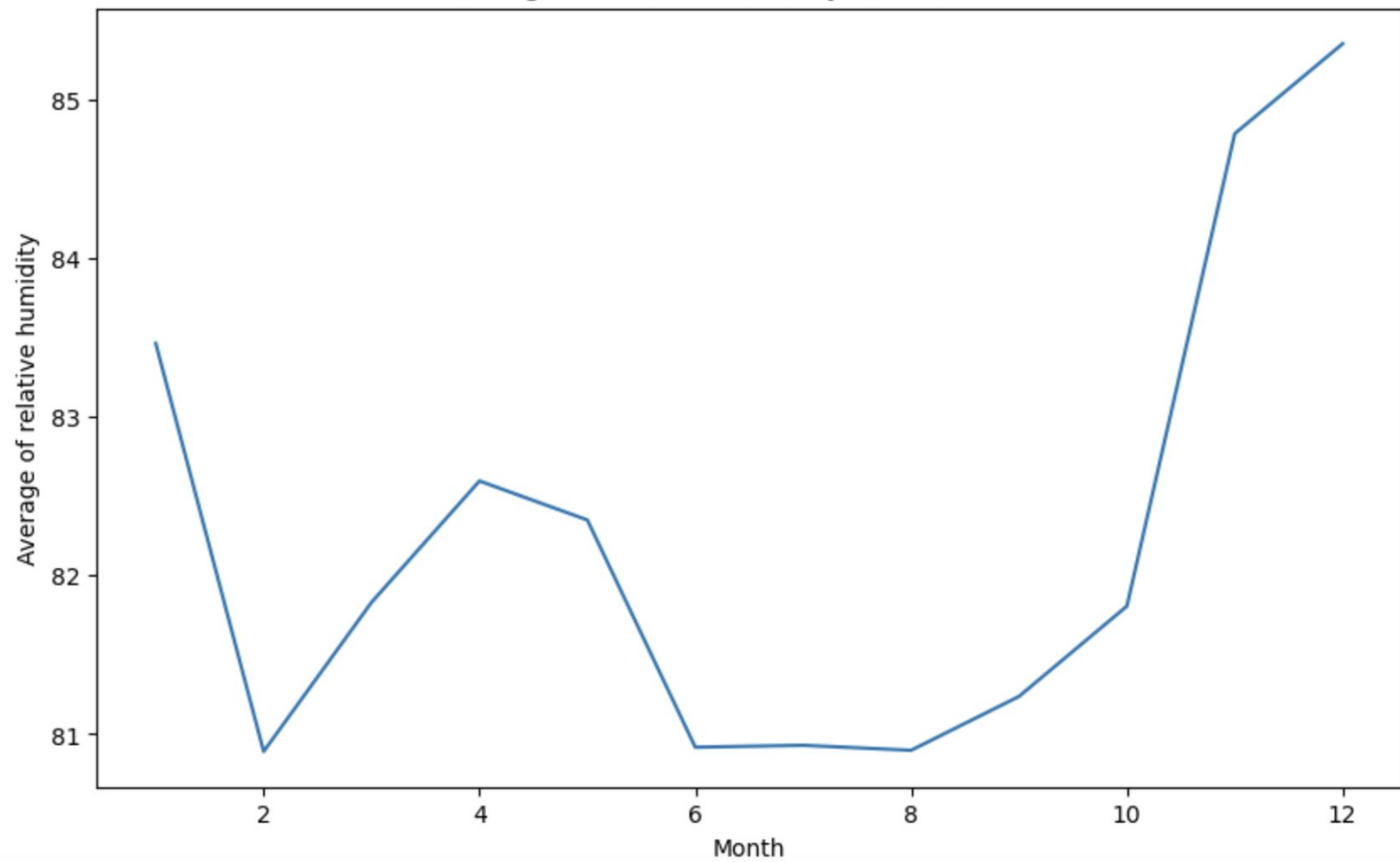



You will notice that the amount of rainfall in the months of **November ,December and January** increases significantly.

Highest average of total rainfall each month is  
**311 mm**



Average of relative humidity in each month





The average relative humidity in Singapore is consistently above 80 every month. However, we also observe that during the months of **November, December, and January**, the relative humidity increases even higher



# Conclusions and Recommendations

After analyzing the data, it was found that the period from

**November to January**

is the time with the highest rainfall, as well as the highest relative humidity. This may result in damage to the goods and delays in transportation

# Recommendations

## 1. Febuary - October : Import Cargo(rice) in Bulk cargo



### Advantage

- Large quantity
- Save time
- Save Port fee

### Disadvantage

- susceptible to damage from the weather

# Recommendations

## 2. November- January : Import Cargo(rice) in Package cargo



### Advantage

- less susceptible to damage from the weather

### Disadvantage

- It will result in fewer imports than the first option.



## Conclusions and Recommendations

I recommend handling bulk cargo during the months of **February to October**. This is because bulk cargo can be imported in large quantities and the months of February to October are not the rainy season in Singapore. During the months of **November to January**, I recommend handling packaged cargo. This is because packaged cargo is less susceptible to damage from rain, which can lead to port fees and damage claims