## Loading Required Libraries##

library("forecast")

library("dplyr")

library("lubridate")

library("tidyverse")

library(zoo)

library(data.table)

##Loading Data##

travel<-read.csv("YQ Wise TS.csv")

travel

##Converting Data to Time Series##

ts\_data <- ts(travel$IND, start = c(2012, 1), frequency = 4)

ts\_data

plot(ts\_data)

##Fitting ARIMA into Time series data##

arima\_model <- auto.arima(ts\_data)

plot(ts\_data)

## Generate forecast for next few years##

forecast\_data <- forecast(arima\_model, h = 24)

write.csv(forecast\_data, file = "travel forecast.csv", row.names = FALSE)

##Modelling 2##

## split data into training and testing sets##

library(caret)

set.seed(123)

train\_index <- createDataPartition(travel$IND, p = 0.7, list = FALSE)

train\_data <- travel[train\_index, ]

test\_data <- travel[-train\_index, ]

## fit ARIMA model to training data##

ts\_train\_data <- ts(train\_data$IND, start = c(2012, 1), frequency = 4)

arima\_model\_train <- auto.arima(ts\_train\_data)

## generate forecast for testing data##

ts\_test\_data <- ts(test\_data$IND, start = c(2020, 1), frequency = 4)

forecast\_test\_data <- forecast(arima\_model, h = length(ts\_test\_data))

## calculate RMSE for testing data##

rmse <- sqrt(mean((forecast\_data$mean - ts\_test\_data)^2))

rmse

forecast\_data1 <- forecast(arima\_model, h = 24)