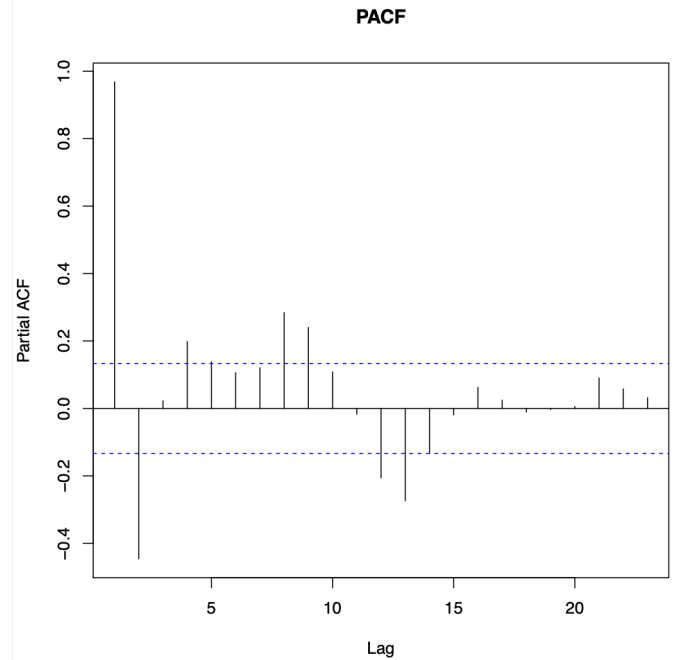
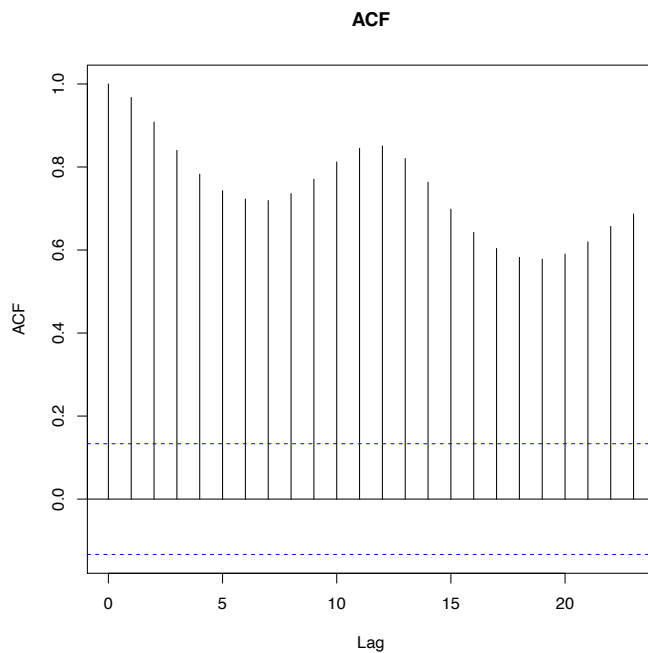


HOMEWORK

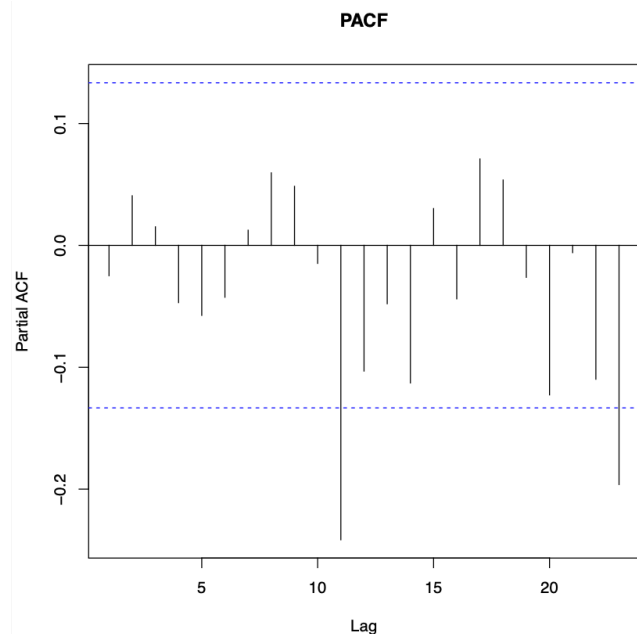
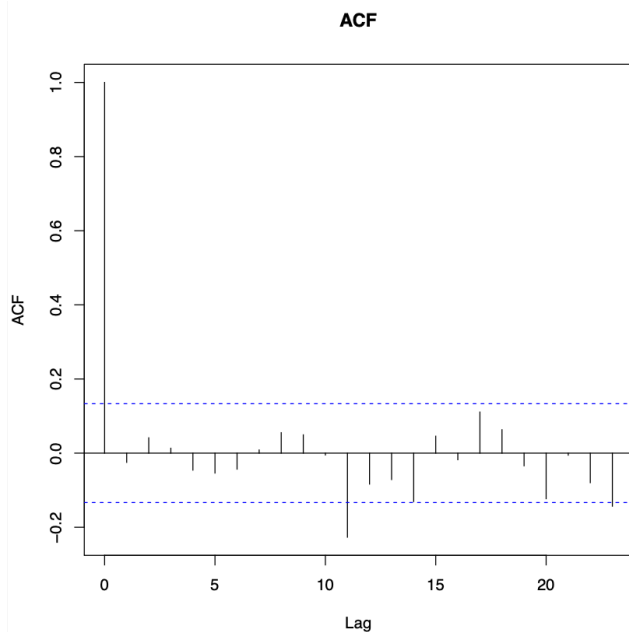
```
MLCO2 = read.table("MLCO2.txt",header=T)  
CO2 = ts(MLCO2$MLCO2)
```

```
acf(CO2,main="ACF")  
pacf(CO2,main="PACF")
```



We will try ARIMA(10,2,2), since it fits ACF and PACF kinda well and I did some testing and it gives us nice results.

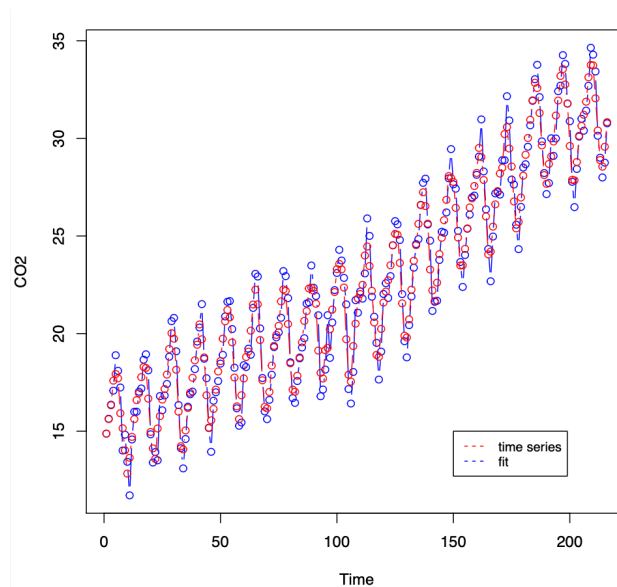
```
model = Arima(CO2, order=c(10,2,2))  
acf(model$res,main="ACF")  
pacf(model$res,main="PACF")
```



```

fit = fitted(model)
plot(fit,type="b",col="blue", ylab="CO2", xlab="Time")
lines(CO2,col="red",type="b")
legend(150,15, legend=c("time series", "fit"), col=c("red", "blue"),lty=c(2,2),cex=0.8)

```

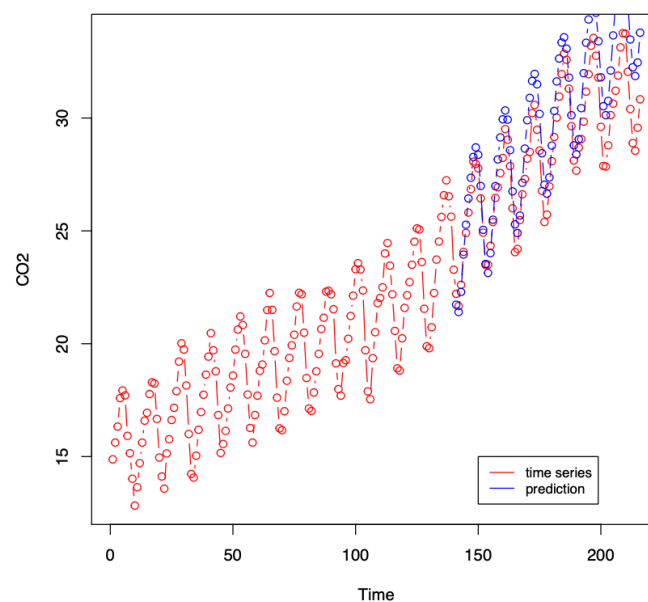


Now let's try some predicting.

```

model_ver = Arima(CO2[1:140],order=c(10,2,2))
prediction = forecast(model_ver,h=76,level=FALSE)$mean
plot(CO2,col="red",type="b",
     ylab="CO2",xlab="Time")
lines(prediction,col="blue",type="b")
legend(150,15, legend=c("time series", "prediction"),
     col=c("red", "blue"), lty=c(1,1), cex=0.8)

```



I didn't use the time steps given but the model seems to predict 76 last timesteps pretty well.