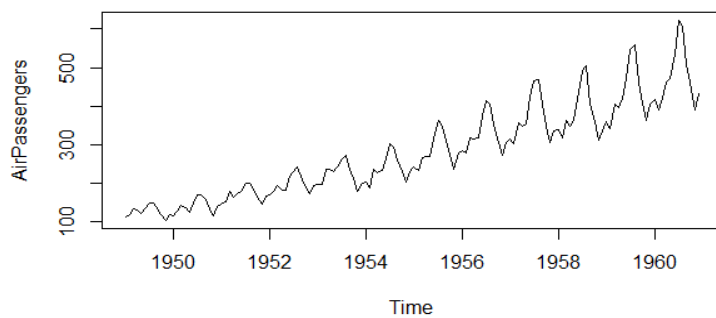
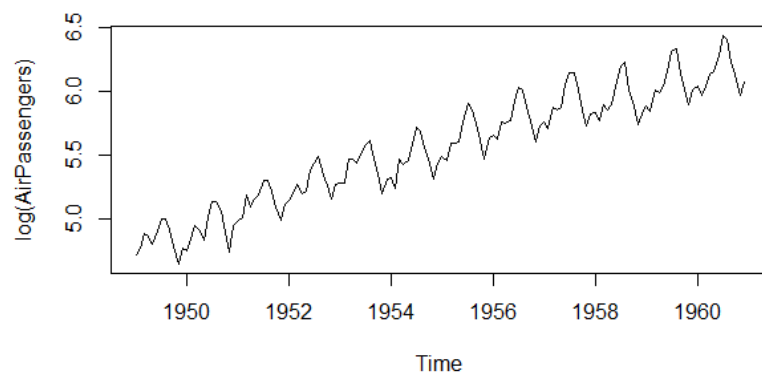


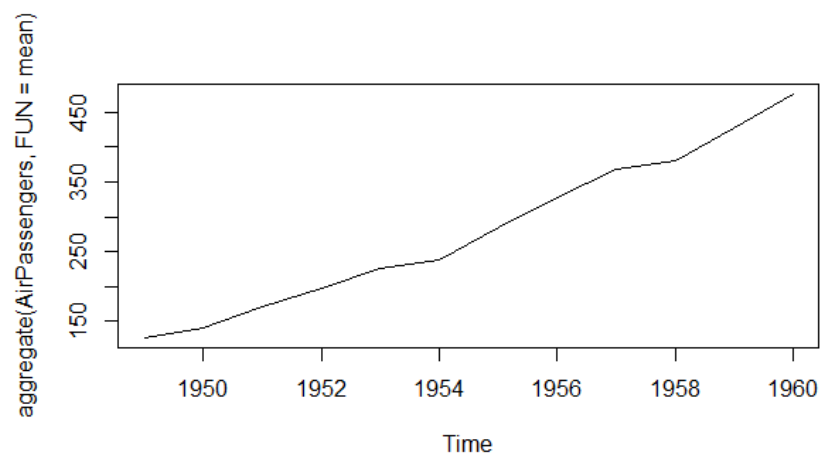
## PLOT



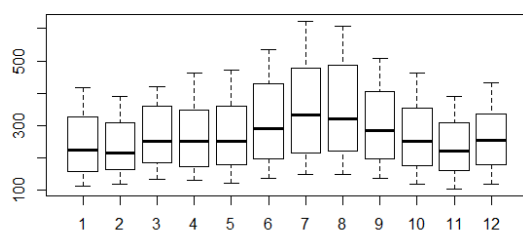
## Variance



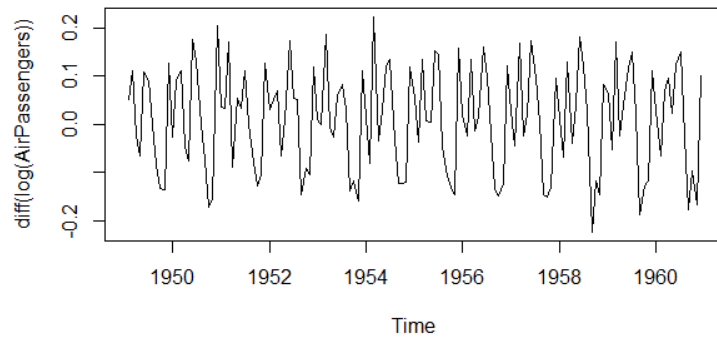
## Trend



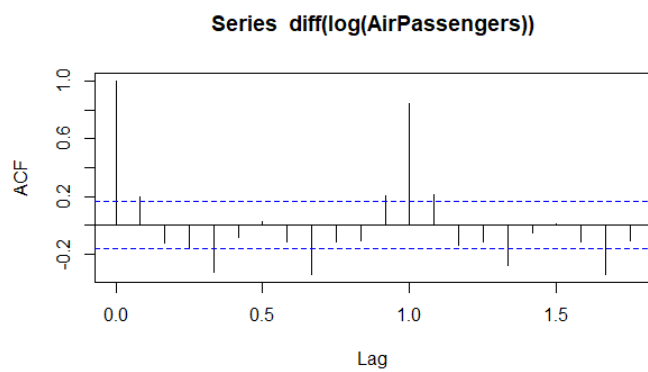
## Seasonality



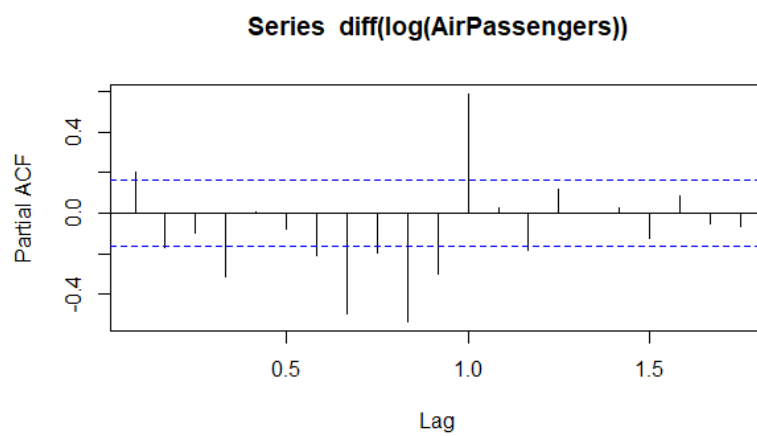
## Stationary



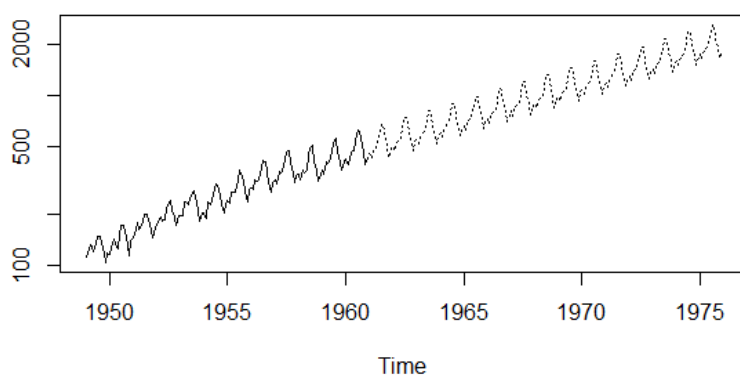
## Acf



## Autoregression



## Predict



```

fit=arima(log(AirPassengers),c(0,1,1),seasonal=list(order=c(0,1,1),period=12))
> pred=predict(fit,n.ahead=15*12)
> pred1=2.718^pred$pred
> pred1

```

	Jan	Feb	Mar	Apr	May	Jun	Jul
1961	450.1371	425.4501	478.7004	492.0881	508.7261	582.9599	669.5589
1962	495.6111	468.4301	527.0599	541.8000	560.1189	641.8519	737.1994
1963	545.6789	515.7521	580.3048	596.5340	616.7035	706.6934	811.6731
1964	600.8048	567.8546	638.9286	656.7973	679.0044	778.0853	893.6703
1965	661.4995	625.2207	703.4748	723.1486	747.5991	856.6894	983.9511
1966	728.3259	688.3820	774.5415	796.2029	823.1234	943.2343	1083.3522
1967	801.9031	757.9241	852.7876	876.6373	906.2773	1038.5221	1192.7951
1968	882.9134	834.4914	938.9384	965.1973	997.8317	1143.4362	1313.2943
1969	972.1075	918.7938	1033.7922	1062.7040	1098.6352	1258.9490	1445.9665
1970	1070.3122	1011.6126	1138.2285	1170.0609	1209.6220	1386.1311	1592.0416
1971	1178.4378	1113.8083	1253.2151	1288.2634	1331.8210	1526.1615	1752.8736
1972	1297.4865	1226.3279	1379.8180	1418.4069	1466.3649	1680.3381	1929.9532
1973	1428.5618	1350.2146	1519.2107	1561.6979	1614.5007	1850.0900	2124.9219
1974	1572.8786	1486.6166	1672.6851	1719.4645	1777.6015	2036.9907	2339.5867
1975	1731.7747	1636.7983	1841.6639	1893.1691	1957.1792	2242.7725	2575.9376

	Aug	Sep	Oct	Nov	Dec
1961	666.6280	557.8234	496.8878	429.6018	476.9375
1962	733.9724	614.1761	547.0846	473.0012	525.1189
1963	808.1201	676.2217	602.3525	520.7850	578.1677
1964	889.7584	744.5353	663.2036	573.3960	636.5756
1965	979.6440	819.7501	730.2021	631.3219	700.8840
1966	1078.6101	902.5633	803.9689	695.0996	771.6891
1967	1187.5739	993.7425	885.1878	765.3202	849.6470
1968	1307.5456	1094.1328	974.6117	842.6348	935.4804
1969	1439.6371	1204.6648	1073.0694	927.7598	1029.9850
1970	1585.0728	1326.3630	1181.4735	1021.4844	1134.0366
1971	1745.2007	1460.3555	1300.8289	1124.6773	1248.5998
1972	1921.5052	1607.8842	1432.2419	1238.2950	1374.7365
1973	2115.6204	1770.3167	1576.9305	1363.3906	1513.6157
1974	2329.3457	1949.1584	1736.2359	1501.1237	1666.5249
1975	2564.6619	2146.0672	1911.6347	1652.7710	1834.8814

```

> data=ts(AirPassengers,frequency=12,start=c(1949,1),end=c(1959,12))
> fit=arima(log(data),c(0,1,1),seasonal=list(order=c(0,1,1),period=12))
> pred=predict(fit,n.ahead=10*12)
> pred1=2.718^pred$pred
> data1=head(pred1,12)
> predicted_1960=round(data1,digits=0)
> predicted_1960

```

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1960	419	399	466	454	473	547	622	630	526	462	406	452

```

> original_1960=tail(AirPassengers,12)
> original_1960

```

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1960	417	391	419	461	472	535	622	606	508	461	390	432

```

> predicted_1960-original_1960

```

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1960	2	8	47	-7	1	12	0	24	18	1	16	20