ARIMA Forecast of Airline Passengers Booking using SAS

Forecasting passengers booking is necessary in order to adequately plan for staffing and

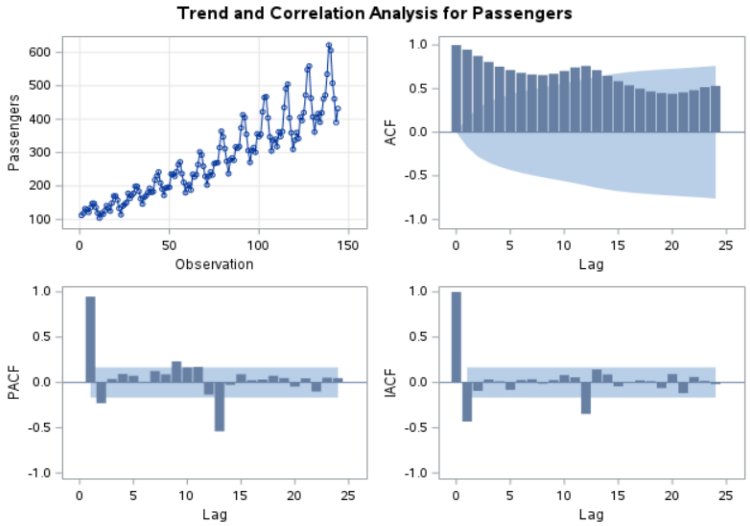
resources. 144 months (12 years) booking dataset of an airline was used to forecast for the next 12 months (13th year). Stationarity of the data was checked before forecasting.

Obs	DATE	AIR	Region
1	JAN1949	112	ALL
2	FEB1949	118	ALL
3	MAR1949	132	ALL
4	APR1949	129	ALL
5	MAY1949	121	ALL
139	JUL1960	622	ALL
140	AUG1960	606	ALL
141	SEP1960	508	ALL
142	OCT1960	461	ALL
143	NOV1960	390	ALL
144	DEC1960	432	ALL

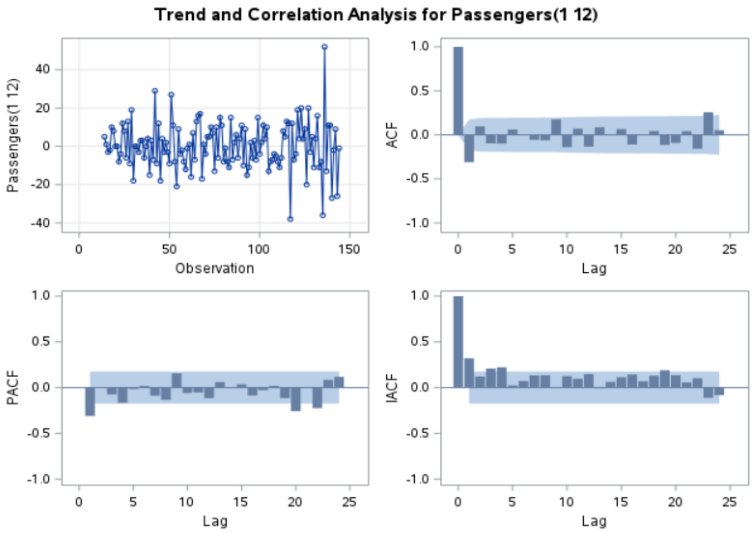
Data Cleaning

```
data forecast.airline1;
set forecast.airline;
drop region;
rename AIR = Passengers DATE = Dates;
run;
```

Obs	Dates	Passengers
1	JAN1949	112
2	FEB1949	118
3	MAR1949	132
4	APR1949	129
5	MAY1949	121




```
proc arima data = forecast.airline1;
identify var = Passengers;
run;
quit;/*it shows the data is not stationary*/
```



Forecasts for variable Passengers				
Obs	Forecast	Std Error	95% Confidence Limits	
145	444.5439	11.7942	421.4278	467.6600
146	418.6094	14.3304	390.5224	446.6965
147	446.8232	17.0685	413.3696	480.2767
148	488.9910	19.2593	451.2434	526.7386
149	500.1731	21.2712	458.4823	541.8638
150	563.3507	23.0954	518.0845	608.6168
151	650.5297	24.7895	601.9432	699.1162
152	634.7083	26.3739	583.0164	686.4002
153	536.8870	27.8687	482.2654	591.5087
154	490.0657	29.2872	432.6638	547.4676
155	419.2444	30.6401	359.1908	479.2980
156	461.4231	31.9358	398.8300	524.0161

```
proc arima data = forecast.airline1;
identify var = Passengers (1,12);
estimate P = 1 Q = 0;
Forecast lead= 12;
run;
quit;
```