```sas
/* Accessing  data */
%let path=~/ECRB94/data;

options validvarname=v7;
libname ctryxl xlsx "&path/country_lookup.xlsx";

libname cr "&path/output";
proc import datafile="&path/orders.csv" out=cr.orders dbms=csv replace;
run;

proc contents data=cr.orders;
run;

proc contents data=ctryxl._all_ nods;
run;

/* Exploring Data */
/* Validate Country LookUp Excel Table */
proc print data=ctryxl.countries;
run;

proc freq data=ctryxl.countries order=freq;
    tables Country_key Country_Name;
run;

proc sort data=ctryxl.countries out=country_clean nodupkey dupout=dups;
    by country_key;
run;

/* Validate Imported orders Table */
proc print data=cr.orders;
    where order_date>Delivery_date;
    var Order_ID Order_Date Delivery_Date;
run;

proc freq data=cr.orders;
    tables Order_type Customer_Country Customer_continent;
run;

proc univariate data=cr.orders;
    var Quantity Retail_price Cost_price;
run;

/* Preparing the Data */
data Profit;
    set cr.orders;
    length Order_Source $8;
    where Delivery_Date>=Order_Date;
    Customer_Country=upcase(Customer_Country);
    if Quantity <0 then Quantity=.;
    Profit=(Retail_Price-Cost_Price)*Quantity;
    format Profit dollar12.2;
    ShipDays=Delivery_Date-Order_Date;
    Age_Range=substr(Customer_Age_Group,1,5);
    if Order_Type=1 then Order_Source="Retail";
    else if Order_Type=2 then Order_Source="Phone";
    else if Order_Type=3 then Order_Source="Internet";
    else Order_Source="Unknown";
    drop Retail_Price Cost_Price Customer_Age_Group Order_Type;
run;
```

```
64
65  proc sql;
66      create table profit_country as
67      select profit.*,Country_Name
68      from profit inner join country_clean
69      on profit.Customer_Country=country_clean.Country_key
70      order by Order_date desc;
71  quit;
72
73  /* Order Frequency Analysis */
74  ods noproctitle;
75  title "Number of Orders by Month";
76  title2 "and Customer Continent/Order Source";
77  proc freq data=profit_country order=freq;
78      tables Order_Date / nocum;
79      format Order_date monname.;
80      tables Customer_continent*Order_Source /norow nocol;
81  run;
82
83
84  %let os=Phone;
85  proc sort data=profit_country out=profit_country_sort;
86      by order_Source;
87  run;
88  title "Days to ship by Country";
89  proc means data=profit_country_sort min max mean maxdec=0;
90      var ShipDays;
91      class Country_Name;
92      where Shipdays>0 and Order_Source="&os";
93      by Order_Source;
94  run;
95
96  proc means data=profit_country noprint;
97      var Profit;
98      class Age_Range;
99      output out=profit_summary median=MedProfit sum=TotalProfit;
100     ways 1;
101 run;
102
103 title "Profit by Customer Age_range";
104 proc print data=profit_summary noobs;
105     var Age_range TotalProfit MedProfit;
106     label Age_Range="Age Range"
107             TotalProfit="Total Profit"
108             medProfit="Median Profit Per Order";
109     format TotalProfit MedProfit dollar10.;
110 run;
111
112
113 /* Exporting Data */
114 proc export data=profit_Country outFile="&path/output/orders_update.xlsx" dbms=xlxs replace;
115 run;
116
117 libname outxl xlsx "&path/output/orders_update.xlsx";
118
119 data outxl.Orders_Update;
120     set profit_country;
121 run;
122
123 data outxl.Country_Lookup;
124     set country_clean;
125
126
```

```
127 run;
128
129 proc means data=profit noprint;
130     var profit;
131     class Age_Range;
132     ways 1;
133     output out=outxl.profit_summary;
134 run;
135
136 libname outxl clear;
137
138
139
140
141
142
143
144
145
146
147
148
149
150
```