Program Summary - Assi3.sas

Execution Environment

Author:	u59397413
File:	/home/u59397413/BAN100/Assi3.sas
SAS Platform:	Linux LIN X64 3.10.0-1062.9.1.el7.x86_64
SAS Host:	ODAWS01-USW2.ODA.SAS.COM
SAS Version:	9.04.01M6P11072018
SAS Locale:	en_US
Submission Time:	12/27/2021, 10:45:00 PM
Browser Host:	CPEC09435E4AB5B-CMC09435E4AB59.CPE.NET.CABLE.ROGERS.COM
User Agent:	Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/96.0.4664.110 Safari/537.36 Edg/96.0.1054.62
Application Server:	ODAMID00-USW2.ODA.SAS.COM

Code: Assi3.sas

```
libname PSlib '/home/u59397413/BAN100';
proc import
```

Log: Assi3.sas

Errors (2)

Notes (14)

```
1          OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
NOTE: ODS statements in the SAS Studio environment may disable some output features.
69
70         libname PSlib '/home/u59397413/BAN100';
NOTE: Libref PSLIB was successfully assigned as follows:
      Engine:        V9
      Physical Name: /home/u59397413/BAN100
71         proc import
72          datafile='/home/u59397413/BAN100/Stocks_Data.xlsx'
73          out=PSlib.Stocks_Data
74          dbms=xlsx
75          replace;
76         run;

NOTE: One or more variables were converted because the data type is not supported by the V9 engine. For more details, run with
      options MSGLEVEL=I.
NOTE: The import data set has 366 observations and 2 variables.
NOTE: PSLIB.STOCKS_DATA data set was successfully created.
NOTE: PROCEDURE IMPORT used (Total process time):
      real time           0.02 seconds
      user cpu time       0.01 seconds
      system cpu time     0.00 seconds
      memory              2759.65k
      OS Memory           30884.00k
      Timestamp           12/28/2021 03:44:59 AM
      Step Count                        54  Switch Count  2
      Page Faults                       0
      Page Reclaims                     539
      Page Swaps                        0
      Voluntary Context Switches        45
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264
```

```
77
78          /*One Way ANOVA*/
79          proc anova data=PSlib.Stocks_Data;
80          class AgeGroup;
81          model Age=AgeGroup;
82          run;

83
84          /*Tukey for first question*/
85          ods graphics off;

NOTE: PROCEDURE ANOVA used (Total process time):
      real time           0.18 seconds
      user cpu time       0.09 seconds
      system cpu time     0.01 seconds
      memory              9838.53k
      OS Memory           34612.00k
      Timestamp           12/28/2021 03:44:59 AM
      Step Count                        55  Switch Count  3
      Page Faults                       0
      Page Reclaims                     1482
      Page Swaps                        0
      Voluntary Context Switches        738
      Involuntary Context Switches      0
      Block Input Operations            288
      Block Output Operations           752


86          proc anova data=PSlib.Stocks_Data;
87          class AgeGroup;
88          model Age=AgeGroup;
89          means AgeGroup/tukey;
90          run;

91
92          libname PSlib '/home/u59397413/BAN100';
ERROR: Unable to clear or re-assign the library PSLIB because it is still in use.
ERROR: Error in the LIBNAME statement.

NOTE: PROCEDURE ANOVA used (Total process time):
      real time           0.06 seconds
```

```
      user cpu time       0.07 seconds
      system cpu time     0.00 seconds
      memory              1812.31k
      OS Memory           34224.00k
      Timestamp           12/28/2021 03:44:59 AM
      Step Count                        56  Switch Count  3
      Page Faults                       0
      Page Reclaims                     217
      Page Swaps                        0
      Voluntary Context Switches        28
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           304


93         proc import
94          datafile='/home/u59397413/BAN100/Age_Education_Data.xlsx'
95          out=PSlib.Age_Education_Data
96          dbms=xlsx
97          replace;
98         run;

NOTE: One or more variables were converted because the data type is not supported by the V9 engine. For more details, run with
      options MSGLEVEL=I.
NOTE: The import data set has 80 observations and 3 variables.
NOTE: PSLIB.AGE_EDUCATION_DATA data set was successfully created.
NOTE: PROCEDURE IMPORT used (Total process time):
      real time           0.02 seconds
      user cpu time       0.00 seconds
      system cpu time     0.01 seconds
      memory              2753.59k
      OS Memory           35236.00k
      Timestamp           12/28/2021 03:44:59 AM
      Step Count                        57  Switch Count  2
      Page Faults                       0
      Page Reclaims                     541
      Page Swaps                        0
      Voluntary Context Switches        57
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264
```

```
99
100         /*two way ANOVA*/
101         ods graphics on;
102         proc anova data=PSlib.Age_Education_Data;
103         class Gender Education_Category;
104         model Age= Gender Education_Category Gender*Education_Category;
105         means Gender Education_Category;
106         run;

107         ods graphics off;
108
109         /*Multiple Comparison Test using Proc GLM*/
110         ods graphics on;

NOTE: PROCEDURE ANOVA used (Total process time):
      real time           0.22 seconds
      user cpu time       0.13 seconds
      system cpu time     0.01 seconds
      memory              3459.25k
      OS Memory           35128.00k
      Timestamp           12/28/2021 03:45:00 AM
      Step Count                        58  Switch Count  4
      Page Faults                       0
      Page Reclaims                     694
      Page Swaps                        0
      Voluntary Context Switches        669
      Involuntary Context Switches      0
      Block Input Operations            288
      Block Output Operations           952


111         proc glm data=PSlib.Age_Education_Data;
112         class Gender Education_Category;
113         model Age=Gender | Education_Category;
114         lsmeans Gender*Education_Category/slice=Gender;
115         run;

116         ods graphics off;
117
118         ods graphics on;
```

```
NOTE: PROCEDURE GLM used (Total process time):
      real time           0.30 seconds
      user cpu time       0.18 seconds
      system cpu time     0.01 seconds
      memory              4176.90k
      OS Memory           35644.00k
      Timestamp           12/28/2021 03:45:00 AM
      Step Count                        59  Switch Count  4
      Page Faults                       0
      Page Reclaims                     1045
      Page Swaps                        0
      Voluntary Context Switches        1144
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           1088


119        proc glm data=PSlib.Age_Education_Data;
120        class Gender Education_Category;
121        model Age=Gender | Education_Category;
122        lsmeans Gender*Education_Category/slice=Education_Category;
123        run;

124        ods graphics off;
125
126        OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
136
```

Results: Assi3.sas

The ANOVA Procedure

Class Level Information		
Class	**Levels**	**Values**
AgeGroup	4	Early_Middle_Age Late_Middle_Age Senior Young

Number of Observations Read	366
Number of Observations Used	366

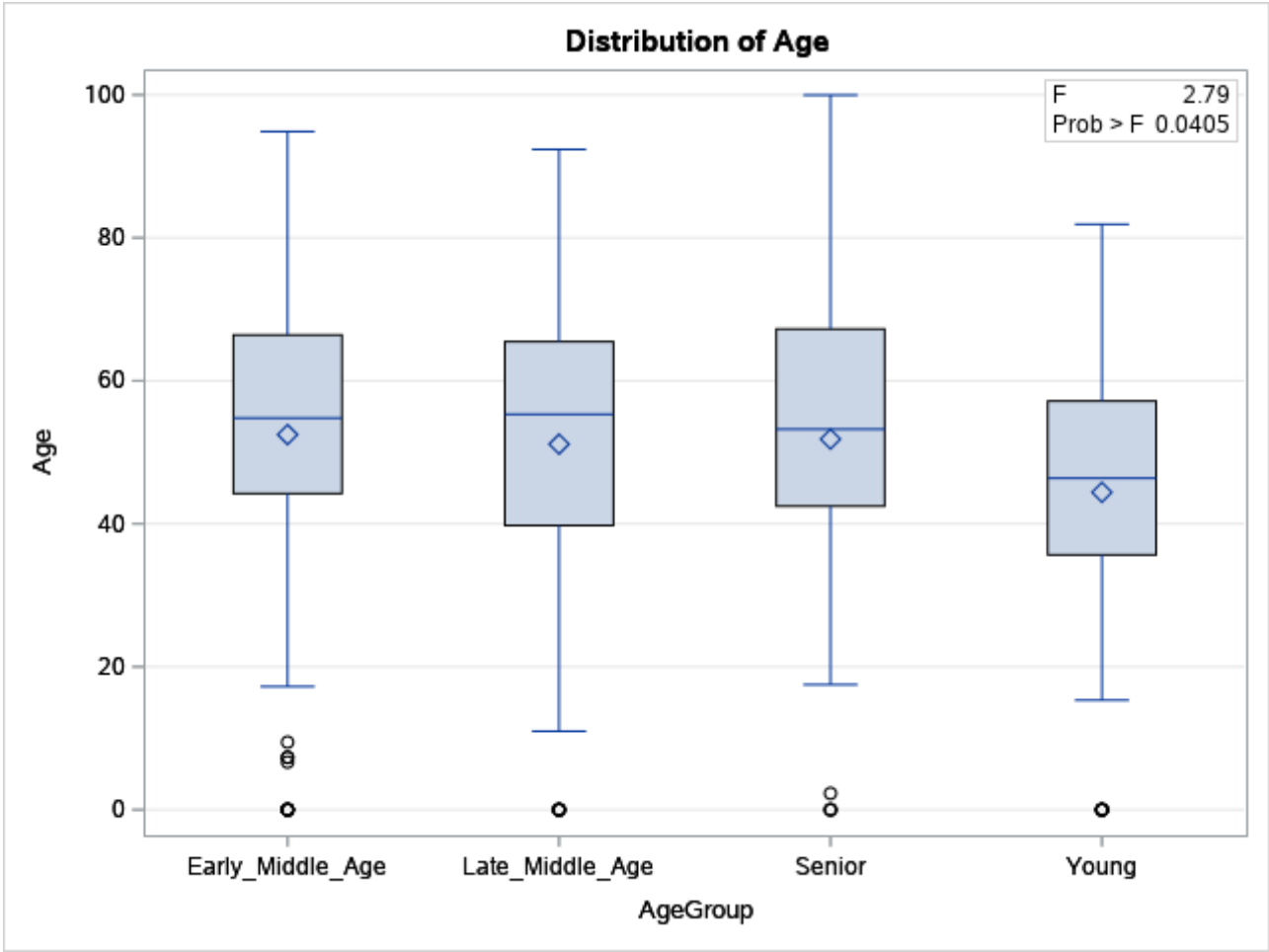
The ANOVA Procedure

Dependent Variable: Age Age

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	3741.3636	1247.1212	2.79	0.0405
Error	362	161870.9817	447.1574		
Corrected Total	365	165612.3453			

R-Square	Coeff Var	Root MSE	Age Mean
0.022591	42.14046	21.14610	50.18003

Source	DF	Anova SS	Mean Square	F Value	Pr > F
AgeGroup	3	3741.363610	1247.121203	2.79	0.0405



The ANOVA Procedure

Class Level Information		
Class	**Levels**	**Values**
AgeGroup	4	Early_Middle_Age Late_Middle_Age Senior Young

Number of Observations Read	366
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The ANOVA Procedure

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Error	362	161870.9817	447.1574		
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R-Square	Coeff Var	Root MSE	Age Mean
0.022591	42.14046	21.14610	50.18003

Source	DF	Anova SS	Mean Square	F Value	Pr > F
AgeGroup	3	3741.363610	1247.121203	2.79	0.0405

The ANOVA Procedure

Tukey's Studentized Range (HSD) Test for Age

Note: This test controls the Type I experimentwise error rate.

Alpha	0.05
Error Degrees of Freedom	362
Error Mean Square	447.1574
Critical Value of Studentized Range	3.65009

Comparisons significant at the 0.05 level are indicated by ***.				
AgeGroup Comparison	Difference Between Means	Simultaneous 95% Confidence Limits		
Early_Middle_Age - Senior	0.634	-7.974	9.242	
Early_Middle_Age - Late_Middle_Age	1.333	-6.067	8.734	
Early_Middle_Age - Young	8.074	0.445	15.703	***
Senior - Early_Middle_Age	-0.634	-9.242	7.974	
Senior - Late_Middle_Age	0.699	-8.433	9.831	
Senior - Young	7.440	-1.878	16.757	
Late_Middle_Age - Early_Middle_Age	-1.333	-8.734	6.067	
Late_Middle_Age - Senior	-0.699	-9.831	8.433	

Comparisons significant at the 0.05 level are indicated by ***.				
AgeGroup Comparison	Difference Between Means	Simultaneous 95% Confidence Limits		
Late_Middle_Age - Young	6.741	-1.475	14.956	
Young - Early_Middle_Age	-8.074	-15.703	-0.445	***
Young - Senior	-7.440	-16.757	1.878	
Young - Late_Middle_Age	-6.741	-14.956	1.475	

The ANOVA Procedure

Class Level Information		
Class	Levels	Values
Gender	2	Female Male
Education_Category	4	E1 E2 E3 E4

Number of Observations Read	80
Number of Observations Used	80

The ANOVA Procedure

Dependent Variable: Age Age

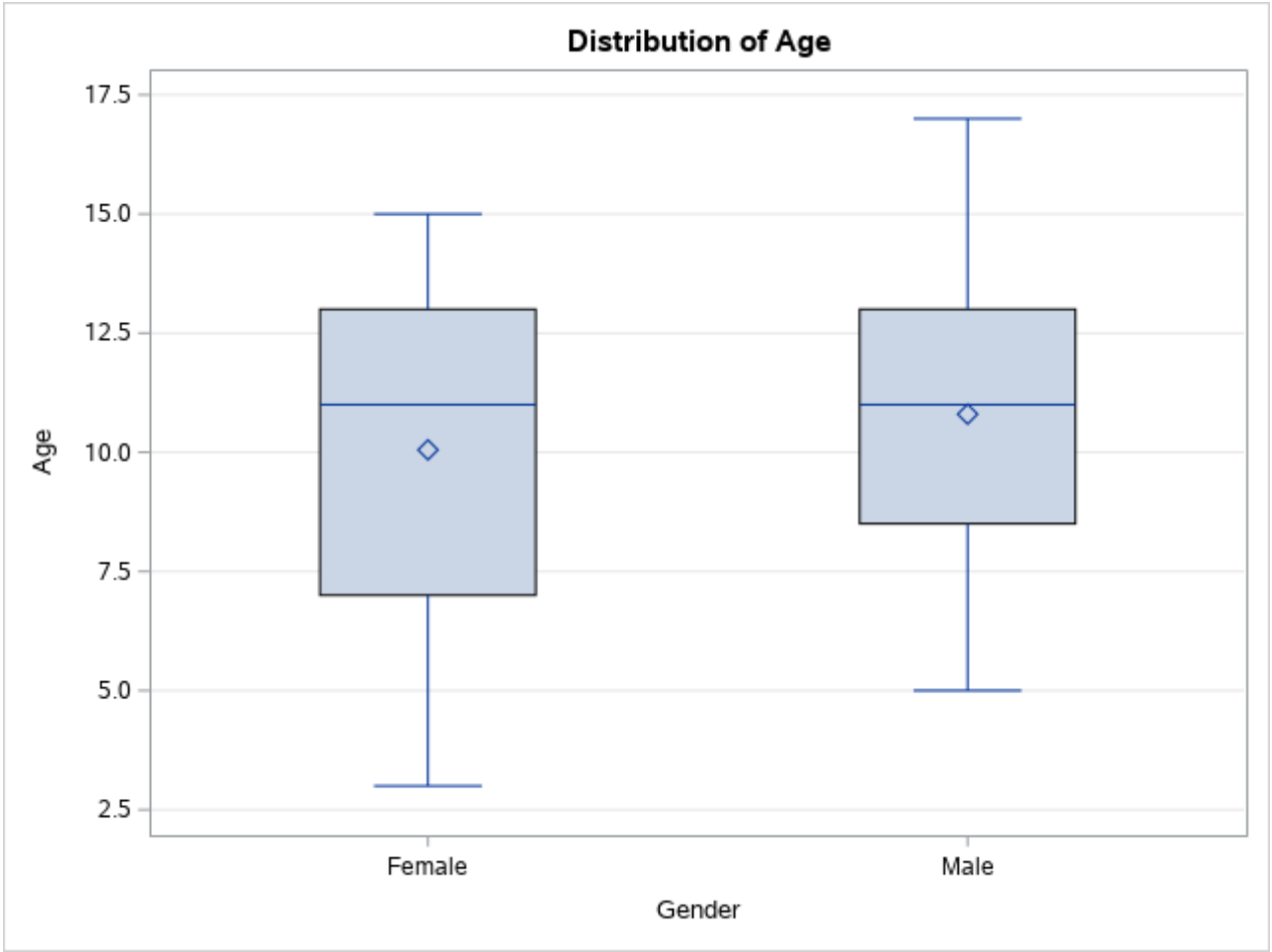
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	7	153.3500000	21.9071429	2.17	0.0467
Error	72	726.2000000	10.0861111		
Corrected Total	79	879.5500000			

R-Square	Coeff Var	Root MSE	Age Mean
0.174351	30.46392	3.175864	10.42500

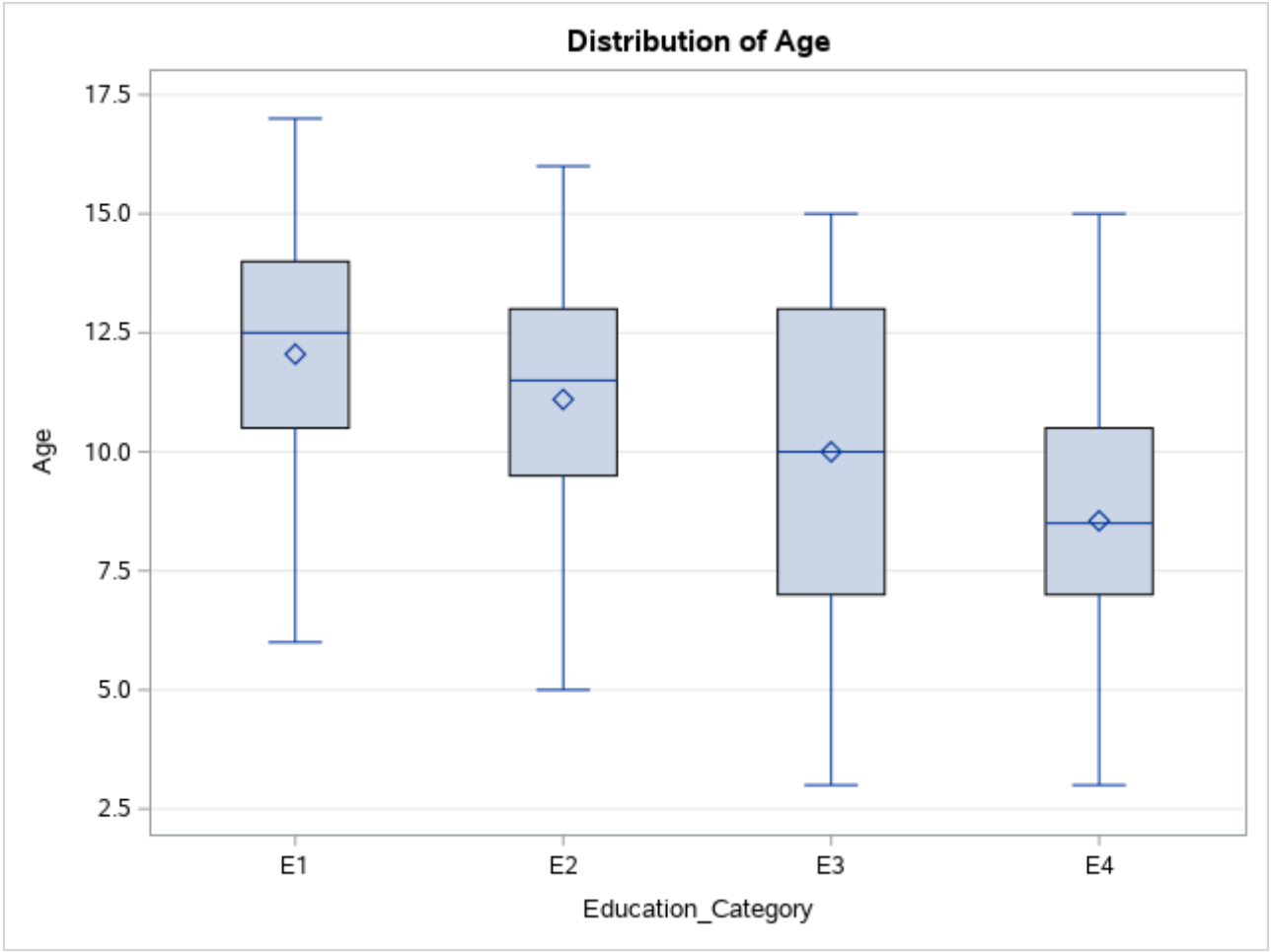
Source	DF	Anova SS	Mean Square	F Value	Pr > F
Gender	1	11.2500000	11.2500000	1.12	0.2944
Education_Category	3	135.8500000	45.2833333	4.49	0.0060

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Gender*Education_Cat	3	6.2500000	2.0833333	0.21	0.8915

The ANOVA Procedure



Level of Gender	N	Age	
		Mean	Std Dev
Female	40	10.0500000	3.57304725
Male	40	10.8000000	3.08179102



Level of Education_Category	N	Age	
		Mean	Std Dev
E1	20	12.0500000	2.85574214
E2	20	11.1000000	2.95403382
E3	20	10.0000000	3.69921756
E4	20	8.5500000	2.92853475

Class Level Information		
Class	Levels	Values
Gender	2	Female Male
Education_Category	4	E1 E2 E3 E4

Number of Observations Read	80
Number of Observations Used	80

The GLM Procedure

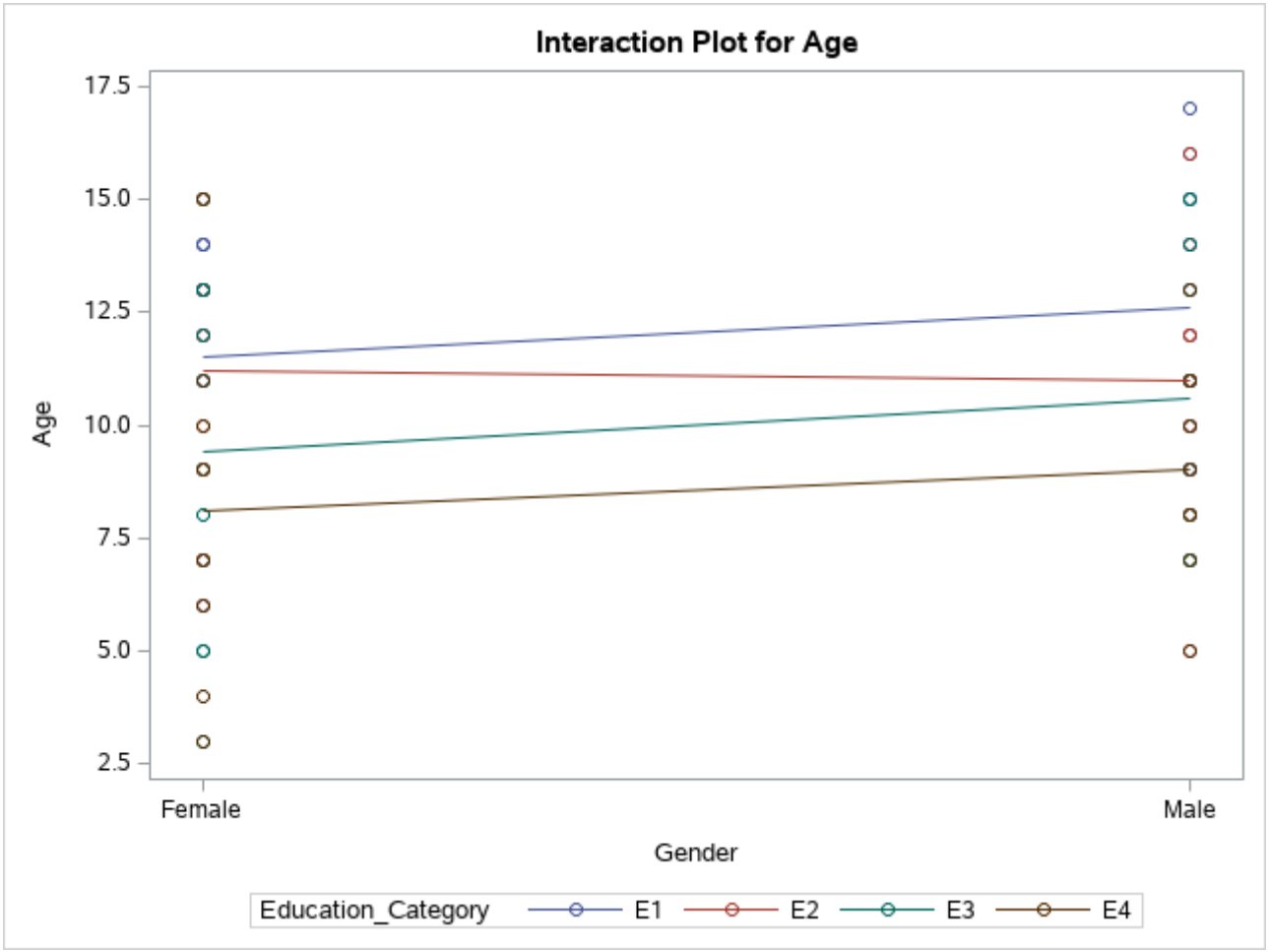
Dependent Variable: Age Age

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	7	153.3500000	21.9071429	2.17	0.0467
Error	72	726.2000000	10.0861111		
Corrected Total	79	879.5500000			

R-Square	Coeff Var	Root MSE	Age Mean
0.174351	30.46392	3.175864	10.42500

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Gender	1	11.2500000	11.2500000	1.12	0.2944
Education_Category	3	135.8500000	45.2833333	4.49	0.0060
Gender*Education_Cat	3	6.2500000	2.0833333	0.21	0.8915

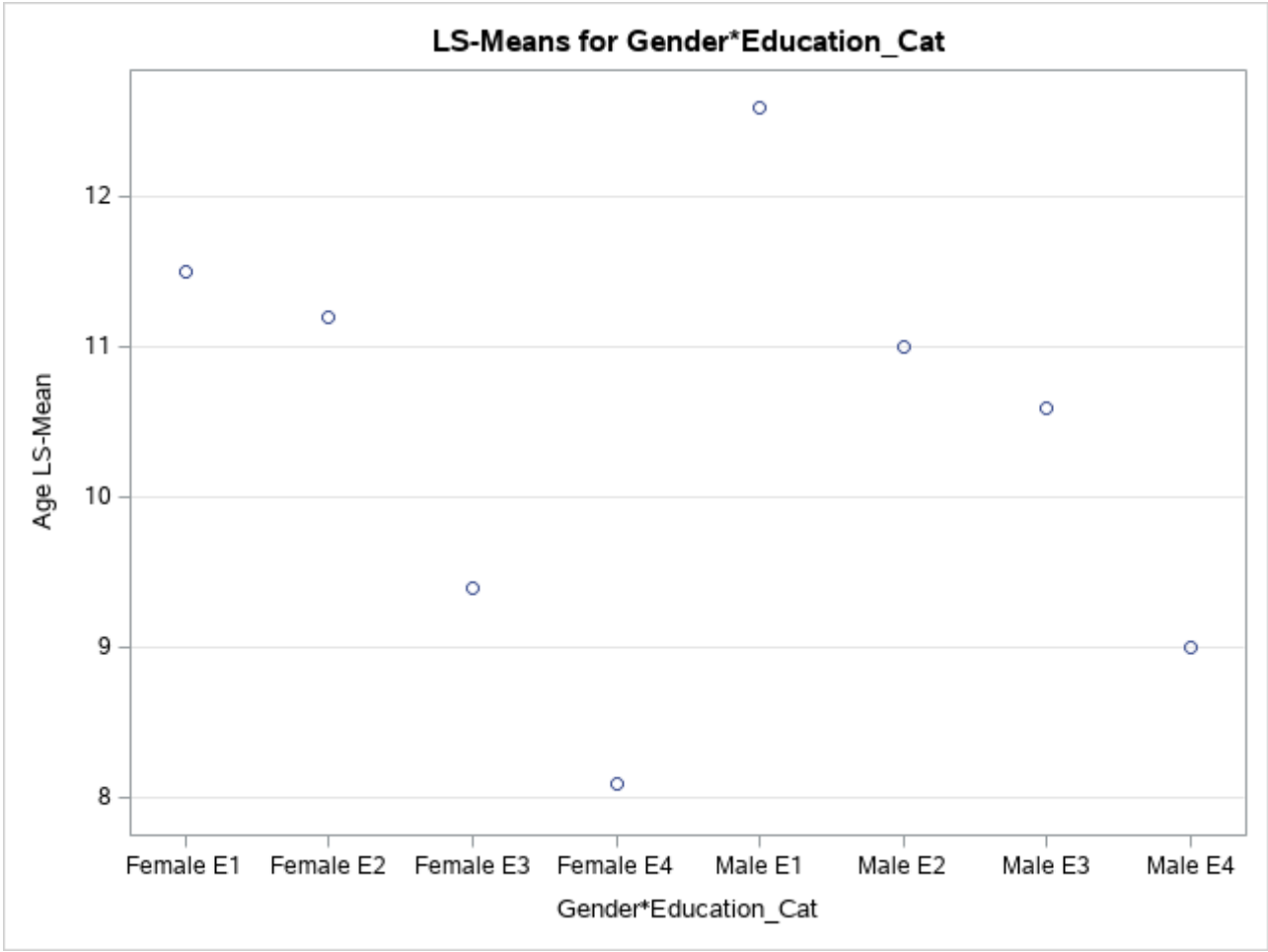
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Gender	1	11.2500000	11.2500000	1.12	0.2944
Education_Category	3	135.8500000	45.2833333	4.49	0.0060
Gender*Education_Cat	3	6.2500000	2.0833333	0.21	0.8915

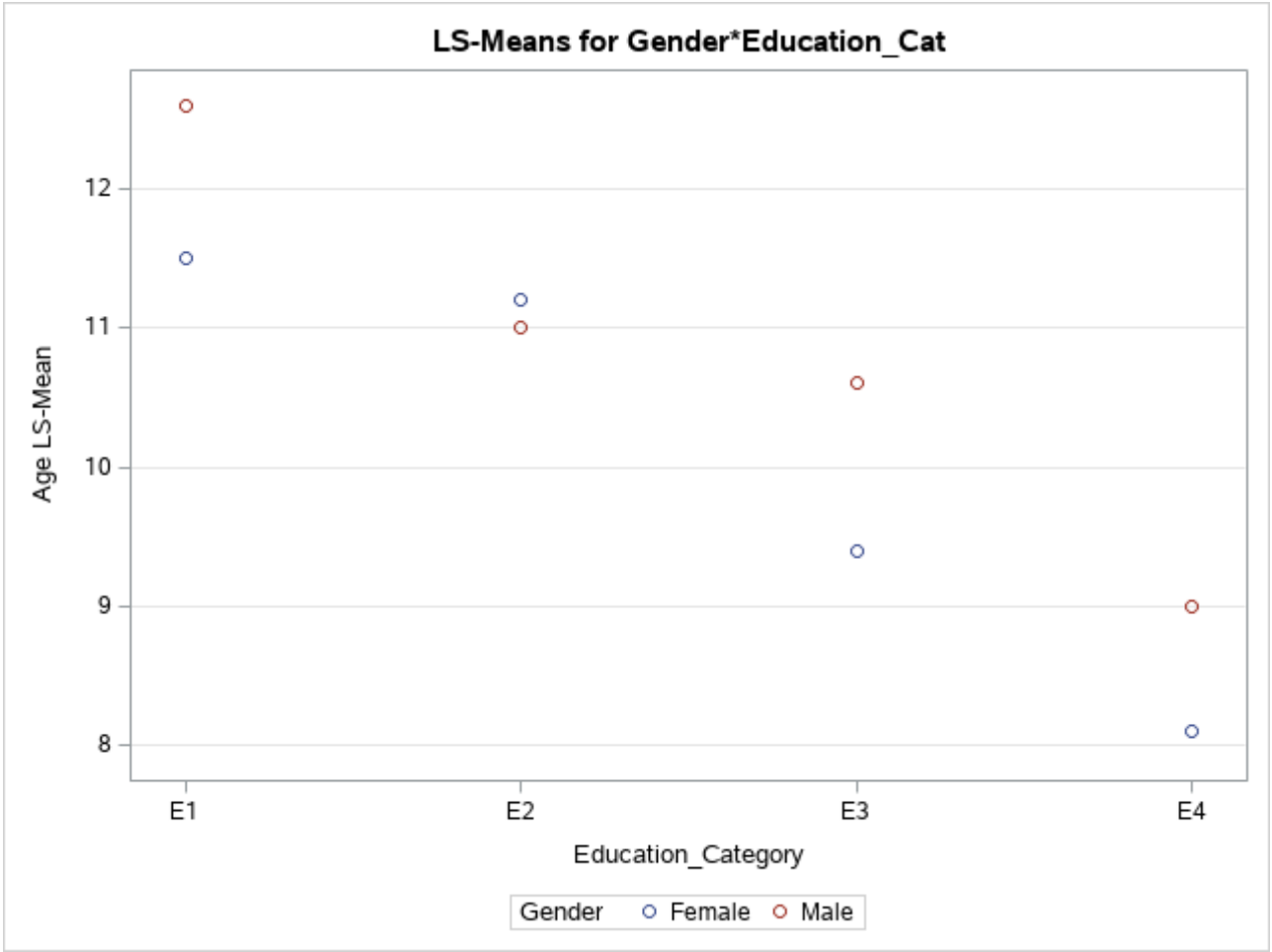


The GLM Procedure
Least Squares Means

Gender	Education_Category	Age LSMEAN
Female	E1	11.5000000
Female	E2	11.2000000
Female	E3	9.4000000
Female	E4	8.1000000
Male	E1	12.6000000
Male	E2	11.0000000
Male	E3	10.6000000

Gender	Education_Category	Age LSMEAN
Male	E4	9.0000000





The GLM Procedure
Least Squares Means

Gender*Education_Cat Effect Sliced by Gender for Age					
Gender	DF	Sum of Squares	Mean Square	F Value	Pr > F
Female	3	76.500000	25.500000	2.53	0.0640
Male	3	65.600000	21.866667	2.17	0.0992

Class Level Information		
Class	Levels	Values
Gender	2	Female Male
Education_Category	4	E1 E2 E3 E4

Number of Observations Read	80
Number of Observations Used	80

The GLM Procedure

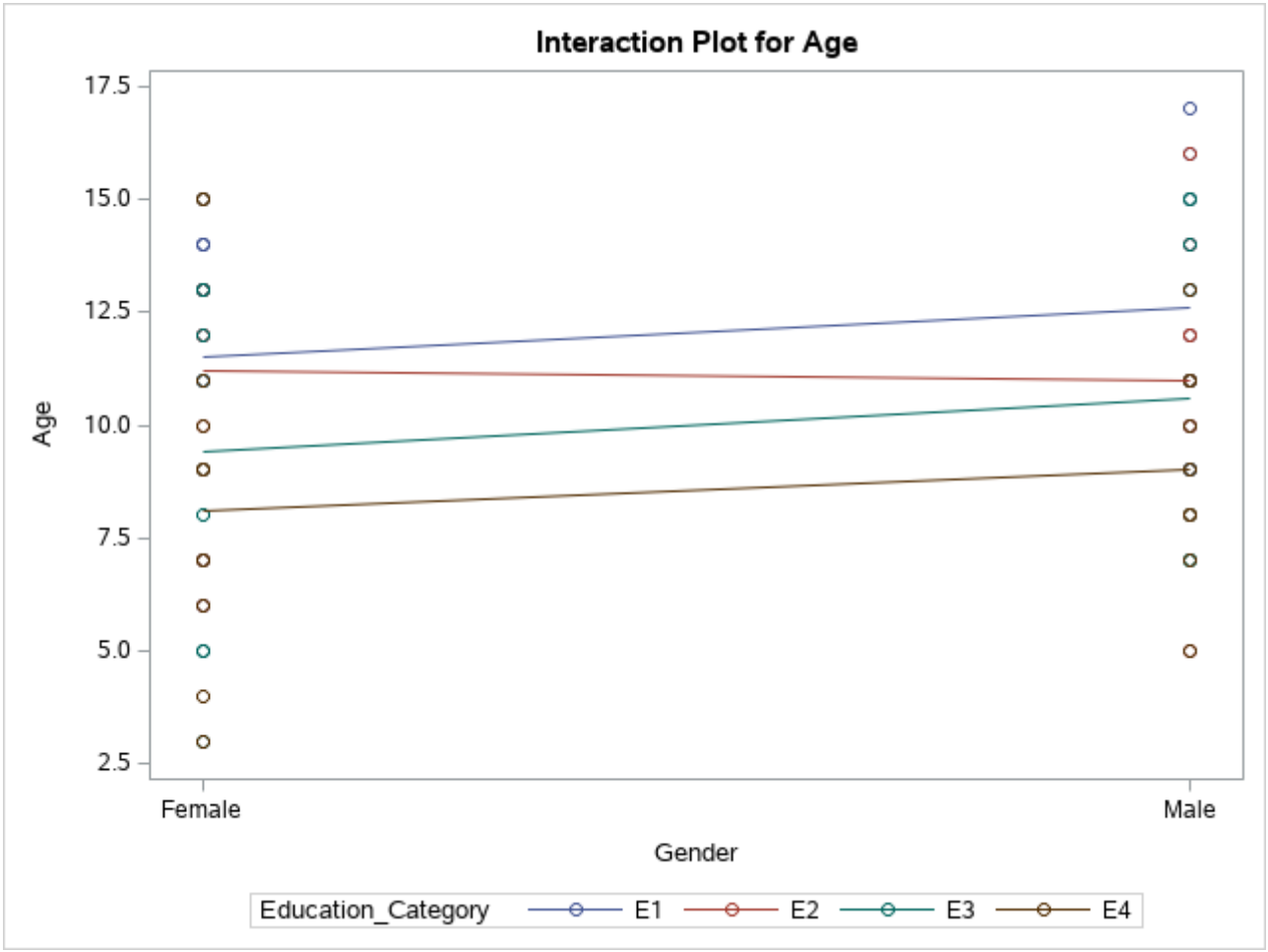
Dependent Variable: Age Age

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	7	153.3500000	21.9071429	2.17	0.0467
Error	72	726.2000000	10.0861111		
Corrected Total	79	879.5500000			

R-Square	Coeff Var	Root MSE	Age Mean
0.174351	30.46392	3.175864	10.42500

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Gender	1	11.2500000	11.2500000	1.12	0.2944
Education_Category	3	135.8500000	45.2833333	4.49	0.0060
Gender*Education_Cat	3	6.2500000	2.0833333	0.21	0.8915

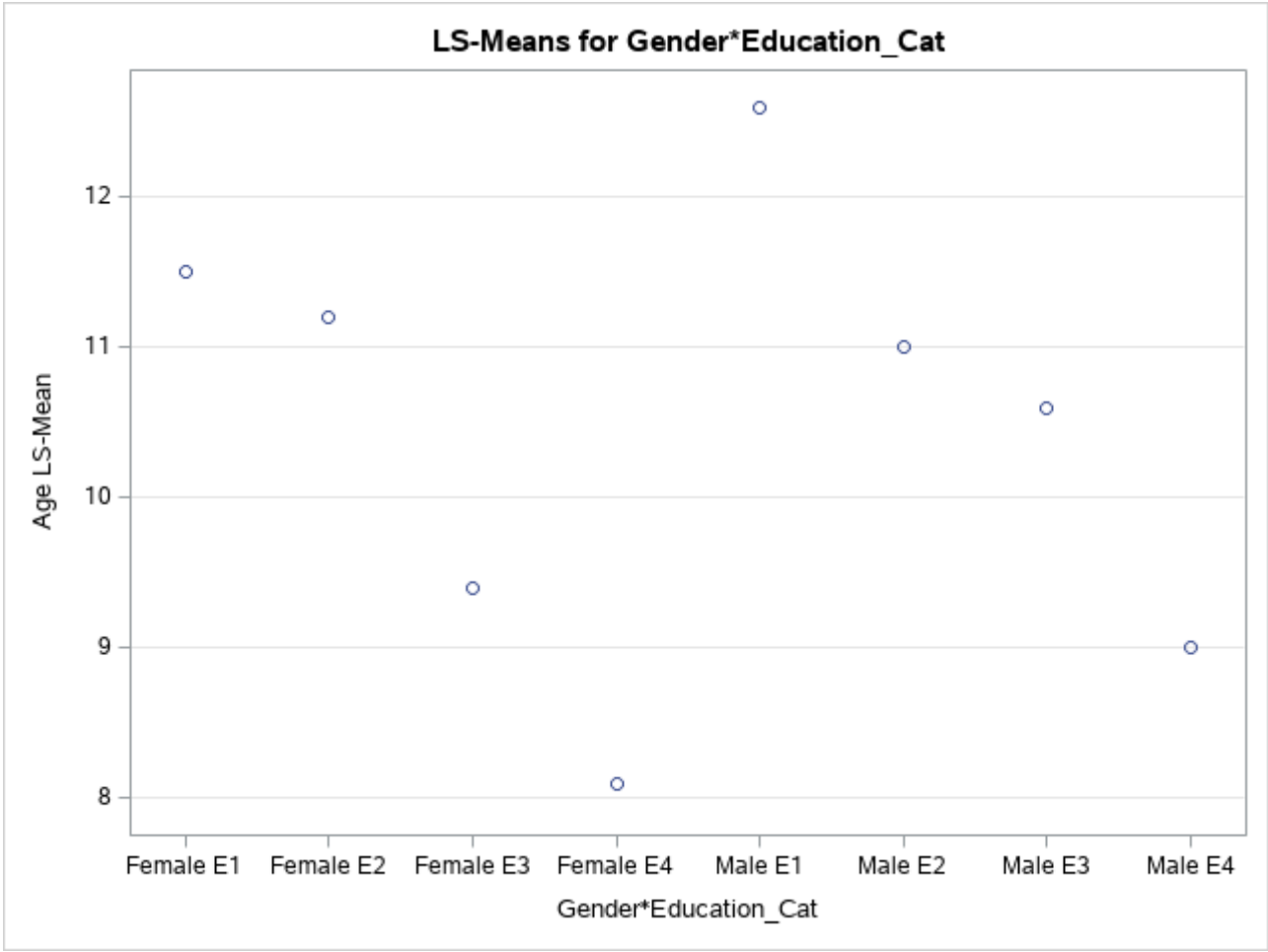
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Gender	1	11.2500000	11.2500000	1.12	0.2944
Education_Category	3	135.8500000	45.2833333	4.49	0.0060
Gender*Education_Cat	3	6.2500000	2.0833333	0.21	0.8915

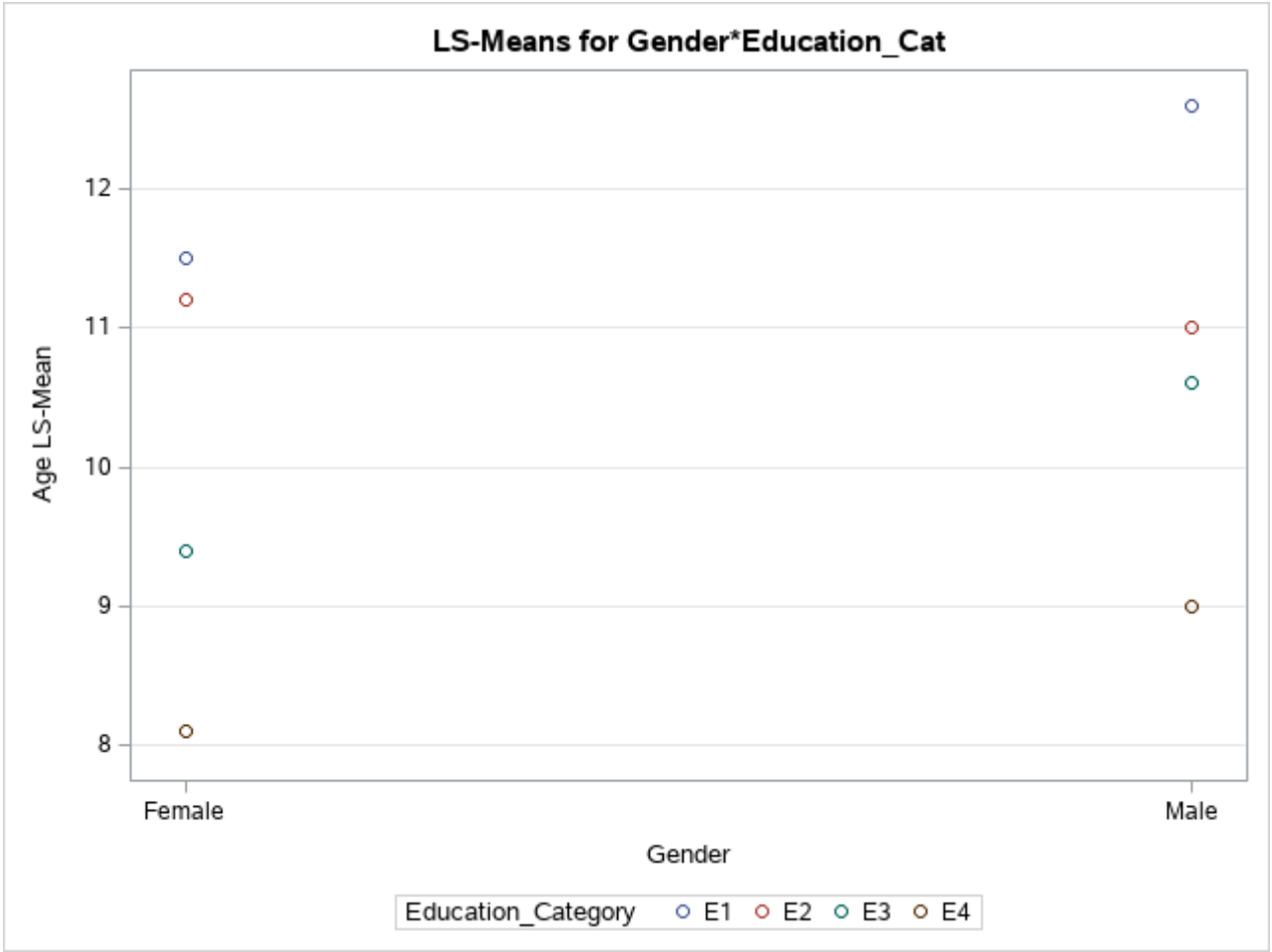


The GLM Procedure
Least Squares Means

Gender	Education_Category	Age LSMEAN
Female	E1	11.5000000
Female	E2	11.2000000
Female	E3	9.4000000
Female	E4	8.1000000
Male	E1	12.6000000
Male	E2	11.0000000
Male	E3	10.6000000

Gender	Education_Category	Age LSMEAN
Male	E4	9.0000000





The GLM Procedure
Least Squares Means

Gender*Education_Cat Effect Sliced by Education_Category for Age					
Education_Category	DF	Sum of Squares	Mean Square	F Value	Pr > F
E1	1	6.050000	6.050000	0.60	0.4412
E2	1	0.200000	0.200000	0.02	0.8884
E3	1	7.200000	7.200000	0.71	0.4010
E4	1	4.050000	4.050000	0.40	0.5283