**data** initial;

set work.ATP;

**run**;

**proc** **contents**

data=work.ATP;

**run**;

**data** columns;

set work.ATP(keep=tourney\_name round winner\_hand winner\_ht w\_ace minutes

rename=(

tourney\_name = tournament

round = round

winner\_hand = hand

winner\_ht = height

w\_ace = ace

minutes = length));;

where round = "F";

**run**;

**Data** check\_nulls;

set columns;

if missing(tournament) or missing(hand) or missing(height) or missing(ace) or missing(length) then output;

**run**;

**proc** **means** data= columns n mean median std min max;

var height length ace;

output out=mean\_data mean=mean\_height mean\_length mean\_ace;

**run**;

**data** cleansed;

if \_n\_ = **1** then set mean\_data;

set columns;

if missing(height) then height = mean\_height;

if missing(length) then length = mean\_length;

if missing(ace) then ace = mean\_ace;

keep tournament hand height length ace;

**run**;

/\*ANOVA Analysis\*/

ods output ModelANOVA=Anova\_Stats;

**proc** **ANOVA**

data=cleansed;

class tournament;

model length = tournament;

**run**;

ods output close;

**data** ANOVA\_Results;

set Anova\_Stats;

length Conclusion $**50**;

if Probf < **0.05** then Conclusion = "Reject Null Hypothesis";

else Conclusion = "Fail to Reject Null Hypothesis";

**run**;

**proc** **print** data=ANOVA\_Results noobs;

title "ANOVA Results";

**run**;

/\*Pearson Analysis\*/

ods output PearsonCorr=Pearson\_Stats;

**proc** **corr** data=cleansed;

var height ace;

**run**;

**data** Pearson\_Results;

set Pearson\_Stats;

length Conclusion $**50**;

if Prob < **0.05** then Conclusion = "Reject Null Hypothesis";

else Conclusion = "Fail to Reject Null Hypothesis";

**run**;

/\*T-Test Analysis\*/

ods output TTests=TTest\_Stats Equality=TTest\_VarTest;

**proc** **ttest**

data=cleansed

alpha=**0.05**;

class hand;

var ace;

**run**;

**data** TTest\_Results;

set TTest\_Stats;

length Conclusion $**50**;

if Probt < **0.05** then Conclusion = "Reject Null Hypothesis";

else Conclusion = "Fail to Reject Null Hypothesis";

**run**;