

# **Statistical Analysis Project – Who’s the Best???**

I will provide you with some data from my track and field athletes, specifically my shot put throwers. You will be required to complete a statistical analysis of the data to determine which thrower is the “best” thrower on the team.

## **PART 1 - STATISTICAL ANALYSIS**

Your statistical analysis will include the following components:

- (a) An appropriate data table and a frequency histogram of the data for each thrower
- (b) Calculation of the mean, median, mode for each thrower
- (c) A five number summary (min, Q1, median, Q3, max), including a box-whisker plot for each thrower
- (d) Some form of an appropriate graph that allows you to compare the data from the three throwers on the same graph

## **PART 2 – DECISION MAKING & JUSTIFYING**

Once you have completed the required statistical analysis, you must make a decision as to which thrower is the best. First, you must decide upon what it means to “be the best” thrower. Then you will tell me who is the best and WHY you think that they are the best (your reasoning must be STATISTICALLY based!)

## **PART 3 – REVISING DECISIONS**

Once you have completed your analysis, I will provide with some additional data. You are then required to make an appropriate analysis given the new information and then revise your conclusion, if necessary. Your analysis should include new tables, calculations and graphs. You must be able to STATISTICALLY JUSTIFY your revised conclusion (or your choice to NOT revise your selection.)

## **PART 4 - THE THROWERS’ DATA**

Thrower #1	8.74	8.94	9.66	10.01	10.01	8.43	10.25	10.14	9.04	9.30	8.69
	8.85	9.25	9.46	10.23	8.95	9.65	8.79	10.62	9.78	9.26	9.39
Thrower #2	10.39	10.86	10.94	9.00	9.15	9.35	9.35	8.25	8.85	8.95	9.10
	10.20	9.53	8.76	8.03	8.96	9.25	9.98	10.82	10.10	8.96	9.68
Thrower #3	8.79	9.39	9.94	11.47	9.72	8.49	9.63	9.49	9.83	8.82	9.24
	9.13	9.56	9.94	9.75	9.12	8.96	8.83	9.25	9.38	9.62	9.98

## **Scoring Rubric**

Criteria				
Preparing & presenting tables & frequency histograms		Intervals are inappropriate and graphs are poorly presented 6 M	Intervals are partially appropriate and graphs are properly presented 8 M	Intervals are appropriate and graphs are properly presented 10 M
Determining mean, median, mode		Calculations are mostly incorrect and neatly presented 6M	Calculations are partially correct and neatly presented 8 M	Calculations are correct and neatly presented 10 M
5 Number Summary & BW plot		Calculations are mostly incorrect and neatly presented 5M	Calculations are partially correct and neatly presented 7M	Calculations are correct and neatly presented 10 M
Graphical Comparison	You chose an appropriate graphical method and the presentation of the results is somewhat correct 2 M	You chose an appropriate graphical method and the presentation of the results is mostly correct 3 M	You chose the an appropriate graphical method and correctly presented the results 4 M	You chose the most appropriate graphical method and correctly presented the results 5 M
Defining “the best”	You did not attempt to write a definition 0 M	Your definition is incorrect 2 M	Your definition is correct but does not lead to statistical analysis 4 M	Your definition is correct and leads to statistical analysis 5 M
Choosing “the best”	Your choice was not justified using your stats 4 M	Your choice was incorrectly justified using your stats 6 M	Your choice was somewhat correctly justified using your stats 8 M	Your choice was correctly justified using your stats 10 M
New data – Adjusting the statistical analysis	You did not correctly take the new data into consideration 2 M	You only calculated the new statistical values 3 M	All statistical tables & calculations as well as discussions are correct 4 M	All statistical tables, calculations and graphs as well as discussions are correct 5 M
New data – Adjusting the selection	Your choice was not justified using your new stats 1 M	Your choice was incorrectly justified using your new stats 3 M	Your choice was somewhat correctly justified using new your stats 4 M	Your choice was correctly justified using your new stats 5 M
TOTAL SCORE				/60 M