College Prep Stats

Chapter 7 Project <u>All results must be typed. (115 points)</u>

In this project, you will use the **data sets on P. 766 for "Male Height" (HT).** (Keep 2 digits after decimal point). The organization of the project **<u>must follow the order of the tasks</u>**. Maximum of 3 students in each project group.

Names: Type All <u>FULL</u> Names in the Team

Data set: (10 pts)

<u>Task #1</u> Perform accessing normality:

a) Draw histogram from *Google Sheet.* (10 pts total, 5 pts for each gender)

b) Outlier identification with formula and calculation. (10 pts total, 5 pts for each gender)

c) Provide Normal Quantile Plot from *Google Sheet.* (10 pts total, 5 pts for each gender)

<u>Task #2</u> At 95% confidence level

a) The best point estimate for population proportion of the male's height that reach 71 inch or taller. (5 pts)

b) Calculate the margin of error with formula and calculation. (10 pts)

c) Give the confidence interval for population proportion of the male's height reach 71 inch or taller. (10 pts)

<u>Task #3</u> At 95% confidence level

a) Give the best point estimate for population mean height of male. (5 pts)

b) Calculate the margin of error with formula and calculation. (10 pts)

c) Provide the confidence interval for population mean height of male. (10 pts)

<u>Task #4</u> At 95% confidence level

a) Provide the best point estimate for population variance. (5 pts)

b) Provide the confidence interval for population variance with formula and calculation. (10 pts)

c) Provide the confidence interval for population standard deviation with formula and calculation. (10 pts)

Project Format

College Prep Stats Chapter 7 Project

Names: **Type All FULL Names in the Team**

Data set: MUST be provided at the beginning, or lose the 10 pts

Task #1 Perform accessing normality:

a) Histogram from *Google Sheet*

b) Outlier identification

IQR = Q3 – Q1, LLOL = Q1 – 1.5IQR = ……., ULOL = Q3 + 1.5IQR = …….

c) Normal Quantile Plot from *Google Sheet*

Task #2 At 95% confidence level, find

a) The best point estimate for population proportion of the male's height that reach 71 inch or taller.

b) The margin of error.

c) The 95% confidence interval for population proportion of the male's height reaches 71 inch or taller. (interval form, i.e. (0.11, 0.77))

Task #3 At 95% confidence level, find

a) The best point estimate for population mean male's height.

b) The margin of error.

c) The 95% confidence interval for population mean male's height (interval form, i.e. (11.11, 33.33)).

Task #4 At 95% confidence level, find

a) The 95% confidence interval for population variance.

$$\frac{(n-1)s^2}{\chi_R^2} < \sigma^2 < \frac{(n-1)s^2}{\chi_L^2}$$

i.e. $111.11 < \sigma^2 < 222.22$

b) The 95% confidence interval for population standard deviation.

$$\sqrt{\frac{(n-1)s^2}{\chi_R^2}} < \sigma < \sqrt{\frac{(n-1)s^2}{\chi_L^2}}$$

i.e. $11.11 < \sigma < 22.22$

Data Set 1: Health Exam Results

AGE is in years, HT is height (inches), WT is weight (pounds), WAIST is circumference (cm), Pulse is pulse rate (beats per minute), SYS is systolic blood pressure (mm Hg), DIAS is diastolic blood pressure (mm Hg), CHOL is cholesterol (mg), BMI is body mass index, Leg is upper leg length (cm), Elbow is elbow breadth (cm), Wrist is wrist breadth (cm), and Arm is arm circumference (cm). Data are from the U.S. Department of Health and Human Services, National Center for Health Statistics, Third National Health and Nutrition Examination Survey.

STATDISK: Data set name for males is Mhealth.

Minitab: Worksheet name for males is MHEALTH.MTW.

Excel: Workbook name for males is MHEALTH.XLS.

TI-83/84 Plus: App name for male data is MHEALTH and the file names are the same as for text files.

Text file names for males: MAGE, MHT, MWT, MWAST, MPULS, MSYS, MDIAS, MCHOL, MBMI, MLEG, MELBW, MWRST, MARM.

Male

Age	HT	WT	Waist	Pulse	SYS	DIAS	CHOL	BMI	Leg	Elbow	Wrist	Arm
58	70.8	169.1	90.6	68	125	78	522	23.8	42.5	7.7	6.4	31.9
22	66.2	144.2	78.1	64	107	54	127	23.2	40.2	7.6	6.2	31.0
32	71.7	179.3	96.5	88	126	81	740	24.6	44.4	7.3	5.8	32.7
31	68.7	175.8	87.7	72	110	68	49	26.2	42.8	7.5	5.9	33.4
28	67.6	152.6	87.1	64	110	66	230	23.5	40.0	7.1	6.0	30.1
46	69.2	166.8	92.4	72	107	83	316	24.5	47.3	7.1	5.8	30.5
41	66.5	135.0	78.8	60	113	71	590	21.5	43.4	6.5	5.2	27.6
56	67.2	201.5	103.3	88	126	72	466	31.4	40.1	7.5	5.6	38.0
20	68.3	175.2	89.1	76	137	85	121	26.4	42.1	7.5	5.5	32.0
54	65.6	139.0	82.5	60	110	71	578	22.7	36.0	6.9	5.5	29.3
17	63.0	156.3	86.7	96	109	65	78	27.8	44.2	7.1	5.3	31.7
73	68.3	186.6	103.3	72	153	87	265	28.1	36.7	8.1	6.7	30.7
52	73.1	191.1	91.8	56	112	77	250	25.2	48.4	8.0	5.2	34.7
25	67.6	151.3	75.6	64	119	81	265	23.3	41.0	7.0	5.7	30.6
29	68.0	209.4	105.5	60	113	82	273	31.9	39.8	6.9	6.0	34.2
17	71.0	237.1	108.7	64	125	76	272	33.1	45.2	8.3	6.6	41.1
41	61.3	176.7	104.0	84	131	80	972	33.2	40.2	6.7	5.7	33.1
52	76.2	220.6	103.0	76	121	75	75	26.7	46.2	7.9	6.0	32.2
32	66.3	166.1	91.3	84	132	81	138	26.6	39.0	7.5	5.7	31.2
20	69.7	137.4	75.2	88	112	44	139	19.9	44.8	6.9	5.6	25.9
20	65.4	164.2	87.7	72	121	65	638	27.1	40.9	7.0	5.6	33.7
29	70.0	162.4	77.0	56	116	64	613	23.4	43.1	7.5	5.2	30.3
18	62.9	151.8	85.0	68	95	58	762	27.0	38.0	7.4	5.8	32.8
26	68.5	144.1	79.6	64	110	70	303	21.6	41.0	6.8	5.7	31.0
33	68.3	204.6	103.8	60	110	66	690	30.9	46.0	7.4	6.1	36.2
55	69.4	193.8	103.0	68	125	82	31	28.3	41.4	7.2	6.0	33.6
53	69.2	172.9	97.1	60	124	79	189	25.5	42.7	6.6	5.9	31.9
28	68.0	161.9	86.9	60	131	69	957	24.6	40.5	7.3	5.7	32.9
28	71.9	174.8	88.0	56	109	64	339	23.8	44.2	7.8	6.0	30.9
37	66.1	169.8	91.5	84	112	79	416	27.4	41.8	7.0	6.1	34.0
40	72.4	213.3	102.9	72	127	72	120	28.7	47.2	7.5	5.9	34.8
33	73.0	198.0	93.1	84	132	74	702	26.2	48.2	7.8	6.0	33.6
26	68.0	173.3	98.9	88	116	81	1252	26.4	42.9	6.7	5.8	31.3
53	68.7	214.5	107.5	56	125	84	288	32.1	42.8	8.2	5.9	37.6
36	70.3	137.1	81.6	64	112	77	176	19.6	40.8	7.1	5.3	27.9
34	63.7	119.5	75.7	56	125	77	277	20.7	42.6	6.6	5.3	26.9
42	71.1	189.1	95.0	56	120	83	649	26.3	44.9	7.4	6.0	36.9
18	65.6	164.7	91.1	60	118	68	113	26.9	41.1	7.0	6.1	34.5
44	68.3	170.1	94.9	64	115	75	656	25.6	44.5	7.3	5.8	32.1
20	66.3	151.0	79.9	72	115	65	172	24.2	44.0	7.1	5.4	30.7

Data Set 1: Health Exam Results (*continued*)

STATDISK:	Data set name for females is Fhealth.
Minitab:	Worksheet name for females is FHEALTH.MTW.
Excel:	Workbook name for females is FHEALTH.XLS.
TI-83/84 Plus:	App name for female data is FHEALTH and the file names are the same as for text files.
Text file names for females:	FAGE, FHT, FWT, FWAST, FPULS, FSYS, FDIAS, FCHOL, FBMI, FLEG, FELBW, FWRST, FARM.

Female	Age	HT	WT	Waist	Pulse	SYS	DIAS	CHOL	BMI	Leg	Elbow	Wrist	Arm
	17	64.3	114.8	67.2	76	104	61	264	19.6	41.6	6.0	4.6	23.6
	32	66.4	149.3	82.5	72	99	64	181	23.8	42.8	6.7	5.5	26.3
	25	62.3	107.8	66.7	88	102	65	267	19.6	39.0	5.7	4.6	26.3
	55	62.3	160.1	93.0	60	114	76	384	29.1	40.2	6.2	5.0	32.6
	27	59.6	127.1	82.6	72	94	58	98	25.2	36.2	5.5	4.8	29.2
	29	63.6	123.1	75.4	68	101	66	62	21.4	43.2	6.0	4.9	26.4
	25	59.8	111.7	73.6	80	108	61	126	22.0	38.7	5.7	5.1	27.9
	12	63.3	156.3	81.4	64	104	41	89	27.5	41.0	6.8	5.5	33.0
	41	67.9	218.8	99.4	68	123	72	531	33.5	43.8	7.8	5.8	38.6
	32	61.4	110.2	67.7	68	93	61	130	20.6	37.3	6.3	5.0	26.5
	31	66.7	188.3	100.7	80	89	56	175	29.9	42.3	6.6	5.2	34.4
	19	64.8	105.4	72.9	76	112	62	44	17.7	39.1	5.7	4.8	23.7
	19	63.1	136.1	85.0	68	107	48	8	24.0	40.3	6.6	5.1	28.4
	23	66.7	182.4	85.7	72	116	62	112	28.9	48.6	7.2	5.6	34.0
	40	66.8	238.4	126.0	96	181	102	462	37.7	33.2	7.0	5.4	35.2
	23	64.7	108.8	74.5	72	98	61	62	18.3	43.4	6.2	5.2	24.7
	27	65.1	119.0	74.5	68	100	53	98	19.8	41.5	6.3	5.3	27.0
	45	61.9	161.9	94.0	72	127	74	447	29.8	40.0	6.8	5.0	35.0
	41	64.3	174.1	92.8	64	107	67	125	29.7	38.2	6.8	4.7	33.1
	56	63.4	181.2	105.5	80	116	71	318	31.7	38.2	6.9	5.4	39.6
	22	60.7	124.3	75.5	64	97	64	325	23.8	38.2	5.9	5.0	27.0
	57	63.4	255.9	126.5	80	155	85	600	44.9	41.0	8.0	5.6	43.8
	24	62.6	106.7	70.0	76	106	59	237	19.2	38.1	6.1	5.0	23.6
	37	60.6	149.9	98.0	76	110	70	173	28.7	38.0	7.0	5.1	34.3
	59	63.5	163.1	104.7	76	105	69	309	28.5	36.0	6.7	5.1	34.4
	40	58.6	94.3	67.8	80	118	82	94	19.3	32.1	5.4	4.2	23.3
	45	60.2	159.7	99.3	104	133	83	280	31.0	31.1	6.4	5.2	35.6
	52	67.6	162.8	91.1	88	113	75	254	25.1	39.4	7.1	5.3	31.8
	31	63.4	130.0	74.5	60	113	66	123	22.8	40.2	5.9	5.1	27.0
	32	64.1	179.9	95.5	76	107	67	596	30.9	39.2	6.2	5.0	32.8
	23	62.7	147.8	79.5	72	95	59	301	26.5	39.0	6.3	4.9	31.0
	23	61.3	112.9	69.1	72	108	72	223	21.2	36.6	5.9	4.7	27.0
	47	58.2	195.6	105.5	88	114	79	293	40.6	27.0	7.5	5.5	41.2
	36	63.2	124.2	78.8	80	104	73	146	21.9	38.5	5.6	4.7	25.5
	34	60.5	135.0	85.7	60	125	73	149	26.0	39.9	6.4	5.2	30.9
	37	65.0	141.4	92.8	72	124	85	149	23.5	37.5	6.1	4.8	27.9
	18	61.8	123.9	72.7	88	92	46	920	22.8	39.7	5.8	5.0	26.5
	29	68.0	135.5	75.9	88	119	81	271	20.7	39.0	6.3	4.9	27.8
	48	67.0	130.4	68.6	124	93	64	207	20.5	41.6	6.0	5.3	23.0
	16	57.0	100.7	68.7	64	106	64	2	21.9	33.8	5.6	4.6	26.4