

DATA COLLECTION AND BOXPLOT

Overview: Your task is to design and administer quantitative data from two separate groups (Appendix B, Data Set 1: Health Exam Results, P. 766 – 767, Male/Female WT column). You will then create a box plot for each group’s data and compare the similarities or differences. You should have a purpose for the experiment you are designing. The conclusions you draw will be based on this purpose. You will work in groups of up to 3.

Your Chapter 3 Project will be graded based on the following guidelines:

- ✓ All student’s full names in project group should be printed.
- ✓ Purpose is clearly described and the survey questions are stated in a typed paragraph (4-6 sentences minimum).
- ✓ Data collected is relevant to purpose and quantified.
- ✓ 5-Number Summary for each gender group is provided.
- ✓ Box plots are accurately calculated and drawn for **each gender group** with work neatly shown.
 - **Outliers are identified.**
 - Minimum, Q1, Median, Q3, and Maximum are labeled.
- ✓ Relevant conclusions to the purpose are drawn from the box plot in **2 typed paragraphs (4-6 sentences minimum)**.

The project is worth 130 points and is **DUE on 10/19/2021. NO EXCEPTIONS.

Topic	Excellent	Adequate	Below Expectations	Inadequate
Purpose	10 points. The purpose is worthwhile, clearly stated, and meets length requirements.	8 points. The purpose is worthwhile, but there are minor flaws in how it is presented.	4 points. The purpose is not worthwhile to investigate, but it is presented with minimal flaws. OR The purpose is worthwhile, but there are many flaws in how it is presented.	0 points. The purpose is not worthwhile and there are many flaws in how it is presented.
Data Collected (each group)	10 points. The data collected is relevant to the stated purpose and will allow for meaningful conclusions to be drawn.	6 points. The data collected is relevant to the stated purpose, but will not necessarily allow for meaningful conclusions to be drawn.	2 points. The data collected is not relevant OR will not allow for meaningful conclusion to be drawn.	0 points. At least one group has less than 30 responses.
Box Plot (each group)	20 points. Box plots are calculated accurately with all work neatly shown, outliers identified, and Minimum, Q1, Median, Q3, and Maximum labeled.	16 points. Box plots are calculated with only a few small mistakes AND correct labeling. OR Box plots are calculated correctly with inadequate labeling or organization.	10 points. Box plots are calculated with several mistakes, but there is clear evidence that the students have an understanding of the general idea of constructing box plots.	0 points. Students show little to no understanding of how to construct a box plot.
Conclusion (10 points for each gender group, 10 points for comparison)	30 points. Relevant conclusions regarding the purpose are drawn using the box plot for support with no logical flaws. AND The conclusion meets the minimum length requirement and contains no grammatical errors.	21 points. Relevant conclusions are drawn using the box plot for support with minimal logical flaws. AND The conclusion meets the minimum length requirement and contains minimal grammatical errors.	15 points. There are some relevant conclusions, but little to no reference to the box plot. AND The conclusion meets the minimum length requirement.	0 points. No relevant conclusions are drawn. AND/OR The conclusion does not meet the minimum length requirement.

Project Report Format (You should follow the sequential ORDER!)

1) Students' Name (10 points)

2) State Purpose (10 points)

3) Type Two Sets of Original Data Values for both groups (10 points/gender group, 20 points total)

4) Five-Number Summary (This will help you to construct the boxplot) (10 points/gender group, 20 points total)

5) Two Box Plots with labeled horizontal and vertical axis (20 points/gender group, 40 point total)

6) Conclusion (One individual conclusion for each group. One comparison conclusion for both group) (10 points/gender group, 10 points for comparison, 30 points total)

Data Sets are in the next page. →

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