



MID-TERM EXAMINATION (UTS)

Mata Kuliah : Statistik Komputasi

Dosen : Muhammad Afif Hendawan, S.Kom., M.T.

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Waktu : 200 Menit

Sifat : Open Book

You will use Pokemon data which can be accessed by this [link](#). Your uploaded work must provide the justification of the calculation!

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Rule:

- You are allowed to use one of these tools, such: Google Spreadsheet, Microsoft Excel, Pandas Python
- You are prohibited to use these several tools: Analysis Toolpak Ms. Excel, SPSS, LISREL, JASP, etc.
- **BE CONFIDENT TO DO YOUR EXAM BY YOURSELF**

1. Complete your Pokemon data! Non-complete data of your Pokemon may affect to your score (50% point discount).
2. Calculate on “HP”,
 - a. Determine the mean, variance, and its standard deviation. **(5 pts)**
 - b. Determine the Q1, Q2, and Q3. **(5 pts)**
 - c. Is there any *outliers*? Mention if any! **(5 pts)**
3. Based on your calculation at No. 1, make these several things:
 - a. Boxplot of “HP” **(10 pts)**
 - b. Histogram of “HP” with the *bins* is 100. **(10 pts)**
4. Based on mean and standard deviation from No. 1, determine
 - a. The *z-score* to Pokemon which has CP value up to 400 **(10 pts)**
 - b. Probability of Pokemon which has DEF more than 60 **(10 pts)**

Note:

- Use 3 decimal rounded for mean and standard deviation
- Use 2 decimal no-rounded for *z-score*.
- Use all decimal no-rounded for probability score



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5. Determine,
- Probability of “CAUGHT” and “FLEE”. **(5 pts)**
 - By choosing Pokemon 10 times randomly, what is the probability of 3 electric Pokemons? **(20 pts)**
 - Use bar chart to represent the distribution of any Pokemons which are caught at Polinema using 10 point scale. **(20 poin)**

Catatan: Gunakan seluruh nilai desimal yang ada.



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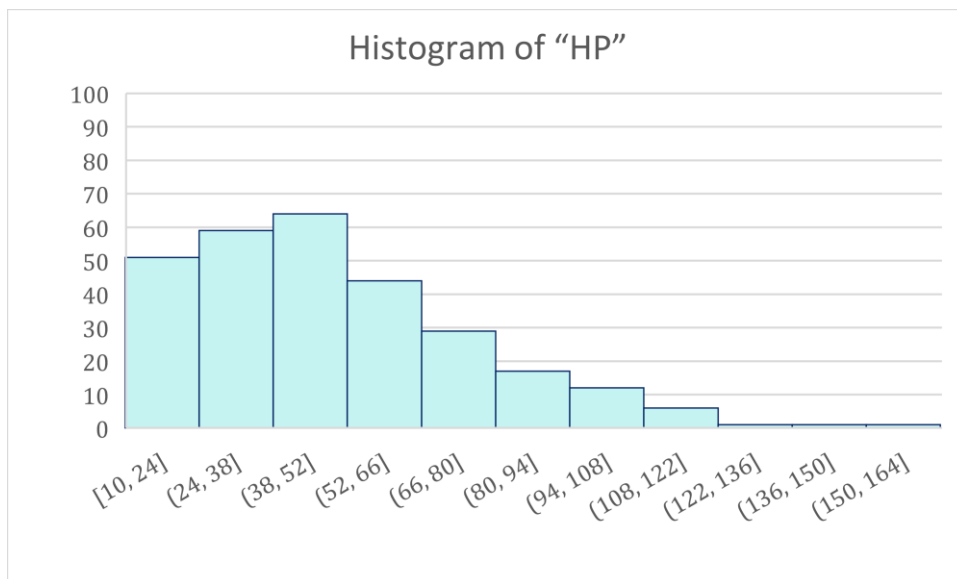
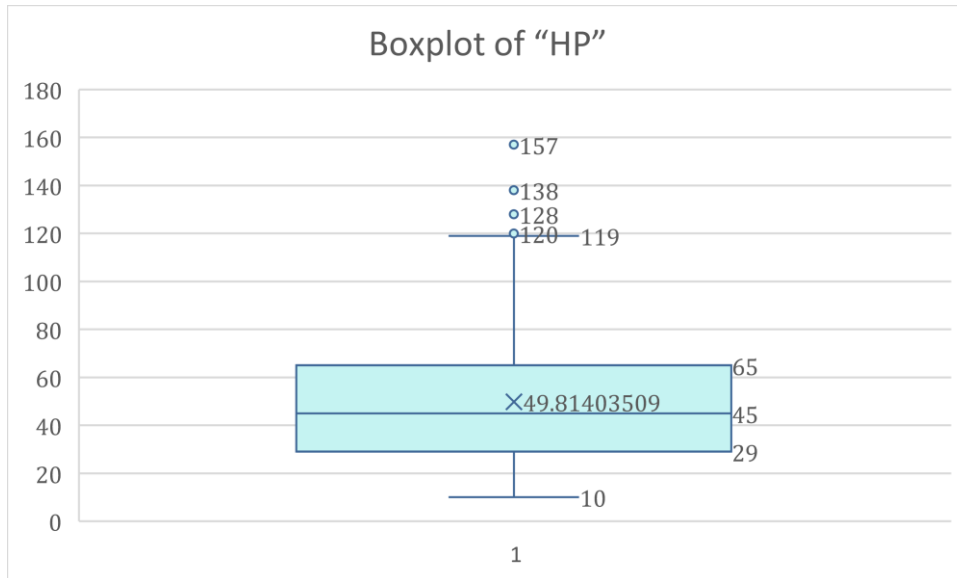
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Name : Natasha Dwi Pramudita
Student ID Number : 2141720147
Class : TI-2I
Number : 19

Number	Answer																												
1	Our class Pokemon data already complete 😊																												
2	<p>Determine the mean, variance, and its standard deviation. Answer:</p> <table><tr><td>mean</td><td>49.81404</td></tr><tr><td>variance</td><td>739.2223</td></tr><tr><td>standard deviation</td><td>27.18864</td></tr></table> <p>Determine the Q1, Q2, and Q3. Answer:</p> <table><tr><td>q1</td><td>29</td></tr><tr><td>q2</td><td>45</td></tr><tr><td>q3</td><td>65</td></tr></table> <p>Is there any <i>outliers</i>? Mention if any! Answer: Yes, there are any outlier, here:</p> <table><tr><td>Pokemon</td><td>HP</td></tr><tr><td>Togedemaru</td><td>120</td></tr><tr><td>Weedle</td><td>120</td></tr><tr><td>Masquerain</td><td>121</td></tr><tr><td>Ninetales</td><td>121</td></tr><tr><td>Furfrou</td><td>128</td></tr><tr><td>Tranquill</td><td>138</td></tr><tr><td>Throh</td><td>157</td></tr></table>	mean	49.81404	variance	739.2223	standard deviation	27.18864	q1	29	q2	45	q3	65	Pokemon	HP	Togedemaru	120	Weedle	120	Masquerain	121	Ninetales	121	Furfrou	128	Tranquill	138	Throh	157
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3



4

Note:

- Use 3 decimal rounded for mean and standard deviation
Mean $\rightarrow 49.814$
Standard deviation $\rightarrow 27.189$
- Use 2 decimal no-rounded for z-score.
- Use all decimal no-rounded for probability score

The z-score to Pokemon which has CP value up to 400



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Pokemon	cp	z-score
Starly	10	-0.79
Ledyba	10	-0.79
Pidove	10	-0.79
Shroomish	10	-0.79
Magikarp	10	-0.79
Snivy	10	-0.79
Wooper	10	-0.79
Vulpix	10	-0.79
Ekans	11	-0.79
Glameow	11	-0.79
Ekans	11	-0.79
Lillipup	12	-0.79
Charmander	12	-0.79
Lillipup	12	-0.79
Charmander	12	-0.79
Squirtle	12	-0.79
Oddish	14	-0.78
Bulbasaur	14	-0.78
Eevee	14	-0.78
Bulbasaur	14	-0.78
Houndour	15	-0.78
Stufful	17	-0.77
Staravia	17	-0.77
Tranquil	18	-0.77
Sunkern	21	-0.75
Nosepass	21	-0.75
Arbok	23	-0.75
Caterpie	25	-0.74
Purrloin	28	-0.73
Hitmontop	28	-0.73
Hoppip	29	-0.73
Starly	29	-0.73
Caterpie	30	-0.72
Lunatone	30	-0.72
Drifblim	31	-0.72
Surskit	32	-0.71
Bunnelby	33	-0.71
Lillipup	34	-0.71
Sewaddle	34	-0.71
Hoppip	35	-0.7
Starly	36	-0.7



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Froakie	37	-0.7
Voltrob	37	-0.7
Yungoos	37	-0.7
Roggenrola	38	-0.69
Panpour	38	-0.69
Sentret	39	-0.69
Sentret	39	-0.69
Flareon	39	-0.69
Magikarp	40	-0.69
Voltrob	40	-0.69
Caterpie	43	-0.67
Arbok	43	-0.67
Stunky	45	-0.67
Popplio	48	-0.66
Karrablast	48	-0.66
Tympole	50	-0.65
Vulpix	51	-0.65
Aaron	52	-0.64
Shroomish	54	-0.63
Tranquill	54	-0.63
Ekans	56	-0.63
Lillipup	57	-0.62
Lillipup	57	-0.62
Cyndaquil	59	-0.62
Caterpie	60	-0.61
Bunnelby	62	-0.61
Ferroseed	62	-0.61
Pikachu	64	-0.6
Starly	65	-0.59
Ledyba	66	-0.59
Bidoof	66	-0.59
Clauncher	66	-0.59
Caterpie	68	-0.58
Hoppip	70	-0.58
Oshawott	70	-0.58
Burmy	71	-0.57
Pidove	71	-0.57
Tepig	71	-0.57
Weedle	72	-0.57
Ledyba	73	-0.57
Caterpie	75	-0.56
Kricketot	75	-0.56
Shelmet	76	-0.55



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Oshawott	77	-0.55
Lillipup	77	-0.55
Kricketot	78	-0.55
Lairon	80	-0.54
Bergmite	80	-0.54
Aron	81	-0.54
Ekans	81	-0.54
Hoppip	82	-0.53
Venipede	84	-0.53
Zubat	85	-0.52
Weedle	87	-0.51
Blitzle	89	-0.51
Togedemaru	90	-0.5
Magikarp	92	-0.5
Tympole	92	-0.5
Pansage	95	-0.49
Grubbin	95	-0.49
Tranquill	96	-0.48
Hoppip	98	-0.47
Vanipeda	98	-0.47
Drowzee	98	-0.47
Poliwag	98	-0.47
diglett	101	-0.46
Froakie	101	-0.46
Caterpie	102	-0.46
Vulpix	102	-0.46
Pidove	104	-0.45
Chinchou	104	-0.45
Weedle	105	-0.45
Magikarp	108	-0.44
Weedle	108	-0.44
Karrablast	108	-0.44
Venonat	108	-0.44
Ekans	109	-0.43
Voltorb	110	-0.43
Pikachu	111	-0.43
Deerling	111	-0.43
Starly	113	-0.42
Wimpod	114	-0.42
Houndour	115	-0.41
Cutterpie	115	-0.41
Cyndaquil	116	-0.41
Aron	117	-0.41



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	Meowth	118	-0.4
	Cyndaquil	120	-0.39
	Surskit	122	-0.39
	Starly	124	-0.38
	Purrloin	124	-0.38
	Glameow	125	-0.38
	Zubat	126	-0.37
	Eevee	129	-0.36
	Clauncher	131	-0.35
	Chinchou	135	-0.34
	Seel	136	-0.34
	Tynamo	137	-0.33
	Froakie	140	-0.32
	Starly	141	-0.32
	Mareanie	141	-0.32
	Surskit	142	-0.31
	Deerling	144	-0.31
	Tynamo	147	-0.3
	Ledyba	152	-0.28
	Slugma	153	-0.27
	Oddish	153	-0.27
	Lillipup	154	-0.27
	Pidove	155	-0.27
	Oddish	156	-0.26
	Yungoos	157	-0.26
	Grubbin	160	-0.25
	Zubat	160	-0.25
	Chinchou	163	-0.24
	Lillipup	163	-0.24
	Ekans	164	-0.23
	Cyndaquil	166	-0.23
	Foongus	166	-0.23
	Patrat	167	-0.22
	Surskit	170	-0.21
	Pidove	170	-0.21
	Dunsparce	172	-0.21
	Tranquill	173	-0.2
	Tranquill	173	-0.2
	Froakie	173	-0.2
	Patrat	177	-0.19
	Ralts	177	-0.19
	Patrat	185	-0.16
	Surskit	186	-0.15



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	Hoothoot	187	-0.15
	Patrat	189	-0.14
	pikachu	189	-0.14
	Chikorita	189	-0.14
	Oddish	190	-0.14
	Ledyba	193	-0.13
	Lairon	193	-0.13
	Mareanie	195	-0.12
	Mareanie	195	-0.12
	Hitmonlee	198	-0.11
	Surskit	199	-0.11
	Teddiursa	203	-0.09
	Teddiursa	204	-0.09
	Pidove	205	-0.09
	Pikachu	211	-0.06
	Oddish	213	-0.06
	Duoduo	217	-0.04
	Pidove	217	-0.04
	Castform	221	-0.03
	Chinchou	225	-0.01
	Zubat	228	0
	Pidove	228	0
	Ekans	230	0.01
	Patrat	231	0.01
	Fletchling	231	0.01
	Oddish	234	0.02
	Voltrob	236	0.03
	Glameow	242	0.05
	Tranquill	243	0.05
	Weedle	243	0.05
	Ledyba	251	0.08
	Tynamo	251	0.08
	Teddiursa	251	0.08
	Aron	251	0.08
	Exeggcute	254	0.09
	Corsola	255	0.1
	Ekans	255	0.1
	Pidove	268	0.14
	Tynamo	268	0.14
	Starly	268	0.14
	Volbeat	268	0.14
	Sawk	270	0.15
	Doduo	274	0.17



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	Ekans	275	0.17
	Popplio	278	0.18
	drownzee	279	0.18
	Primeape	280	0.19
	Feraligatr	287	0.21
	Eevee	288	0.22
	Gastly	289	0.22
	Foongus	289	0.22
	Ekans	303	0.27
	Vulpix	309	0.29
	Purrloin	314	0.31
	diglett	314	0.31
	Buneary	323	0.34
	Nosepass	325	0.35
	Voltrob	326	0.35
	Chinchou	333	0.38
	Elgyem	334	0.38
	Froakie	340	0.41
	Tentacool	342	0.41
	Solrock	350	0.44
	Pansear	365	0.5
	Stufful	367	0.5
	Togedemaru	370	0.51
	Pidove	371	0.52
	Karrablast	376	0.54
	Stufful	378	0.54
	Surskit	382	0.56
	Hitmonlee	390	0.59
	Castform	393	0.6
	Himontop	394	0.6
Probability of Pokemon which has DEF more than 60			
Known: Total Pokemon with DEF > 60 = 200			
P = 200/285 = 0.701754386			
5	Probability of “CAUGHT” and “FLEE”.		
	Total of "Caught"	274	
	Total of "Flee"	11	
P _{Caught} = 274/285 = 0.961403509			
P _{Flee} = 11/285 = 0.038596491			



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By choosing Pokemon 10 times randomly, what is the probability of 3 electric Pokemons?

$$P(X = k) = {}_n C_k * p^k * (1-p)^{(n-k)}$$

$$\begin{aligned} P(X = 3) &= {}_{10} C_3 * (0.2)^3 * (1-0.2)^{(10-3)} \\ &= 120 * 0.008 * 0.2097152 \\ &= 0.201326592 \end{aligned}$$

=BINOM.DIST(3,10,0.2,FALSE)

E		F
Choosing Pokemon 10 times randomly, the probability of 3 electric Pokemons		0.201327



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Use bar chart to represent the distribution of any Pokemons which are caught at Polinema using 10 point scale.

