Practical 02

Report

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- Randomly Collected data samples of undergraduates.

Worksheet 1 ***

↓	C1	C2	C3	C4-T	C5-T	C6
	Student_ID	Score 1	Score 2	Gender	District	
1	1	85	72	Male	Galle	
2	2	60	89	Female	Matale	
3	3	78	55	Male	Jaffna	
4	4	92	84	Female	Colombo	
5	5	47	65	Male	Badulla	
6	6	90	91	Female	Galle	
7	7	66	78	Female	Matale	
8	8	73	50	Male	Colombo	
9	9	59	88	Female	Jaffna	
10	10	82	69	Male	Badulla	
11						
12						

Tally for Discrete Variables: Score 1, Score 2, Gender, District

Score 1	Count	Percent
47	1	10.00
59	1	10.00
60	1	10.00
66	1	10.00
73	1	10.00
78	1	10.00
82	1	10.00
85	1	10.00
90	1	10.00
92	1	10.00
N=	10	

Score 2	Count	Percent
50	1	10.00
55	1	10.00
65	1	10.00
69	1	10.00
72	1	10.00
78	1	10.00
84	1	10.00
88	1	10.00
89	1	10.00
91	1	10.00
N=	10	

Gender	Count	Percent
Female	5	50.00
Male	5	50.00
N=	10	

District	Count	Percent
Badulla	2	20.00
Colombo	2	20.00
Galle	2	20.00
Jaffna	2	20.00
Matale	2	20.00
N=	10	

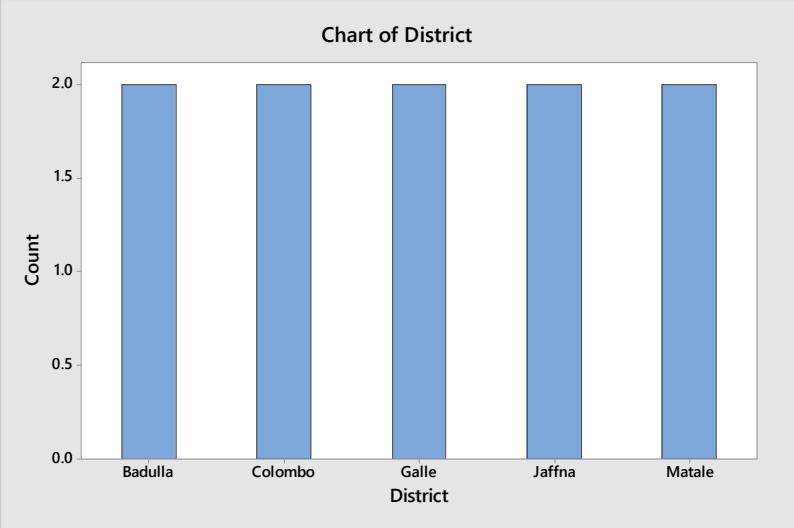


Chart of District
Count
2.0
1.5
1.0
0.5
0.0
Badulla
Colombo
Galle
Jaffna
Matale
District

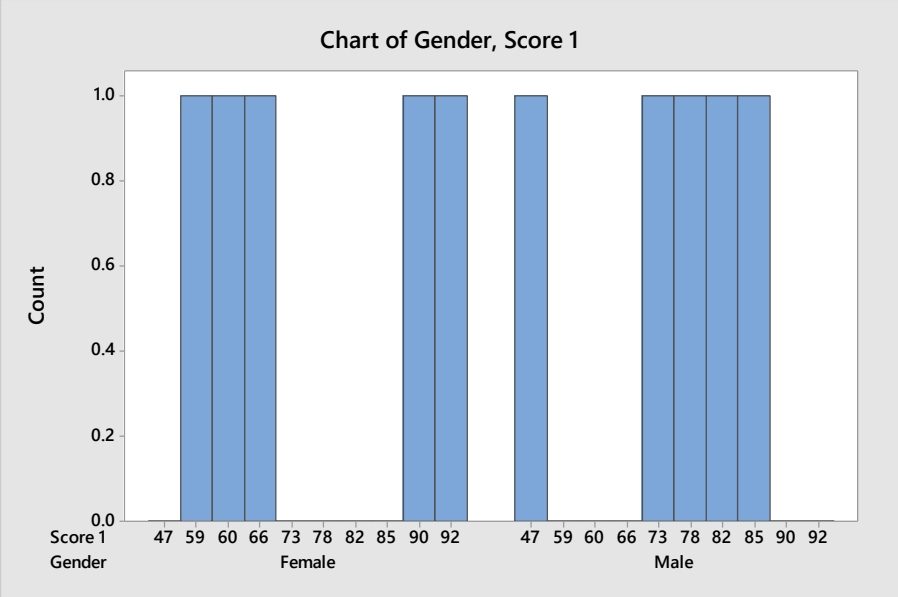
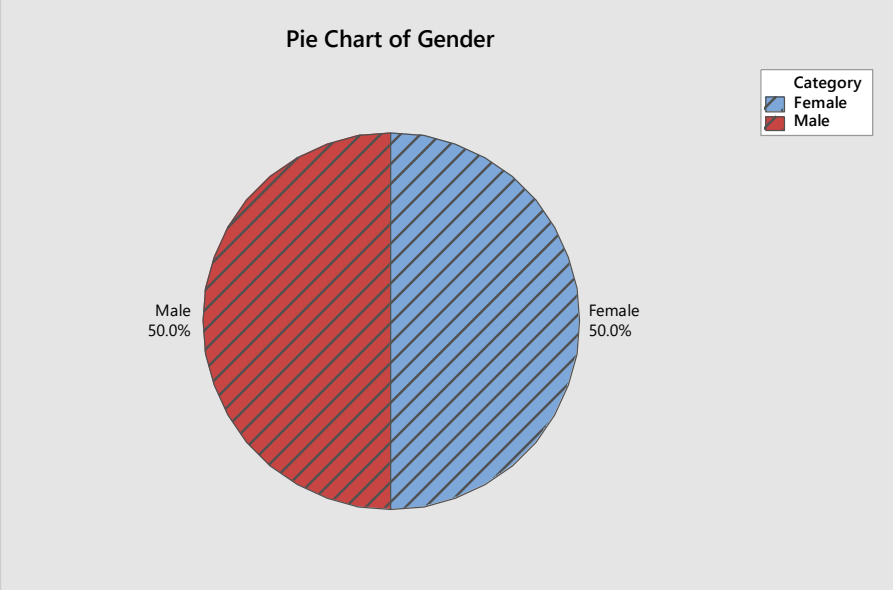
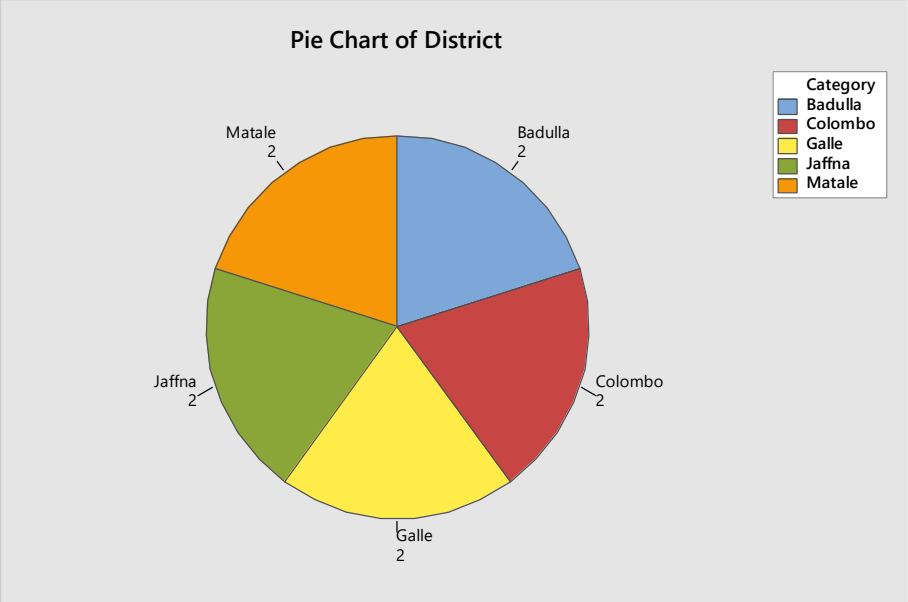


Chart of Gender, Score 1
Count
1.0
0.8
0.6
0.4
0.2
0.0
Score 1
47 59 60 66 73 78 82 85 90 92
47 59 60 66 73 78 82 85 90 92
Gender
Female
Male


Pie Chart of Gender
Category
Female
Male
Male
50.0%
Female
50.0%



- Everyone has unique score
- The data is gender balanced
- Evenly splits in 5 districts

Descriptive Statistics: Score 1

Variable	District	Mean	StDev	Minimum	Q1	Median	Q3	Maximum	IQR	Mode	N for Mode
Score 1	Badulla	64.5	24.7	47.0	*	64.5	*	82.0	*	*	0
	Colombo	82.50	13.44	73.00	*	82.50	*	92.00	*	*	0
	Galle	87.50	3.54	85.00	*	87.50	*	90.00	*	*	0
	Jaffna	68.50	13.44	59.00	*	68.50	*	78.00	*	*	0
	Matale	63.00	4.24	60.00	*	63.00	*	66.00	*	*	0

- Top scores from Galle
- Badulla has largest variation
- Matale has low scores but least variations

Tally for Discrete Variables: Score 2

Score 2	Count	Percent	CumCnt	CumPct
50	1	10.00	1	10.00
55	1	10.00	2	20.00
65	1	10.00	3	30.00
69	1	10.00	4	40.00
72	1	10.00	5	50.00
78	1	10.00	6	60.00
84	1	10.00	7	70.00
88	1	10.00	8	80.00
89	1	10.00	9	90.00
91	1	10.00	10	100.00
N=	10			

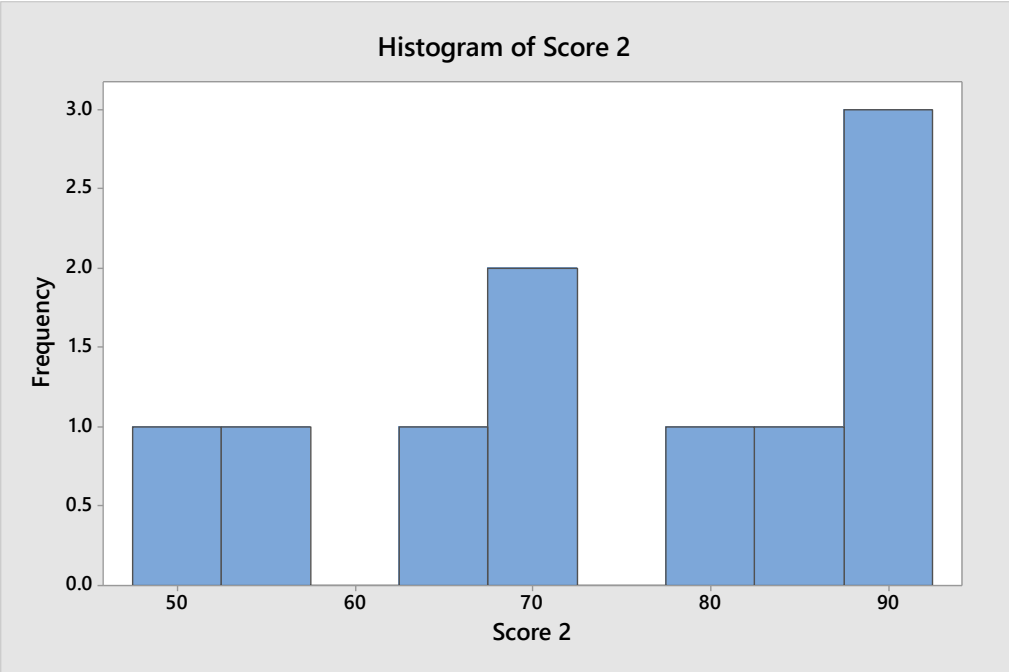
Tally for Discrete Variables: Score 1

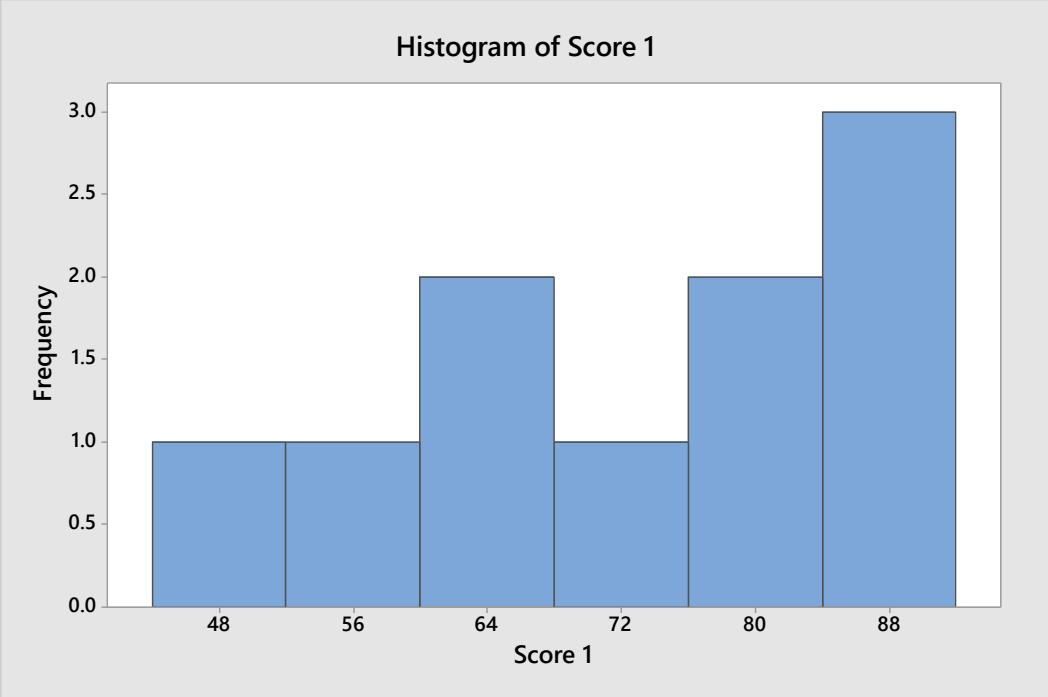
Score 1	Count	Percent	CumCnt	CumPct
47	1	10.00	1	10.00
59	1	10.00	2	20.00
60	1	10.00	3	30.00
66	1	10.00	4	40.00
73	1	10.00	5	50.00
78	1	10.00	6	60.00
82	1	10.00	7	70.00
85	1	10.00	8	80.00
90	1	10.00	9	90.00
92	1	10.00	10	100.00
N=	10			

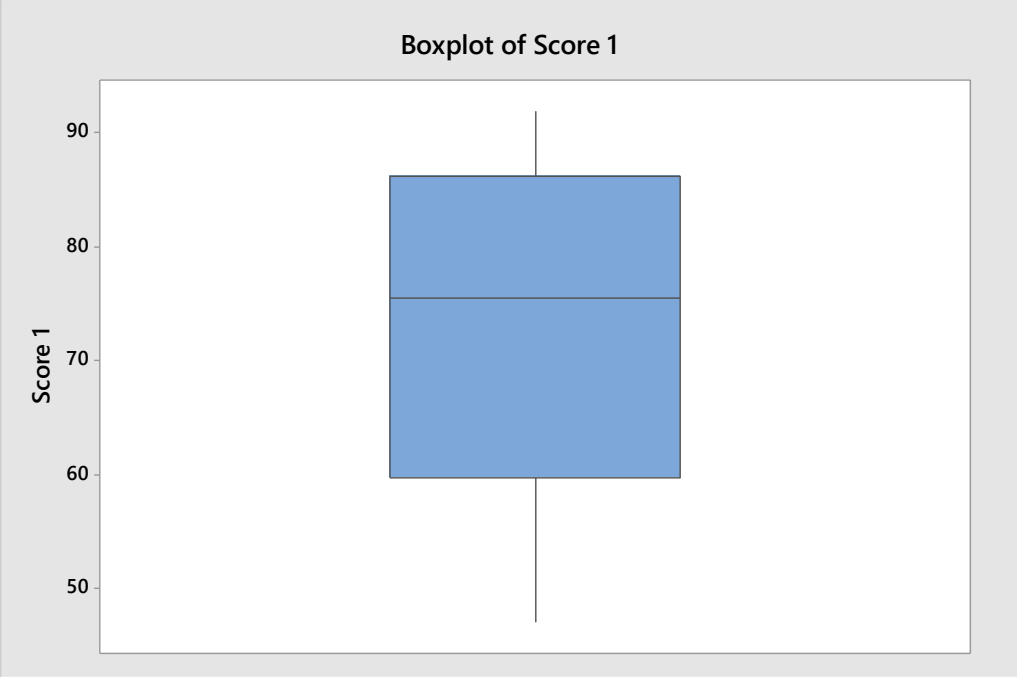
Manually Grouped Frequency Table (by Score Ranges)

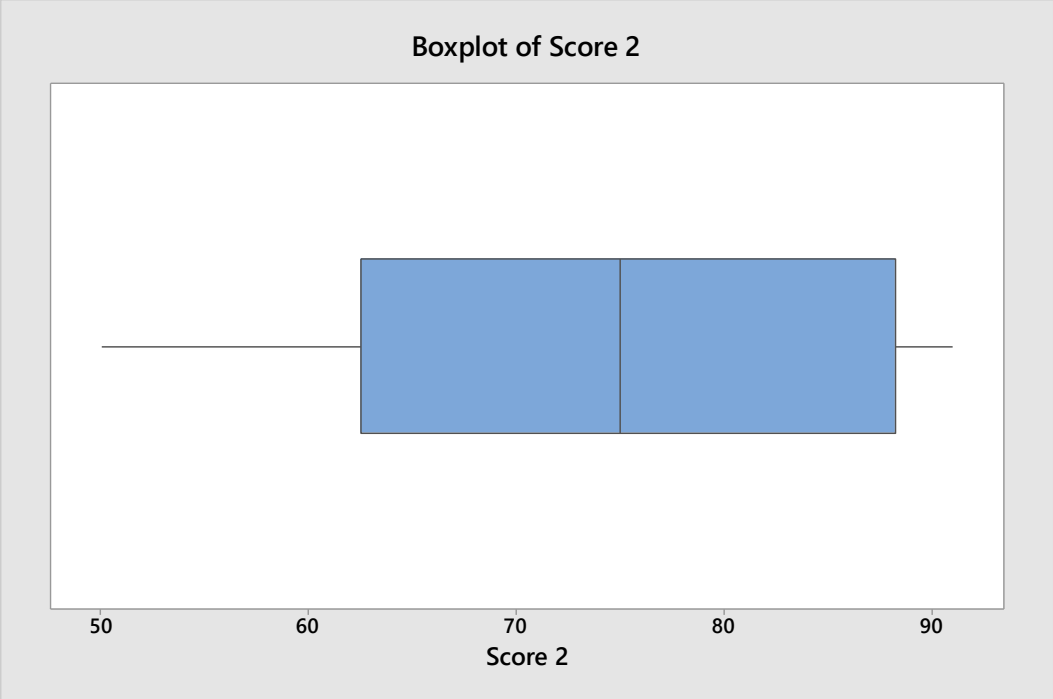
Class Interval	Frequency	Relative Frequency (%)	Cumulative Frequency	
40-49	1	10.0%	1	
50-59	1	10.0%	2	
60-69	2	20.0%	4	
70-79	2	20.0%	6	
80-89	2	20.0%	8	
90-99	2	20.0%	10	

- All scores are unique
- Evenly distributed/balanced




Histogram of Score 1
Frequency
3.0
2.5
2.0
1.5
1.0
0.5
0.0
48
56
64
72
80
88
Score 1


Boxplot of Score 1
Score 1
90
80
70
60
50



Stem-and-Leaf Display: Score 1

```
Stem-and-leaf of Score 1  N  = 10
Leaf Unit = 1.0


 1  4  7
 1  5
 2  5  9
 3  6  0
 4  6  6
 5  7  3
 5  7  8
 4  8  2
 3  8  5
 2  9  02
```

Stem-and-Leaf Display: Score 2 (increment=10)

```
Stem-and-leaf of Score 2  N  = 10
Leaf Unit = 1.0


 2    5  05
 4    6  59
(2)   7  28
 4    8  489
 1    9  1
```

Take a Random Sample

C7	C8	C9	C10-T	C11-T	C12
8	73	50	Male	Colombo	
6	90	91	Female	Galle	
7	66	78	Female	Matale	
5	47	65	Male	Badulla	
9	59	88	Female	Jaffna	
2	60	89	Female	Matale	
3	78	55	Male	Jaffna	

Correlation: Score 1, Score 2

```
Pearson correlation of Score 1 and Score 2 = 0.067
```

Correlation: Student_ID, Score 1, Score 2

```
            Student_ID     Score 1
Score 1         -0.116
Score 2         -0.065       0.067

Cell Contents: Pearson correlation
```

- shows very weak positive linear relationship

Descriptive Statistics: Score 1, Score 2

Variable	Skewness	Kurtosis
Score 1	-0.41	-0.88
Score 2	-0.46	-1.03

Descriptive Statistics: Score 1, Score 2

Variable	Gender	Skewness	Kurtosis
Score 1	Female	0.50	-3.15
	Male	-1.77	3.31
Score 2	Female	-1.10	0.60
	Male	-0.46	-2.11

- **Score 1**: Slightly **left-skewed** (Skewness = -0.41), mild spread to lower scores.
- **Score 2**: Also **left-skewed** (Skewness = -0.46), showing fewer high scores.

Gender-based skewness:

- **Score 1 (Females)**: Slightly right-skewed
- **Score 1 (Males)**: Strong left-skew (more high scores)
- **Score 2 (Females)**: Left-skewed (lower performance tail)
- **Score 2 (Males)**: Also left-skewed but flatter (negative kurtosis)

Conclusion

The dataset shows a well-covered and diversified sample of undergraduates with respect to gender and district. Scores 1 and 2 have an even and symmetric distribution without any dominant values and notable outliers. The absence of a strong correlation between the two scores suggests that they can test separate skill sets or areas of expertise. When analyzed by district, it shows varying performance, with Galle showing the best performance and Badulla the highest variability. Overall, this dataset is suitable for educational and illustrating basic statistical methods due to its structured and organized nature.