Intro to Computational Statistics - Homework 3

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1 Problem 1

1.1 Part A

Output of Table 1.1

Descriptive Statistics for Utilities

Obs	MONTH	YEAR	TELEPHONE	ELECTRICITY	FUEL
1	Aug	88	100.02	41.61	36.93
2	Sep	88	80.62	24.48	45.73
3	Oct	88	62.55	23.90	50.95
4	Nov	88	69.35	48.67	48.93
5	Dec	88	90.79	120.60	56.61
6	Jan	89	40.27	151.23	50.44
7	Feb	89	49.29	144.29	44.50
8	Mar	89	91.50	72.75	40.67
9	Apr	89	93.71	49.63	36.04
10	May	89	46.64	33.22	39.79

1.2 Part B

Telephone
Mean: 72.474
Standard Deviation: 21.919
T-test for being 0: 10.456
Fuel
Mean: 45.059
Standard Deviation: 6.727
T-test for being 0: 21.181

2 Problem 2

2.1 Part A

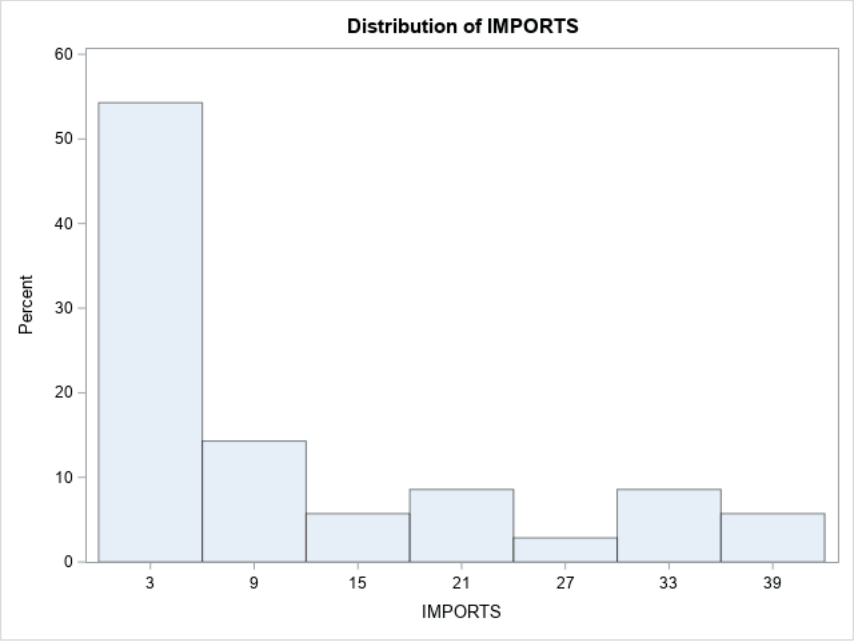
Output of Table 2.1

The SAS System

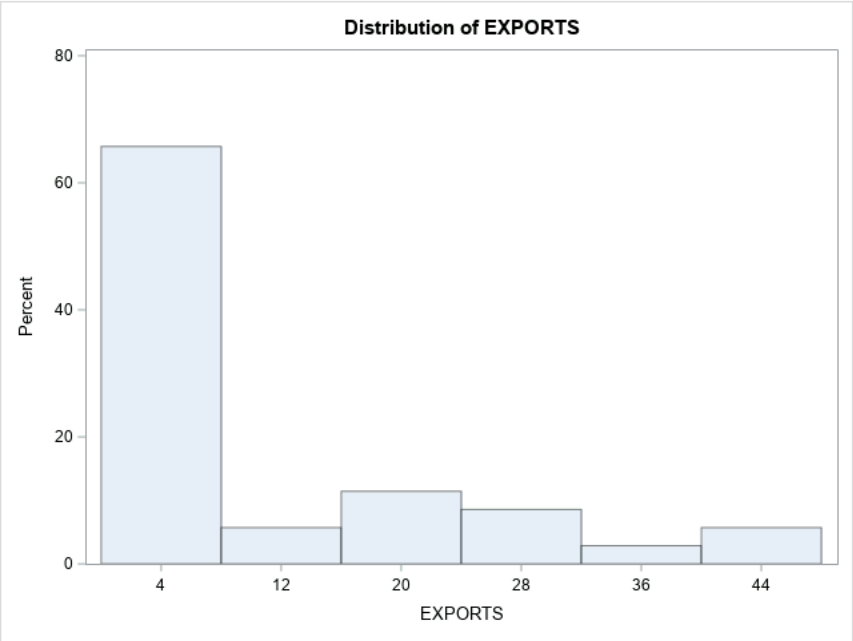
Obs	YEARS	TOTAL	EXPORTS	IMPORTS	Trade_Balance
1	1955	3.15	1.41	1.73	-0.32
2	1956	3.21	1.65	1.56	0.09
3	1957	3.10	1.60	1.51	0.09
4	1958	3.87	1.98	1.89	0.09
5	1959	4.38	2.26	2.12	0.14
6	1960	3.81	1.86	1.95	-0.09
7	1961	2.94	1.49	1.45	0.04
8	1962	2.66	1.49	1.17	0.32
9	1963	2.92	1.65	1.27	0.38
10	1964	3.46	1.92	1.55	0.37

2.2 Part B

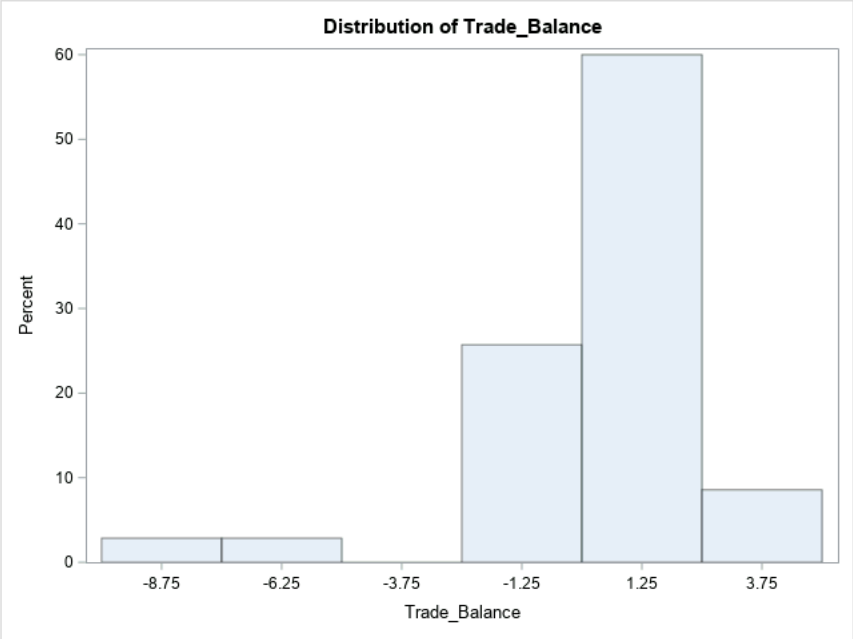
Histogram for Import



Histogram for Export

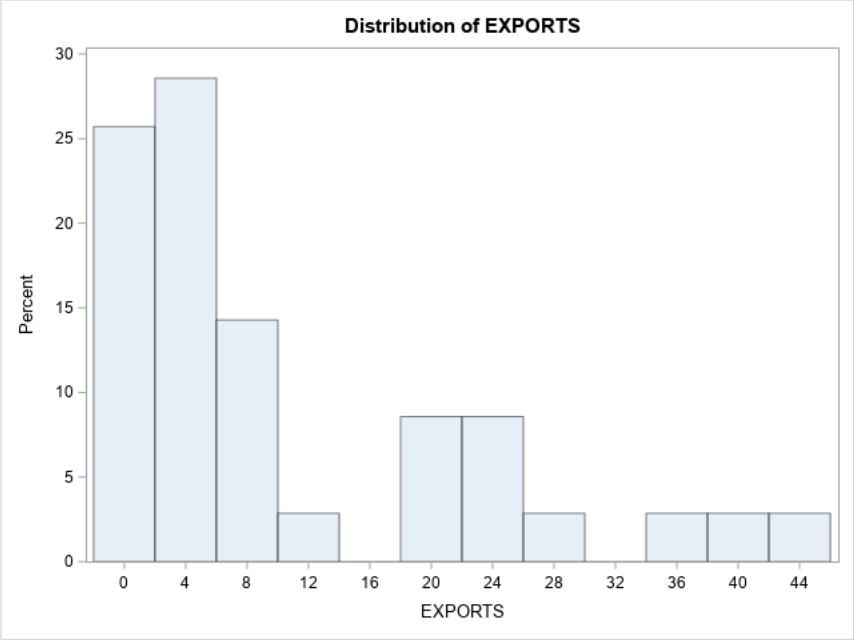


Histogram for Trade Balance



2.3 Part C

Histogram of Export with 4 units



3 Appendix with Code

```
FILENAME utility 'downloads/utility.dat';
DATA utility;
        INFILE utility obs=10;
        INPUT MONTH $ YEAR TELEPHONE ELECTRICITY FUEL;
RUN;
PROC PRINT data=utility; TITLE 'Descriptive Statistics for Utilities';
RUN;

DATA utility2;
        SET utility;
RUN;
PROC univariate data=utility2;
        TITLE 'Descriptive Statistics for Utilities';
        var Telephone Fuel;
RUN;


FILENAME china 'downloads/china.dat';
DATA china;
        INFILE china;
        INPUT YEARS TOTAL EXPORTS IMPORTS;
RUN;
```

```
PROC PRINT DATA=china;
RUN;

DATA china2;
        SET china;
        Trade_Balance = EXPORTS - IMPORTS;
RUN;
PROC PRINT data = china2;
RUN;

DATA china3;
        SET china2;
RUN;
PROC Univariate data = china3;
        var Imports Exports Trade_Balance;
        histogram;
RUN;

DATA china4;
        SET china2;
RUN;
PROC Univariate data = china4;
        var Exports;
        histogram /
        midpoints= 0 to 4 by 4;
RUN;
```