

## Domas Budrys – Assignment 1 CSCI5080

### Question 1 (Time spent: 40min):

a)

Mean: 28.84

Median: 27.0

b)

Mode: 23 and 33

This dataset is bimodal because two highest values have the same count

c)

Mid-Range: 32.5

d)

Q1: 21.0

Q3: 36.0

c)

#### Summary:

Min: 11

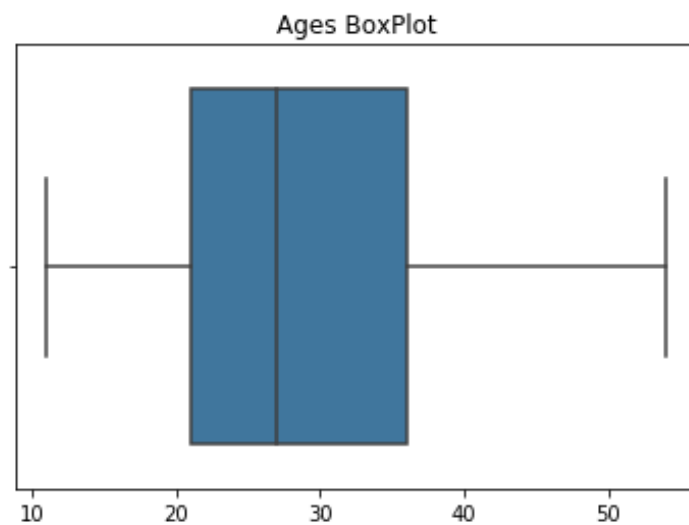
Q1: 21.0

Media: 27.0

Q3: 36.0

Max: 54

d)



**Question 2 (Time spent: 30min):**

**a)**

**Age**

Mean: 45.78

Median: 50.0

Standard Deviation: 13.98

**%Fat**

Mean: 28.25

Median: 30.0

Standard Deviation: 8.775486691156603

**b)**

**Summary Age:**

Min: 20

Q1: 37.0

Median: 50.0

Q3: 57.75

Max: 62

**Summary %Fat:**

Min: 7.6

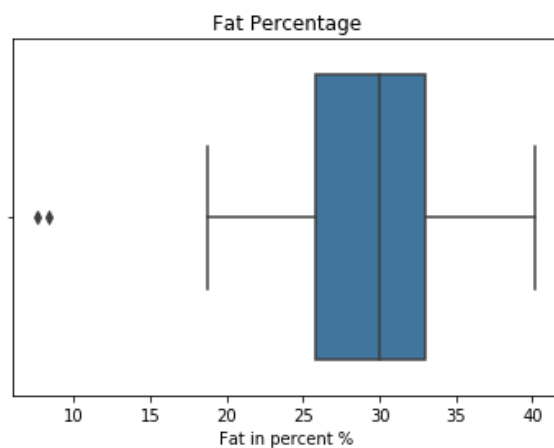
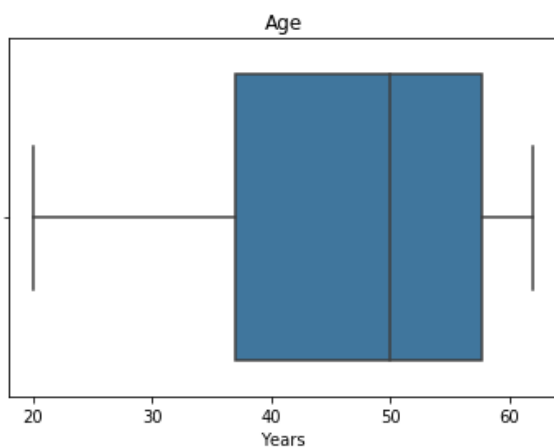
Q1: 25.85

Median: 30.0

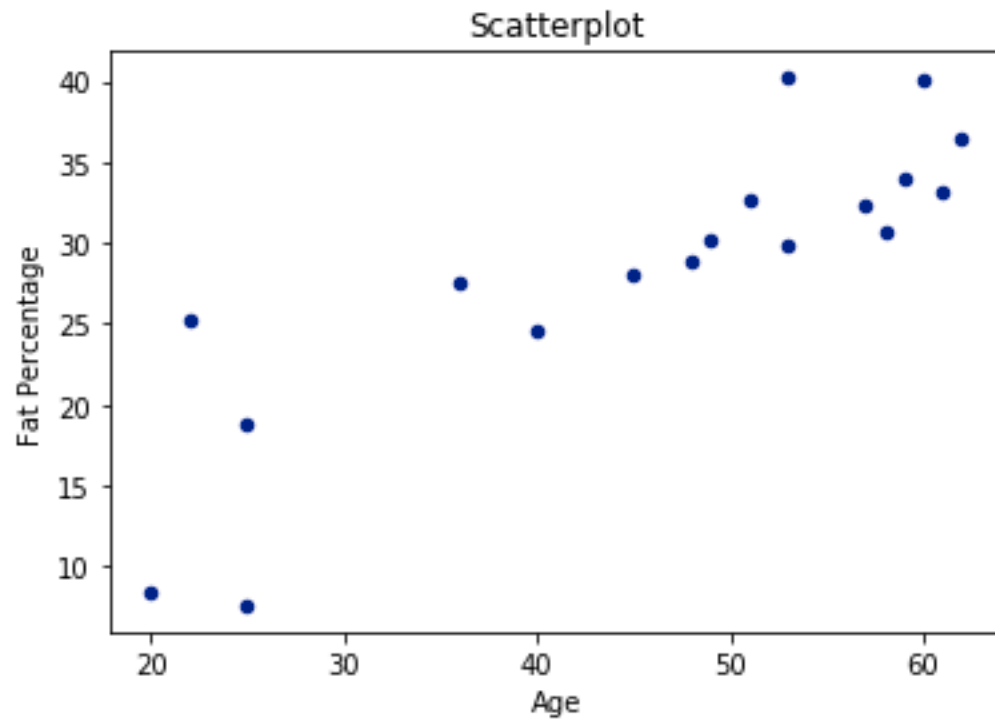
Q3: 33.0

Max: 40.2

**c)**



d)



**Question 3 (Time spent: 45min):**

a)

Euclidean distance: 6.708

b)

Manhattan distance: 11

c)

Minkowski distance: 6.153

d)

Supremum distance 6

**Question 4 (Time spent: 1h 45min):**

**a)**

	Euclidean	Manhattan	Supremum	Cosine
<b>x1</b>	0.424264	0.6	0.3	0.999921
<b>x2</b>	0.806226	0.9	0.8	0.978933
<b>x3</b>	0.500000	0.7	0.4	0.970850
<b>x4</b>	0.141421	0.2	0.1	0.999985
<b>x5</b>	0.282843	0.4	0.2	0.989848

Euclidean distance rank: x<sub>4</sub>, x<sub>5</sub>, x<sub>1</sub>, x<sub>3</sub>, x<sub>2</sub>

Manhattan distance rank: x<sub>4</sub>, x<sub>5</sub>, x<sub>1</sub>, x<sub>3</sub>, x<sub>2</sub>

Supremum distance rank: x<sub>4</sub>, x<sub>5</sub>, x<sub>1</sub>, x<sub>3</sub>, x<sub>2</sub>

Cosine similarity rank: x<sub>3</sub>, x<sub>2</sub>, x<sub>5</sub>, x<sub>1</sub>, x<sub>4</sub>

**b)**

**Normalized data:**

	A1	A2
<b>x</b>	0.654931	0.755689
<b>x1</b>	0.664364	0.747409
<b>x2</b>	0.795432	0.606043
<b>x3</b>	0.816968	0.576683
<b>x4</b>	0.650791	0.759257
<b>x5</b>	0.755689	0.654931

**Rank:**

	Euclidean
<b>x1</b>	0.092171
<b>x2</b>	0.806226
<b>x3</b>	0.500000
<b>x4</b>	0.141421
<b>x5</b>	0.282843

Euclidean distance rank: x<sub>1</sub>, x<sub>4</sub>, x<sub>5</sub>, x<sub>3</sub>, x<sub>2</sub>