

Exercise 1)

9/

STATLOG DATA SET

58000 Samples

The data set involves input RV of dimensionality 9 consisting of features $A_1, A_2, A_3, A_4, A_5, A_6, A_7, A_8, A_9$ and output RV which is qualitative.

The output can take one of the following values.

{ Rad Flow, Fpv Close, Fpv Open, High, Bypass, Bpv Close, Bpv Open }. The output describes the flight formation of the shuttle. A_1 describes the time, while A_9 the label of the formation. For the rest, only the range is known.

→ COMPUTER HARDWARE DATA-SET

209 Samples.

Input of dimensionality 10. The output denotes the estimated relative performance and takes values from \mathbb{Z} . The attributes of the data set will be described below.

Attribute no.	Label	Description
1	VN	vendor name
2	MN	model name
3	MYCT	machine cycle-time in nanoseconds
4	MMIN	minimum main memory in kB
5	MMAX	maximum main memory in kB
6	CACH	cache memory in kB
7	CHMIN	minimum channels in units
8	CHMAX	maximum channels in units
9	PRP	published relative performance from the original article

Output 10 ERP estimated relative performance.

→ b) STATLOG DATA SET

$$D = \{(x_i, y_i)\}_{i=1}^{58000}$$

where $x_i =$

$$\begin{bmatrix} A_1 \\ A_2 \\ A_3 \\ A_4 \\ A_5 \\ A_6 \\ A_7 \\ A_8 \\ A_9 \end{bmatrix}$$

$$A_1 \in [27, 126]$$

$$A_2 \in [-4821, 5075]$$

$$A_3 \in [21, 149]$$

$$A_4 \in [-3939, 3830]$$

$$A_5 \in [-188, 436]$$

$$A_6 \in [-26739, 15164]$$

$$A_7 \in [-48, 105]$$

$$A_8 \in [-353, 270]$$

$$A_9 \in [-356, 266]$$

and $y_i \in \{ \text{Rod Flow, Fpv close, Fpv Open, High, Bypass, Bpv close, Bpv open} \}$

→ CH DATA SET

$$D = \{(x_i, y_i)\}_{i=1}^{209}$$

where $x_i =$

$$\begin{bmatrix} a \\ b \\ c \\ d \\ e \\ f \\ g \\ h \\ i \end{bmatrix}$$

and $x_i \in \mathbb{Z}^9$

$$y_i \in \mathbb{Z}$$

c) → What's the estimated relative performance of a computer with all its hardware specification?

The Solution uses a supervised ML algorithm in regression

→ What's the type of a statlog given all its characteristics?

The Solution uses a supervised classification ML algorithm