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## Car Evaluation Data Set

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**Abstract:** Derived from simple hierarchical decision model, this database may be useful for testing constructive induction and structure discovery methods.



<b>Data Set Characteristics:</b>	Multivariate	<b>Number of Instances:</b>	1728	<b>Area:</b>	N/A
<b>Attribute Characteristics:</b>	Categorical	<b>Number of Attributes:</b>	6	<b>Date Donated</b>	1997-06-01
<b>Associated Tasks:</b>	Classification	<b>Missing Values?</b>	No	<b>Number of Web Hits:</b>	789616

### Source:

Creator:

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### Data Set Information:

Car Evaluation Database was derived from a simple hierarchical decision model originally developed for the demonstration of DEX, M. Bohanec, V. Rajkovic: Expert system for decision making. Sistemica 1(1), pp. 145-157, 1990.). The model evaluates cars according to the following concept structure:

- CAR car acceptability
  - . PRICE overall price
  - . . buying buying price
  - . . maint price of the maintenance
  - . TECH technical characteristics
  - . . COMFORT comfort
  - . . . doors number of doors
  - . . . persons capacity in terms of persons to carry
  - . . . lug\_boot the size of luggage boot
  - . . . safety estimated safety of the car

Input attributes are printed in lowercase. Besides the target concept (CAR), the model includes three intermediate concepts: PRICE, TECH, COMFORT. Every concept is in the original model related to its lower level descendants by a set of examples (for these examples sets see [\[Web Link\]](#)).

The Car Evaluation Database contains examples with the structural information removed, i.e., directly relates CAR to the six input attributes: buying, maint, doors, persons, lug\_boot, safety.

Because of known underlying concept structure, this database may be particularly useful for testing constructive induction and structure discovery methods.

## Attribute Information:

Class Values:

unacc, acc, good, vgood

Attributes:

buying: vhigh, high, med, low.

maint: vhigh, high, med, low.

doors: 2, 3, 4, 5more.

persons: 2, 4, more.

lug\_boot: small, med, big.

safety: low, med, high.

## Relevant Papers:

M. Bohanec and V. Rajkovic: Knowledge acquisition and explanation for multi-attribute decision making. In 8th Intl Workshop on Expert Systems and their Applications, Avignon, France. pages 59-78, 1988.

[\[Web Link\]](#)

B. Zupan, M. Bohanec, I. Bratko, J. Demsar: Machine learning by function decomposition. ICML-97, Nashville, TN. 1997 (to appear)

[\[Web Link\]](#)

## Papers That Cite This Data Set<sup>1</sup>:



Qingping Tao Ph. D. [MAKING EFFICIENT LEARNING ALGORITHMS WITH EXPONENTIALLY MANY FEATURES](#).  
 Qingping Tao A DISSERTATION Faculty of The Graduate College University of Nebraska In Partial Fulfillment of Requirements. 2004. [\[View Context\]](#).

Jianbin Tan and David L. Dowe. [MML Inference of Decision Graphs with Multi-way Joins and Dynamic Attributes](#). Australian Conference on Artificial Intelligence. 2003. [\[View Context\]](#).

Daniel J. Lizotte and Omid Madani and Russell Greiner. [Budgeted Learning of Naive-Bayes Classifiers](#). UAI. 2003. [\[View Context\]](#).

Marc Sebban and Richard Nock and Stéphane Lallich. [Stopping Criterion for Boosting-Based Data Reduction Techniques: from Binary to Multiclass Problem](#). Journal of Machine Learning Research, 3. 2002. [\[View Context\]](#).

Nikunj C. Oza and Stuart J. Russell. [Experimental comparisons of online and batch versions of bagging and boosting](#). KDD. 2001. [\[View Context\]](#).

Marc Sebban and Richard Nock and Jean-Hugues Chauchat and Ricco Rakotomalala. [Impact of learning set quality and size on decision tree performances](#). Int. J. Comput. Syst. Signal, 1. 2000. [\[View Context\]](#).

Iztok Savnik and Peter A. Flach. [Discovery of multivalued dependencies from relations](#). Intell. Data Anal, 4. 2000. [\[View Context\]](#).

Jie Cheng and Russell Greiner. [Comparing Bayesian Network Classifiers](#). UAI. 1999. [\[View Context\]](#).

Zhiqiang Yang and Sheng Zhong and Rebecca N. Wright. [Privacy-Preserving Classification of Customer Data without Loss of Accuracy](#). Computer Science Department, Stevens Institute of Technology. [\[View Context\]](#).

Jos'e L. Balc'azar. [Rules with Bounded Negations and the Coverage Inference Scheme](#). Dept. LSI, UPC. [\[View Context\]](#).

Shi Zhong and Weiyu Tang and Taghi M. Khoshgoftaar. [Boosted Noise Filters for Identifying Mislabeled Data](#). Department of Computer Science and Engineering Florida Atlantic University. [\[View Context\]](#).

Hyunwoo Kim and Wei-Yin Loh. [Classification Trees with Bivariate Linear Discriminant Node Models](#). Department of Statistics Department of Statistics University of Tennessee University of Wisconsin. [\[View Context\]](#).

Daniel J. Lizotte. [Library Release Form Name of Author](#). Budgeted Learning of Naive Bayes Classifiers. [\[View Context\]](#).

Nikunj C. Oza and Stuart J. Russell. [Online Bagging and Boosting](#). Computer Science Division University of California. [\[View Context\]](#).

Daniel J. Lizotte and Omid Madani and Russell Greiner. [Budgeted Learning, Part II: The Naive-Bayes Case](#). Department of Computing Science University of Alberta. [\[View Context\]](#).

Huan Liu. [A Family of Efficient Rule Generators](#). Department of Information Systems and Computer Science National University of Singapore. [\[View Context\]](#).

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