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Appendix B

Database Systems

The systems in this list were chosen because of their ubiquity, their historial interest, their potential for experimentation, or their significance for further study. Other sources for references to database and file systems can be obtained from commercial software catalogs (DATAPRO, Auerbach, ICP Quarterly) or from surveys in computer magazines, for example, Byrnes[69] or Steig[72]. CODASYL[71] contains a detailed review of GIS, MARKIV, NIPS/FFS, TDMS, UL/1, COBOL, DBIG, IDS, IMS, and SC-1; Martin in Nance[75] surveyed STAIRS, DIALOG, DATA CENTRAL, ORBIT used for MEDLINE, BASIS, SPIRES, LEADER, RECON,RIQS, INTREX, and NASIS. Kim[79] surveyed relational DBMS' and Wiederhold[82] includes descriptions of distributed DBMS efforts. CODASYL[76] provides guidelines for system selection. Cuadra[79] produces a listing of on-line databases.

Corporate system-selection analyses provide interesting insights into the importance given to certain system features. The commercial systems included below vary in price from several hundred dollars total to several thousand dollars per month.

Name	Year	Developer location	Computer	Type and features
ACCENT R	1981	National Information Syst, Cupertino CA	DEC10/20	Com DBMS slc rel stq sch
ADABAS	1971	software ag Darmstadt FRG	IBM360/370 Siemens	Com DBMS hlc stq sch drf cip pri rec Atre[80]
ADEPT	1969	System Dev Corp Santa Monica CA	IBM360-50	Exp DBMS slc nlq(CONVERSE) pri Weissman[69]
ADMINS	1966	MIT&ADMINS inc Cambridge MA	DEC 11, VAX	DBMS slc sch rel trg McIntosh[68]
ALPHA	1971	IBM Research San Jose CA		Pro DBL slc rel Codd in Codd[71]

Name	Year	Developer location	Computer	Type and features
AMBASE	1979	Amcor Computer Corp Louisville KY	DEC 11 (RSTS)	Com DBMS sch isf
AMIGOS	1970	Comress Inc Rockville MD	IBM360/370	Com FMS hlc isf
APPEL IV	1974	SIS Paris France	IBM360/370 Burr.500/700	Com DBMS hlc hie drf isf
ASI/INQ	1975	Applications Softw. Torrance CA	IBM360/370	Com QUS for DL/1 slc hie stq
ASI/ST	1969	Applications Softw. Torrance CA	IBM360/370 Univac70	Com QUS slc rpg tbq sch *for* sqf, isf, IMS, TOTAL
Ass. PL	1967	General Motors Warren MI	IBM360-67	Inst DBMS hlp(PL/1) rnf gra Dodd[66]
AUTONOTE	1969	Univ of Michigan Ann Arbor MI	IBM360/370 (MTS)	Exp SATDBMS slc txt sch sqf drf Reitman[69]
BASIS	1970	Batelle Mem Labs Columbus OH	CDC6400 DEC 10/20,VAX IBM 370 UNIVAC1100	Inst IRS stq bib rpg Fried in Walker[71]
BEAST	1968	Brookings Inst Washington DC	DEC PDP10	Inst SATDBMS slc sch sqf Bean[68]
BIS	1967	Am Tel &Tel New York NY	IBM360	Inst DBMS hlc hie sch Benner[67]
CAFS	1976	ICL Stevenage UK		Dev DBCMP rel Babb[79]
C-10	1967	MITRE Corp Bedford MA	IBM1410	Dev DBMS slc hie sqf Steil[67]
CASSM	1975	Univ of Florida Gainesville FL		Exp DBCMP Su[79] Hawthorn[82]
CDMS	1969	System Dev Corp Santa Monica CA	IBM360/370	Com DBMS service slc irq ixf *see* TDMS
CDMS	1974	Digital Eq Corp Maynard MA	DEC 11	Com DBMS slc hie trf *see* MUMPS
CFS	1980	Carnegie-Mellon U. Pittsburg PA	DEC LSI-11s	Exp DFMS
CIA	1982	Computer Invest. Adv. Sewickley PA	Apple	Com DBMS 1-rel alg hlc(BASIC) rpg sch isf
COGENT	1969	Comp Sciences Corp Los Angeles CA	IBM360/370 Univac1100 IBM7090/94	Com DPG hlp(COBOL) sch hie isf ixf

Name		Developer	Computer	Type and features
	Year	location		
CONVERSE		System Dev Corp	IBM360-67	Exp QUS net nlq vrf
	1967	Santa Monica CA	ANFSQ32	Kellogg[68], in SIGIR[71]
COSTAR		Mass Gen Hospital	DEC PDP15,11	SATBMS slc trf(MUMPS)
	1978	Boston MA	Tandem	Barnett[79]
CREATE		Complete Computer	DataGeneral	Com DPG ixf pri
	1975	Sys, Horsham PA		
CREATE/3000		CRI Inc	HP 3000	Com DBMS hlc rel stq ixf
	1977	Mountain View CA		
CZAR		Crown Zellerbach	IBM360/370	Inst QUS hlc sch isf
	1970	San Francisco CA		Palmer[75]
DATA ANALYZER		Program Prod.	IBM360/370	Com IRS slc rpg sch sqf
	1971	Nanuet NY		isf
DATA COMPUTER		Comp Corp of Am	PDP10	Dev DBMS hlc hie stq
	1971	Cambridge MA	(TENEX)	vrf *for* ARPAnet
DATACOM		Aplied Data Res.	IBM360/370	Com DBMS hlc sch sqf
	1970	Dallas TX		ixf cpr
DATACATALOG		Synergetics	IBM370 OS,DOS	Com DDICT slc rpg sch isf
	1974	Bedford MA	UNIVAC	DMS1100 IDMS IMS S2000
DATAMAN		Dataman Ltd	IBM360/370	Com FMS slc rpg sch sqf
	1975	Calgary Alberta		
DATAMANAGER		MSP London UK &	IBM360/370	Com DDICT slc rpg sch
	1976	Lexington MA		ADABAS IMS MARKIV
				SYSTEM 2000 TOTAL
DATAMASTER		Microsoft	Apple	Com FMS rpg sch sqf
	1980	Seattle WA	8080	
DATASAAB		Saab-Scania AB	SAAB D22/D23	Com DBMS hlp(COBOL)
	1974	Linkoping Sweden		net sch rnf pri Bubenko[75]
DBC		Ohio State&UNIVAC		Dev DBCMP sch ixf
	1978	Columbus OH		Banerjee[79], Hawthorn[82]
DBMS		Prime Computer Inc	Prime	Com DBMS hlp net sch
	1977	Wellesly Hills MA		stq(IQL) rnf rec pri
DBMS10/20		Digital Eq Corp	DEC 10/20	Com DBMS hlc net(1973)
	1973	Marlboro MA		sch stq(IQL) rnf rec pri
DBMS11		Digital Eq Corp	DEC 11	Com DBMS hlc net(1973)
	1979	Marlboro MA		sch rnf
DBMS990		Texas Instruments	Ti990	Com FMS hic(PASCAL CO-
	1980	Austin TX		BOL FORTRAN) hie-tbq isf

Name	Year	Developer location	Computer	Type and features
DBMS1900	1974	ICL London England	ICL 1903	Com DBMS hlc sch isf pri rec
DBOMP	1970	IBM White Plains NY	IBM360/370	Com BOMP net stq DL/1 files; CFMS *for* isf
DBS90	1972	Sperry Rand GmbH Frankfurt a/M FRG	Univac90	Com BOMP hlc(COBOL) net
DB/DC	1975	IBM White Plains NY	IBM360/370 IMS	Com DDICT slc sch rpg (CMIS *for manufacturing*)
DIALOG	1967	Lockheed Res Corp Palo Alto CA	IBM360	Com IRS *service* slc irq hie bib Walker[71]
DIRECT	1977	Northwestern Univ Evanston IL		Pro DBCMP DeWitt[79] Hawthorn[82]
DISAM	1975	Four Phase Systems Cupertino CA	4phase70	Com FS *for* DDBMS hlp(COBOL) isf ixf
DL/1	1968	IBM White Plains NY	IBM360/370	Com FMS hlc sch hie sqf isf drf stq(CICS)
DM1, 5 *also* SC-1	1966	Auerbach Philadelphia PA	Univac418 IBM360/370	Com DBMS slc hie rpg sch ixf CODASYL[71]
DMS1100, 90	1971	Univac Minneapolis MN	Univac1100 Univac90	Com DBMS hlp(COBOL) net(1969) rnf rec vie
DMS170	1977	Control Data Corp Minneapolis MN	Cyber170	Com DBMS hie sch sqf *derived from* (MARS) isf drf
DMS/1700	1975	Dedicated Systems Chicago IL	Burr.1700	Com FMS ixf
DMS II	1972	Burroughs Pasadena CA	B1700 *to* 7700	Com DBMS hlp (COBOL, ALGOL) net sch sqf isf ixf cpr rec
DMS IV *based on* IDS	1972	Honeywell Inf Sys Phoeniz AZ	H60	Com DBMS hlp(COBOL) net(1973) rpg rnf rec
DPL *also* IPL	1976	National Information Syst, Cupertino CA	DEC10/20	Com DBMS hlc(FORTRAN COBOL) sch isf pri
DYL250	1971	Dylakor Comp Syst Encino CA	IBM360/370	Com FMS slc rpg stq sqf isf
EDMS	1969	Control Data Corp Brussels Belgium	CDC6400 Cyber	Com DBMS hlc(FORTRAN) stq sch(ANSII) isf Nijssen[77]
EDEN	1982	Univ of Washington Seattle WA	DEC VAX	Exp DFMS obj Jessop[82]

Name	Year	Developer location	Computer	Type and features
FACETS *was* PRISM	1981	Synergistics Bedford MA	IBM 370	Com DDICT slc rpg
FOCUS		Information Builders New York 10001 NY	IBM 370 CMS,TSO	Com QUS irq rpg isf,DL/1,IDMS pri
FORDATA	1974	CSIRO Canberra Australia	CDC CYBER76	Inst DBMS hlp(FORTRAN) net sch
FORIMS	1970	Nippon Univac Tokyo Japan	Univac1100	Dev DBMS hlc(FORTRAN) net ixf rec
FORTE	1959	Burroughs Corp Paoli PA	B2500/3500 B1700-7700	Com FMS hlc(COBOL) sqf isf drf ixf rnf Chapin[69]
FRAMIS	1977	Lawrence Liv.Lab. Livermore CA	CDC 7600 CRAY DEC VAX(VMS)	Dev DBMS rel alg stq rnf(CODASYL)
GIM	1967	TRW Systems Redondo Beach CA	IBM7094,360/ 370 Univac1100 Honeywell6000	Com QUS slc stq sch rec drf rng Nelson[67]
GIS	1966	IBM White Plains NY	IBM360/370	Com QUS hlc(COBOL, PL/1) hie stq sch sqf isf
GMIS	1975	MIT Sloan School& IBM, Cambridge MA	IBM370 (XRM)	Dev SATDBMS(Dec.supp.) rel vrf Donovan[75]
HOPS	1975	Technicon Haifa Israel	Burroughs 126	Exp DBMS hie trf Reiter in Kerr[75]
IDM 500	1981	Britton-Lee Los Gatos CA	VAX *on* IEEE-488 bus *or* intlgnt.term.	Com DBCMP rel isf,ixf pri
IDMS	1972	Cullinane Corp Westwood MA	IBM360/370 ICL1902 Univac70,90 Siemens4004	Com DBMS hlp(COBOL) nlq(ROBOT) rpg (CULPRIT) net(1973+) sch DDICT drf rec
IDS I, II	1962	Honeywell Inf Sys Phoeniz AZ	H200, H60, H6000	Com DBMS hlp(COBOL) net(73) rnf rec Bachman[66]
IDP EDMS	1978	Honeywell *was* XDS Los Angeles 90045 CA	H66 Sigma 6,7,9	Com DBMS hlc(COBOL) net rnf ixf sch rec
IFIP *also* RIM	1978	Boeing Computer Co Seattle WA	DEC VAX IBM	SATDBMS *for* CAD/CAM net(1978) hlp(FORTRAN)
IMAGE	1974	Hewlett-Packard Santa Clara CA	HP3000, HP2100	Com DBMS hlc sch pri stq net(2 level: drf, rnf)
IMARS	1971	Computeria Inc Braintree MA	DEC PDP10	Com QUS slc stq rpg rec

Name	Year	Developer location	Computer	Type and features
IMS-2/VS	1968	IBM White Plains NY	IBM360/370	Com DBMS hlc *multi*-hie sch(DL/1) stq rec(-VS)
INFOL	1966	Control Data Corp Sunnyvale CA	CDC3600 CDC3800	Com DBMS slc rpg sqf
INFOS	1975	Data General Southboro MA	DG Nova, Eclipse	Com FMS hlc hie isf ixf stq
INGRES	1973	Un.of CA&Relational Technology, Berkeley	DEC 11, VAX (UNIX, VMS)	Dev DBMS slc hlp(C, ao.) rel stq gra pri Held[75]
INQUIRE	1969	Infodata Systems Falls Church VA	IBM360/370	Com IRS hlc rpg stq sch pri; Dev DDBMS(IQNET)
INTREX	1966	Mass Inst. of Tech Cambridge MA	IBM7094, IBM360	Inst IRS irq/stq bib ixf Walker[71]
iDBP 86/440	1982	Intel-MRI Austin TX	*links to* IEEE 488, ETHERNET	Com DBCMP rel pri rec
IS/1 *later* PRTV	1971	IBM UK Research Peterlee UK	IBM360/370	Dev DBMS hlp(PL/1) rel alg vie com stq Todd[76]
ISAM70	1974	Software70 Anaheim CA	Any Fortran system	Com FS hlc(FORTRAN) isf
LADDER	1977	SRI International Menlo Park CA	DEC PDP10	Exp IRS nlq net(DBMS20 Hendrix[78]
LEADER	1967	Lehigh Univ Bethlehem PA	CDC6400	Inst IRS irq bib ixf Hillman[69]
LEXICON	1976	Arthur Anderson Chicago IL	IBM360/370, System 3	Com DDICT slc IDMS IMS TOTAL
LEXIS	1978	Mead Data Central Lexis: New York NY	IBM370	Com IRS *service* slc *legal, economic databases*
LUNAR	1972	Bolt Beranek Newman Cambridge MA	DEC PDP10 TENEX	Inst IRS nlq sqf ixf Woods[73]
MADAM	1970	MIT MacAIMS Proj. Cambridge MA	H6000 (MULTICS)	Dev DBMS *first* rel hlp (PL/1) stq rpg vrf Strnad[71]
MAGNUM	1975	Tymshare Cupertino CA	DEC PDP10	Com DBMS slc rel stq sch Jordan[75]
MARKIV	1967	Informatics Canoga Park CA	IBM360/370 Univac900	Com FMS slc rpg tbq hie isf CODASYL[71]
MARS	1969	Control Data Corp Sunnyvale CA	CDC6400	Com DBMS hie sch hlc(FORTRAN) sqf isf

Name	Year	Developer location	Computer	Type and features
MDBS	1980	Micro Data Base Syst Lafayette IN	Z80,8080-*based systems on* CP/M	Com DBMS slc stq net sch
MEDLARS *also* ELHILL	1963	National Lib Med Bethesda MD	IBM360	Inst SADBMS slc irq sqf isf bib Katter[75], *also* ORBIT
MICRO-SEED	1980	Microsoft Bellevue WA	Z80,8080-*based systems*	Com DBMS hlc(FORTRAN) net sch *based on* SEED
MODEL204	1972	Comp Corp of Am Cambridge MA	IBM360/370	Com DBMS hlc stq sch plf ixf(IFAM)
MORIS	1972	Polytechnico Milano Italy		Pro DBMS rel cal sch stq (COLARD) Bracchi[72]
MUMPS	1966	Mass Gen Hospital Boston MA	DEC PDP15,11 8080 ao.	Com FMS slc hie trf Greenes[69]
MRDS *based on* RDMS	1978	Honeywell Inf Sys Minneapolis MN	H6000 L68 (MULTICS)	Com DBMS hlp(PL/1) rel stq(LINUS) rpg vrf
NYTIS	1970	New York Times New York NY	IBM360	Inst IRS slc txf ixf Baker[72F]
NOMAD	1975	National CSS Norwalk CN	IBM370-CMS	Com DBMS slc,hlc hie stq sch rpg
OASIS	1971	Stanford Adm DP Stanford CA	IBM360/370	Inst SATDBMS hlc(COBOL) hie irq isf
ORACLE	1979	Relational Software Inc., Menlo Park CA	DEC VAX, IBM VM MVS DOS	DBMS hlc(COBOL PL/1 C) rel stq ixf cpr pri vie
OSIRIS	1973	Univ of Michigan Ann Arbor MI	IBM360/370	Inst SATDBMS(statistics) sch sqf isf rpg Rattenbury[71]
PLUS/4	1979	Century Analysis Pacheco CA	NCR 101 etc.	Com FMS hlc
POLYPHEME	1977	P France	IBM360/370	Exp DDBMS
RAMIS	1967	Mathematica Princeton NJ	IBM360/370	Com DBMS hlc stq rpg
RAP	1975	Univ of Toronto Toronto Canada		Exp DBCMP Schuster[79] Hawthorn[82]
RAPPORT	1978	Brit.Min.Def. & LOGICA, New York NY	*Any* FORTRAN-*based system*	Com DBMS hlc stq rpg rec
RDF	1967	Rand Corp Santa Monica CA	IBM360	Exp IRS stc nlq rel Levien[67]
RDMS *based on* MADAM	1971	Mass Inst of Tech Cambridge MA	H6000 (MULTICS)	Inst DBMS hlp(PL/1) rel stq rpg vrf Steuert[74]

Name	Year	Developer location	Computer	Type and features
REGIS *prior name:* RDMS	1972	General Motors Warren MI	IBM360-67	Dev DBMS hlp(PL/1) rel stq Whitney in Tou[74]
REL	1969	Calif Inst of Tech Pasadena CA	IBM360	Dev IRS nlq rel *extendible* Thompson[69]
RELGRAF	1982	Adv.Rel.Techn.Inc. Menlo Park CA	PRIME OS *or* MPX	Com IRS stq rel cal vie txt gra sch ixf
RETRIEVE	1970	Tymshare Cupertino CA	XDS940	Com DBMS service slc stq 1-sqf; FMS(IML) *for ¿2*
RFMS	1971	Univ of Texas Austin TX	CDC6400	Dev DBMS hie stq sch Hardgrave[80]
RISS	1974	Forest Hosp.& MIT Des Plaines IL	DEC 11	DBMS 1-rel sch rpg sqf McLeod[75]
ROBOT	1973	Software Sciences Farnborough UK	ICL 1906 Univac9400	Com DBMS slc rpg tnf Palmer[75]
RS/1, *based on* PROPHET	1980	Bolt Beranek Newman Cambridge MA	DEC 11, VAX	SATDBMS slc *with* PL/1 tbq rpg grf sch
SAM *basis for* RM, XRM	1968	IBM Scientific Center Cambridge MA	IBM360 *modified* 370	Exp FMS rel vrf Symonds[68] *later* RSS(SYSTEM R)
SAS	1972	Univ. N. Carolina & SAS Inst., Raleigh NC	IBM360/370	SATDBMS(*statistics*) slc stq rpg sqf
SBA	1975	IBM Research Yorktown Heights NY		Dev DBMS rel tbq(*by example*) Zloof[75]
SCORE	1969	Programming Methods, New York NY	Any COBOL system	Com FMS hlp(COBOL) hie tbq sqf isf
SDD-1	1978	Comp Corp of Am Cambridge, MA	DEC 10/20	Exp DDBMS slc rel sch Bernstein[81]
SEED	1978	Internat'l Data Base Syst., Philadelphia PA	DEC 11,10/20 IBM370 CDC6000	Com DBMS hlp(COBOL) hic(FORTRAN) sch rpg net(1973) rnf
SEQUITUR	1981	Pacific Software Berkeley CA	DEC LSI-11, Z-80 systems	Com DBMS slc rel tbq
SESAM	1973	Siemens München FRG	S4004	Com FMS stq rpg sqf isf
SHOEBOX	1970	MITRE Corp Bedford MA	IBM360	Exp SATDBMS slc txt plf stq Glantz[70]
SIBAS	1974	Shipping Res Svc Oslo Norway& Houston TX	IBM360/370 Univac1100 DEC PDP10	Com DBMS net hlp(COBOL) hlc sch Palmer[75]

Name	Year	Developer location	Computer	Type and features
SIR	1977	Scientific Information Retrieval, Evanston IL	IBM360/370 CDC 6000,Cyber	Com IRS stq stat.interface sch net pri
SOCRATE	1970	Univ of Grenoble, CII Louveciennes, France	IBM360-370 CII Iris45,80	Dev, Com DBMS slc sch net stq vrf
SOLID	1967	Penn State Univ University Park PA	IBM360-40 -67	Exp DBMS slc cpr rec DeMaine[71]
SOURCE	1979	Telecomputing Co McLean VA	*multiple*	Com IRS *service* slc *business, consumer info, ads*
SPIRES	1967	Stanford Univ Stanford CA	IBM360-67, 370-168	Inst IRS, DBMS slc hie irq bib trf ixf pri Schroeder in Kerr[75]
SQL/DS	1981	IBM San Jose CA	IBM370 (DOS)	DBMS hlp(PL/1) rel stq ixf(VSAM) pri vie
STAIRS	1972	IBM Stuttgart FRG	IBM360/370 *with* CICS	Com IRS slc stq txt sqf drf isf pri
SWALLOW	1980	Mas Inst Tech Cambridge MA		Exp DFMS obj
SYSIF	1970	CAP-SOGETI Paris 15 France	IBM360/370, CII Iris, Univac1100	Com IRS slc nlq sqf isf
SYSTEM 1022	1978	Software House Cambridge MA	DEC 10/20	Com DBMS slc,hlc ixf *timeshared services*
SYSTEM 2000 *or* S2000, S2K	1970	Intel-MRI Austin TX	IBM360/370 Univac1100 CDC6000	Com DBMS hlp(COBOL PL/1) hie stq isf Kroenke[77]
SYSTEM C	1981	Software Clearing House, Cleveland OH	NCR, Criterion	Com DBMS hlc net(1978) sch stq rnf rec pri
SYSTEM-R	1975	IBM Research San Jose CA	IBM370	Exp DBMS hlp(PL/1)rel stq (SEQUEL) vie Astrahan[76]
SYSTEM-R*	1981	IBM Research San Jose CA	IBM370 VMS	Exp DDBMS hlp rel sch stq vie Selinger[81]
TDMS	1966	System Dev Corp Santa Monica CA	IBM360-50 (Adept)	Dev DBMS slc hie irq sch Bleier[67], CODASYL[71]
TOD	1973	Stanford Un&ITTRI Stanford CA Chicago 16 IL	IBM360-50,67, 370 DEC VAX	Inst SATDBMS hlc(PL/1) sch irq gra ixf tnf cpr cip Wiederhold[75]
TOOL-IR	1974	Univ of Tokyo Tokyo Japan	HITAC8800	Inst IRS slc stq bib pri Yamamoto[75]

Name	Year	Developer location	Computer	Type and features
TOTAL	1971	Cincom Inc Cincinnati OH	IBM360/370 Univac 90,V70 CDC Cyber Siemens4004 Honeywell200 NCR Century	Com DBMS hlc sch net (2 level:drf,rnf) DDICT Cagan[73]
TRAMP	1967	Univ of Michigan Ann Arbor MI	IBM360-67	Exp DBMS nlq rel Ash[68]
UCC TEN	1976	University Comp. Dallas TX	IBM360/370 IMS	Com DDICT slc rpg sch IMS
UNIDATA	1970	United Computing Kansas City MO	CDC6400	Com DBMS hie sch rpg gra
WOODSTOCK	1979	Xerox Research Lab Palo Alto CA	Xerox Altos	Dev DFMS Swinehart[79]
ZETA *also* TORUS	1974	Univ of Toronto Toronto Ontario	IBM360/370	Exp DBMS hlc(PL/1) rel stq vie drf Czarnik[75]

Legend for type and features of database systems

alg relational algebra
bib bibliographic data
BOMP bill-of-materials processor
cal relational calculus
cip ciphering
Com commercial
cpr compression
DBCMP database computer
DBL database language
DBMS database-management system
DDBMS distributed DBMS
DDICT data dictionary system
Dev developmental
DFMS distributed FMS
DPG database program generator
drf direct or immediate file organization
Exp experimental
FMS file-management system
FS file system
gra graphic data support
hie hierarchical database organization
hlc host-language system accessed by CALL
hlp host-language system with preprocessor
Inst institutional
irq interrogative query processor
IRS information-retrieval system

isf indexed-sequential file
ixf indexed files
nlq natural language query capabilty
net network database organization,
    (year indicates CODASYL standard)
obj object based
plf pile file organization
pri privacy protection
Pro proposed
QUS query and update system
rec recovery support
rel relational database organization
rnf ring or chain file organization
rpg report generator
SADBMS single-application DBMS
SATDBMS single-application type DBMS
sch schema
slc self-contained system
sqf sequential file organization
stq statement-oriented query pocessor
tbq tabular query processor
tnf transposed files
trf tree-structured files
txt textual data
vie support for multiple user views
vrf virtual file support