The DB world in 1970

the *Network* model (e.g. IDMS — *CODASYL*)

application developers had to be aware of the details of the data
representation on disc, and there was no generic high-level DML

on the plus side, the model could capture a **general graph structure**

<u>Ref</u>: Charles W Bachman 1973 ACM Turing Award winner

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the *Hierarchical* model (e.g. IMS from IBM)

less of a shambles, less for the application developer to worry about,
but **incomplete** in what it could model — **tree-structured** data only

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The *Relational* DB Model (Ted Codd, 1970)

work carried out at **IBM (UK) Scientific Centre** at Peterlee:

first serious implementation of the Model, *IS/1*, 1970-72
Data Manipulation Language, *ISBL*, based on relational algebra

follow-up system, *PRTV*, written in 1972-74, ref. **Wikipedia**

"the world's first relational database management system
that could handle significant data volumes".

in practical terms ***read only***, update was HARD — the
main language supported was still *ISBL*.

1976   joint project between IBM Peterlee and the Computer Lab

new implementation (CODD) based on PRTV , ***coroutine-based***

relational DB research in the US

Earliest thrust from Universities, in particular Mike Stonebraker's group at

UC, Berkeley   INGRES   QUEL -->   SEQUEL

1974   work starts on System-R at the IBM San Jose Research Lab.
The first serious user was *Pratt & Whitney* in 1977.

Research on the development of SQL was a key part of the
research at San Jose. System-R later became DB2 .

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Lots of DB research at UK Universities as well, notably in Scotland:

Aberdeen, Edinburgh, Glasgow, St Andrews all had good groups

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A further important paper by Ted Codd :

Extending the Database Relational Model to Capture More Meaning.

E F Codd

ACM Transactions on Database Systems,

Volume 4 No 4,   December 1979,   pp. 397-434

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