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Datasheet for the decision
of 1 August 2023

Case Number: T 0987/20 - 3.5.01

Application Number: 15862061.7

Publication Number: 3171282

IPC: G06Q10/10, G06F17/30, G06F12/00

Language of the proceedings: EN

Title of invention:
DATA RETRIEVAL APPARATUS, PROGRAM AND RECORDING MEDIUM

Applicant:
Informex, Inc.

Headword:
System for retrieving data from multiple databases/INFORMEX

Relevant legal provisions:
EPC Art. 56, 111(1)
RPBA 2020 Art. 12(4), 12(5), 12(6), 13(2)

Keyword:
Inventive step - retrieving data based on user defined
retrieval conditions (no - obvious implementation)
Amendment after summons (yes - exceptional circumstances)

Case Number: **T 0987/20 - 3.5.01**

D E C I S I O N
of Technical Board of Appeal 3.5.01
of 1 August 2023

Appellant:	Informex, Inc.
(Applicant)	1-1-1 Uchisaiwai-cho
	Chiyoda-ku
	Tokyo 100-0011 (JP)
Representative:	Moser Götze & Partner Patentanwälte mbB
	Paul-Klinger-Strasse 9
	45127 Essen (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 16 December 2019 refusing European patent application No. 15862061.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	W. Chandler
Members:	R. Moser
	E. Mille

Summary of Facts and Submissions

I.   This case concerns the applicant's appeal against the
        decision of the examining division to refuse the
        European patent application No. 15862061.7.

II.   The examining division decided that claim 1 of the main
        and auxiliary requests did not involve an inventive
        step over a web database application programmed in PHP
        as disclosed in D1 (Lerdorf, Rasmus, and Tatroe, Kevin.
        Programming PHP. O'Reilly & Associates, Inc., 2002.
        Chapter 8.5).

        The examining division essentially considered that the
        distinguishing features, specifically a "data
        dictionary" and the association of retrieval results,
        were defined by a human operator and pertained to the
        presentation of cognitive information.

III.   In the statement setting out the grounds of appeal,
        filed on 16 April 2020, the appellant requested that
        the decision of the examining division be set aside and
        that a patent be granted on the basis of the refused
        main request, filed on 24 October 2018, or the refused
        first or second auxiliary request, filed during the
        oral proceedings before the examining division on
        18 November 2019, or a newly filed third auxiliary
        request. The appellant also made an auxiliary request
        for oral proceedings.

        The appellant argued, *inter alia*, that the invention
        provided several technical effects including increased
        system maintenance efficiency and reduced data usage,
        see paragraphs [0039], [0040], [0078] and [0080] of the
        published application, and that D1 did not disclose the

simultaneous connection to multiple databases, nor the use of a Business Intelligence (BI) unit, a virtual database, or a data dictionary.

IV.   In the communication accompanying the summons to oral proceedings, the Board considered that D2 (EP 2 019 369 A1), which had been cited as "X" document in the Supplementary European Search Report, was a more suitable starting point for assessing inventive step.

The Board summarised the issues to be discussed and indicated that the main, first and second auxiliary requests appeared not to be inventive over D2. Furthermore, the Board was inclined not to admit the third auxiliary request into the appeal proceedings.

V.   In a letter dated 28 July 2023, the appellant filed a fourth auxiliary request and submitted arguments in favour of inventive step over D2. A remittal to the first instance was requested in case the Board deemed the fourth auxiliary request not allowable.

VI.   Oral proceedings took place by videoconference on 1 August 2023. The appellant's final requests were that a patent be granted on the basis of the main or one of the first to fourth auxiliary requests, or, that the case be remitted to the first instance for further prosecution. At the end of the oral proceedings the Chairman announced the Board's decision.

VII.   Claim 1 of the main request reads as follows:

A data retrieval apparatus that retrieves data from two or more databases (1) that return retrieved data in response to a retrieval instruction, the data retrieval apparatus comprising:

a data dictionary (10) including presentation structure definition information for assisting input of a user terminal (2) to issue a retrieval request compliant with a retrieval requirement, virtual data structure definition information for analyzing the retrieval request and converting the retrieval request into a retrieval instruction processable by the database (1), and retrieval request definition information for managing relevance between different retrieval requests;

a business intelligence unit (30) for assisting input of the user terminal (2) according to the presentation structure defined in the data dictionary (10) to issue a retrieval request described according to the presentation structure, and outputting a retrieval result based on the virtual data structure, the retrieval result being obtained by executing the retrieval request by a virtual database unit (20), to the user terminal (2); and

a virtual database unit (20) for analyzing the retrieval request according to the virtual data structure defined in the data dictionary (10) to generate a retrieval instruction, executing the generated retrieval instruction in the database (1) to acquire two or more retrieved data, and integrating the acquired two or more retrieved data to prepare a retrieval result responding to the retrieval request,

wherein the data retrieval apparatus associates a plurality of retrieval results prepared in response to different retrieval requests with each other by the retrieval request definition information, the plurality of retrieved results being obtained in response to retrieval requests, retrieval request definition information managing the relevance between different retrieval requests.

VIII.   Claim 1 of the first auxiliary request, apart from some
        linguistic rephrasing, essentially adds the following
        features at the end of claim 1 of the main request:

wherein the business intelligence unit (30) includes:
*a retrieval request issuing unit (31) that assists
the user terminal (2) according to the presentation
structure in the data dictionary (10) to issue a
retrieval request based on the presentation structure
to the virtual database unit (20); and*
*a report output unit (32) that prepares a report
from the retrieval result acquired from the virtual
database unit (20), and sends the report to the user
terminal (2),*
*wherein the business intelligence unit (30) is
configured to:*
*display a plurality of reports prepared from a
plurality of retrieval results acquired by executing a
plurality of retrieval requests sequentially or
simultaneously; and*
*associate and manipulate a plurality of reports
with each other by the retrieval request definition
information that manages relevance between different
retrieval requests contained in the data dictionary
(10),*
*wherein the business intelligence unit (30) is
configured to:*
*associate a first retrieval request with a second
retrieval request as relevant retrieval; and*
*execute the first retrieval request to display a
first retrieval result in the user terminal (2), and
thereafter select data contained in the first retrieval
result and instruct a link to the second retrieval
request, so as to:*
*inherit an item and a condition value of an
extraction condition contained in the first retrieval*

request and an item and a display value associated with data selected from the first retrieval result to the second retrieval request; and

when an associated item associated with the item inherited from the first retrieval request is present in an extraction condition of the second retrieval request, replace a condition value of the associated item with the condition value inherited from the first retrieval request, execute the second retrieval request, and display a second retrieval result.

IX.   Claim 1 of the second auxiliary request adds the following features at the end of claim 1 of the main request:

wherein the virtual database unit (20) includes

a retrieval request translation unit (21) that analyzes the retrieval request according to the virtual data structure in the data dictionary (10) and generates a retrieval instruction for retrieval from the two or more databases (1);

a retrieval instruction execution unit (22) that executes the retrieval instruction generated by the retrieval request translation unit (21) on any one or more of the two or more databases (1) to acquire two or more retrieved data; and

a data integration processing unit (23) that integrates and processes the two or more retrieved data acquired by the retrieval instruction execution unit (22) to prepare a retrieval result responding to a data retrieval request wherein the data integration processing unit (23) includes any one or more data integration schemes including:

a reference scheme of acquiring reference data from one database according to a reference condition predefined for each of records of intermediate data

acquired from another database, and complimenting an item missing from the intermediate data with an item from the reference data, and

the data integration processing unit (23) is capable of selecting an optimum scheme from the data integration schemes,
wherein the reference scheme of the data integration schemes of the data integration processing unit (23) includes one or more reference processing schemes including:

a successive reference scheme of performing sequential retrieval from a database for respective records of intermediate data obtained by extraction and totaling from another database according to a join condition, and integrating retrieved data;

a batch join scheme of transferring intermediate data extracted and totaled from one database to one database management system, and integrating the transferred intermediate data together or integrating the intermediate data and data in the database management system by a join function of the database management system; and

a sequential merge scheme of acquiring data to be retrieved from a reference source and data to be retrieved from a referenced database, rearranging the acquired data in an order of condition values of reference conditions, and thereafter, while sequentially reading reference source records and referenced database records one by one, comparing the condition values of the reference conditions, and integrate records where the reference conditions are satisfied, and

the data integration processing unit (23) is capable of selecting an optimum scheme from the reference processing schemes.

X.   Claim 1 of the third auxiliary request, apart from some linguistic rephrasing, essentially adds the following features at the end of claim 1 of the main request:

when the virtual database unit (20) has prepared a plurality of retrieval results in response to different retrieval requests associated by the retrieval request definition information, the virtual database unit (20) automatically associates the prepared retrieval results with each other, and

the business intelligence unit (30) prepares a plurality of reports respectively from the retrieval results associated by the virtual database unit (20), and automatically associates the prepared reports with each other,

movement from a first report to a second report can be automatically carried out without human intervention by means of a

retrieval link unit associating the first and second reports for different retrieval results with one another, the retrieval link unit allowing movement to the second associated report while inheriting extraction conditions and selections of the first report to the associated report,

the links of reports being based on the retrieval request definition information in the data dictionary, the definition information of retrieval request defining that a plurality of retrieval requests that are different in databases from which data are to be retrieved or different in conditions for extracting data from databases have relevance with each other,

the retrieval link unit referring to the retrieval request definition information in the data dictionary for checking whether a retrieval request is associated with another retrieval request in the definition information and displaying the second report having

data associated with the specified data on a terminal
used by the user in the first report.

XI.   Claim 1 of the fourth auxiliary request reads as
          follows:

          A data retrieval apparatus that retrieves data from two
          or more external databases (1) that return retrieved
          data in response to a retrieval instruction processable
          by at least one of the two or more external databases
          (1), the data retrieval apparatus comprising:
              a data dictionary (10);
              a business intelligence unit (30); and
              a virtual database unit (20) communicatively
          connected to the two or more external databases (1),
              wherein the business intelligence unit (30) is
          communicatively connected to the virtual database unit
          (20), such that the virtual database unit (20) is able
          to receive a retrieval request from the business
          intelligence unit (30) and the business intelligence
          unit (30) is able to receive the retrieved data from
          the virtual database unit (20),
              and wherein the virtual database unit (20) is
          communicatively connected to the data dictionary (10),
          such that the virtual database unit (20) is able to use
          virtual data structure definition information provided
          by the data dictionary (10), for analyzing the
          retrieval request and converting the retrieval request
          into the retrieval instruction,
              characterized in that
          the business intelligence unit (30) is communicatively
          connected to the data dictionary (10), such that the
          business intelligence unit (30) is able to use
          retrieval request definition information provided by
          the data dictionary (10), for managing relevance
          between different retrieval requests, wherein a first

retrieval result based on first retrieved data to a
first retrieval request is associated with a second
retrieval result based on second retrieved data to a
second retrieval request by replacing a condition value
of an extraction condition of the second retrieval
request with a condition value of an extraction
condition of the first retrieval request.

XII.   The appellant's arguments are discussed in detail in
         the reasons for the decision.

Reasons for the Decision

The invention

1.   The description starts out by stating that the
         invention relates to a system that attempts to overcome
         the problem of analysing business data in multiple
         databases that may not be consistent, and thus not
         amenable to standard online analytical processing
         (OLAP) techniques (paragraphs [0001] to [0015] of the
         published application).

         As shown in Figure 4, the system comprises a Business
         Intelligence (BI) unit 30 that receives a user's
         unified query ("retrieval request"), and passes it to a
         virtual database 20. The virtual database employs a
         predefined data model ("virtual data structure
         definition information") stored in a data dictionary 10
         to convert the retrieval request into one or more
         queries for the databases ("retrieval instruction").
         The data dictionary also stores information referred to
         as "retrieval request definition information", which
         enables the association or linkage of retrieval

requests that share a common data field.

2.   What or how this is done is not exactly clear as the
         language used in the application is very general and
         confusing. For instance, claim 1 of the most specific
         fourth auxiliary request defines the retrieval request
         definition information "for managing relevance between
         different retrieval requests, wherein a first retrieval
         result ... is associated with a second retrieval result
         by replacing a condition value of an extraction
         condition of the second retrieval request with a
         condition value of an extraction condition of the first
         retrieval request". The terms "relevance" and
         "associated" are vague and have no specific technical
         meaning, making it difficult to grasp their intended
         usage.

         Figure 9 gives the only concrete example of the two
         retrieval requests. A first retrieval request yields a
         tabulated result containing customer, product and
         quantity data. Then, the user can select (e.g. with a
         right mouse click) a particular row (e.g. "B INDUSTRY
         PRODUCT P") from the result of the first retrieval.
         This action triggers a drop-down menu displaying
         related retrieval requests, which are requests that
         share a common field with the first retrieval request,
         possibly having a different name, but having been
         linked by the user (see below). Upon selecting one of
         these related requests (e.g. "MONTHLY CHANGE IN
         SALES"), the value of the common field in the chosen
         row (e.g., PRODUCT P) is passed to the selected
         retrieval request. Subsequently, this request is
         executed with the chosen value (i.e., PRODUCT P) as the
         "extraction condition".

         In summary, the BI unit assists the user in launching a

second retrieval request that is related to the first
one, with the extraction condition being a value
selected by the user from the result of the first
retrieval request. This enables users to efficiently
access and analyse interconnected data sets based on
shared fields, enhancing their overall data exploration
experience.

Request for remittal

3.   According to Article 111(1) EPC the Board may exercise
        any power within the competence of the examining
        division or remit the case to that department for
        further prosecution. It is thus at the Board's
        discretion whether it examines and decides the case or
        whether it remits the case. In the present case, taking
        into account the aspect of procedural efficiency, the
        Board is in a position to decide and examine the matter
        of the case itself.

*Fourth auxiliary request, admissibility and inventive
step*

4.   The fourth auxiliary request was filed shortly before
        the oral proceedings and, thus, its admittance is
        governed by Article 13(2) RPBA.

        The appellant argued that this request addressed
        clarity objections and the inventive step objection in
        view of D2 raised by the Board for the first time.

        The fourth auxiliary request does not add anything in
        substance and is a *bona fide* attempt to clarify the
        invention such that it can be dealt with in an
        efficient manner. In the Board's view, these are
        exceptional circumstances in the sense of Article 13(2)

RPBA which justify admitting the request.

Moreover, since this request is the clearest and most concrete definition of the invention, the Board finds it convenient to start with it first.

5.   Even this claim does not define any user interaction, such as the above-mentioned selection of a value from the first retrieval result or a related retrieval request from the drop-down menu. However, such user interaction is essential, as the system cannot automatically decide which values to select or which retrieval requests to launch, as argued by the appellant. This decision depends entirely on the user's specific interests, particularly the type of reports sought.

        Nevertheless the Board bases its assessment of inventive step on the interpretation given above. This interpretation is the most reasonable and, in fact, the most favourable for the appellant, as agreed upon by the appellant himself, that the Board could derive from the limited information given in the description.

6.   Having said that, it is common ground that claim 1 differs from D2 by the characterising portion. In essence, this difference specifies that the BI unit "manages" related retrieval requests by using a data dictionary storing retrieval request definition information, as described above.

7.   Although the applicant appeared to agree that the user is the one who determined what constituted "related" retrieval requests, namely requests that share a common field used as an extraction condition, it was argued that Figure 11 showed a screen for setting extraction

conditions for linking reports in a dashboard, which
was different from linking retrieval requests.
Additionally, the list of retrieval requests displayed
in the drop-down menu in Figure 9 was sourced from a
library, and not directly input by the user (see
paragraph [0159]).

However, in the Board's view, extraction conditions
that link reports must also imply linking the retrieval
requests that generate those reports (see also
paragraph [0125]). In any case, the application merely
indicates that "[t]he association between retrieval
requests can be freely made by a user using a retrieval
request entry screen or the like" (paragraph [0087]).
From this, it can be inferred that the entries in the
drop-down menu of Figure 7, obtained from the data
dictionary, are ultimately defined by the user. In this
regard, the method of defining these entries, whether
through the setting screen of Figure 11 or any other
input screen, is irrelevant.

8.   The appellant argued that D2 used the concept of
linking fields solely at the database level to retrieve
and integrate data from multiple databases into a
virtual database (see paragraphs [0025] and [0027]).
However, it did not disclose any linking of retrieval
requests at a higher level, such as in the BI unit.

Moreover, there was no suggestion in D2 to use a data
dictionary shared by both the BI unit and the virtual
database. Also, the fact that data was deleted after
being used in D2 (see paragraph [0028]) argued against
the adoption of such a dictionary.

The appellant further asserted that linking retrieval
requests constituted a technical feature. By replacing

the values of extraction conditions, the system automatically handled data inconsistencies in cases where a retrieval result could not be represented in a single OLAP cube.

9.   The Board finds the appellant's arguments unconvincing.

The invention does not automate the selection of retrieval requests or optimise them by setting appropriate extraction conditions. Instead, it presents a data retrieval concept where a second retrieval request is based on the results of the first request. The user has the discretion to define related retrieval requests and to choose both a value and a related retrieval request, using the value as an extraction condition. In other words, he both defines and selects the options shown in the drop-down menu in Figure 9.

In the Board's view, the reason to incorporate this data retrieval concept into the problem is that it is a user requirement and, thus, in itself has no technical character. According to the jurisprudence of the boards of appeal such a user requirement cannot contribute to inventive step. Also, the Board cannot see anything technical in the nature of the retrieved data itself, which merely represents business data. Therefore, the problem solved by the invention boils down to assisting the user in what he wants to do anyway, in this case retrieving data that meets a specific condition, such as monthly change in sales for a particular product.

In this respect, the invention essentially provides a user interface to pass linked fields (e.g. the product field) in the result of a first retrieval request, such as in the SQL language, "SELECT customer, product, ... FROM table1" to a linked second retrieval request, such

as "SELECT * FROM table2 WHERE product=PRODUCT P".

This type of automation, though undoubtedly technical, is a classic example of automating a previously manual process (see Case Law Book, 10th edition 2022, I.D. 9.21.6). In such situations, an inventive step can only be based on a specific implementation.

The Board, however, deems the use of a data dictionary for storing information that links retrieval requests through a common field as an obvious solution for a skilled person. For example, in D2, database 210 (see Figure 2) would be suitable for storing such information, as it already stores the virtual data model and user-defined business rules (see paragraphs [0018] and [0019]). Additionally, employing mouse clicks and menus for selections is a routine design choice and part of common general knowledge. It is evident for the skilled person that the data dictionary is used by both the BI unit and the virtual database, with the former enabling the user to select the desired retrieval request and the latter converting the selected request into queries for the external databases.

Lastly, the Board notes that the claim does not refer to data inconsistencies or OLAP cubes as foreshadowed by the opening part of the description (see point 1, above). The appellant clarified that this meant that data was not stored in a single database but retrieved from multiple databases, which is also the case in D2 (see e.g. Figure 2).

10. For the above reasons, the Board concludes that claim 1 is not inventive over D2 in combination with common general knowledge (Article 56 EPC).

Main and first auxiliary request, inventive step

11.   The appellant clarified that claim 1 of the main and
        first auxiliary request essentially defined the same
        subject-matter as claim 1 of the fourth auxiliary
        request, albeit using different wording.

        Accordingly, for the reasons given for the fourth
        auxiliary request, claim 1 of these requests does not
        involve an inventive step (Article 56 EPC).

Second auxiliary request, inventive step

12.   Claim 1 adds details regarding the virtual database,
        specifically mentioning the inclusion of a data
        integration processing unit responsible for retrieving
        and integrating data from several databases using a
        "reference scheme".

        This scheme resembles a conventional join algorithm,
        where data from a first database is merged with data
        from a second database based on a specified condition,
        such as the "product" field, as shown in Figure 14.
        Moreover, the reference scheme includes a so-called
        "successive reference scheme", a "batch join scheme"
        and a "sequential merge scheme" (see Figures 15A and
        15B). Among these schemes the processing unit can
        select an optimum scheme.

13.   The Board considers that these features do not interact
        synergistically with those related to linking retrieval
        requests and the appellant did not argue otherwise.
        Hence, their contribution to inventive step can be
        assessed independently.

14.   The appellant argued that, while these join schemes
        were known in the art, the skilled person would not
        have applied them to the system of D2. The particular
        advantage of selecting an optimum scheme was to improve
        data retrieval and achieve optimal results in terms of
        efficiency.

15.   The Board notes that the claim merely defines the
        selection of an optimum scheme as a result to be
        achieved. Also the application does not provide an
        enabling disclosure for making such selection (see
        paragraph [0246]).

        Consequently, the Board concludes that, when faced with
        the task of improving data integration and retrieval,
        the skilled person would have simply chosen any of the
        well-known join schemes, particularly the one best
        suited for a given data set or database, without
        requiring inventive skill. For instance, the sequential
        merge scheme involves a sort and merge operation and
        proves to be particularly efficient for sorted tables.
        In such cases, the sorting process can be omitted,
        resulting in faster performance. These considerations
        are well-established in the field and are furthermore
        not reflected in the claim. Hence, they cannot support
        an inventive step.

16.   Accordingly, claim 1 of the second auxiliary request
        does not involve an inventive step (Article 56 EPC).

        Third auxiliary request, admissibility

17.   The appellant did not provide any additional arguments
        beyond what had already been submitted in writing
        concerning the admissibility of the third auxiliary
        request. Claim 1, in essence, did not differ

significantly from claim 1 of the main or first
auxiliary request, although it appeared to be less
clear and was expressed using different terminology.

18.   The Board considers that, as expressed in its
        preliminary opinion (see points 22 to 25), the third
        auxiliary request *prima facie* is not allowable and
        could and should have been filed already before the
        examining division, at the latest during the oral
        proceedings before the examining division, where the
        appellant, instead, chose to file two other auxiliary
        requests.

        The Board, therefore, does not admit the third
        auxiliary request into the appeal proceedings (Article
        12(4) to (6) RPBA).

19.   As none of the appellant's requests are allowable, it
        follows that the appeal must be dismissed.

Order

For these reasons it is decided that:

        The appeal is dismissed.

The Registrar: The Chairman:

T. Buschek   W. Chandler

Decision electronically authenticated