

- 1       **DATABASE OR FILE ACCESSING**
- 2        .Access augmentation or  
          optimizing
- 3        .Query processing (i.e.,  
          searching)
- 4        ..Query formulation, input  
          preparation, or translation
- 5        ..Query augmenting and refining  
          (e.g., inexact access)
- 6        ..Pattern matching access
- 7        .Sorting
- 8        .Concurrency (e.g., lock  
          management in shared database)
- 9        .Privileged access
- 10       .Distributed or remote access
- 100      **DATABASE SCHEMA OR DATA STRUCTURE**
- 101      .Manipulating data structure  
          (e.g., compression,  
          compaction, compilation)
- 102      ..Generating database or data  
          structure (e.g., via user  
          interface)
- 103 R     .Object-oriented database  
          structure
- 103 Y     ..Object-oriented database  
          structure processing
- 103 X     ..Object-oriented database  
          structure network
- 103 Z     ..Object-oriented database  
          structure reference
- 104.1    .Application of database or data  
          structure (e.g., distributed,  
          multimedia, image)
- 200      **FILE OR DATABASE MAINTENANCE**
- 201      .Coherency (e.g., same view to  
          multiple users)
- 202      ..Recoverability
- 203      ..Version management
- 204      ..Archiving or backup
- 205      .File allocation
- 206      ..Garbage collection

in the subclass definition. In addition to US documents classified in E-subclasses by US examiners, documents are regularly classified in E-subclasses according to the classification practices of any foreign Offices identified in parentheses at the end of the title. For example, "(EPO)" at the end of a title indicates both European and US patent documents, as classified by the EPO, are regularly added to the subclass. E-subclasses may contain subject matter outside the scope of this class. Consult their definitions, or the documents themselves to clarify or interpret titles.

- E17.001 **INFORMATION RETRIEVAL; DATABASE  
STRUCTURES THEREFORE (EPO)**
- E17.002 .Data Indexing; Abstracting; Data  
          Reduction (EPO)
- E17.003 ..Of chemical information (EPO)
- E17.004 ..Of images (EPO)
- E17.005 .Interfaces; database management  
          systems; updating (EPO)
- E17.006 ..File format conversion (EPO)
- E17.007 .Concurrency control and recovery  
          (EPO)
- E17.008 .Document retrieval systems (EPO)
- E17.009 .Information processing systems,  
          e.g., multimedia systems, etc.  
          (EPO)
- E17.01 .File systems; file servers (EPO)
- E17.011 .Processing chained data, e.g.,  
          graphs, linked lists, etc.  
          (EPO)
- E17.012 ..Trees (EPO)
- E17.013 ..Hypermedia (EPO)
- E17.014 .Query processing for the  
          retrieval of structured data  
          (EPO)
- E17.015 ..Natural language query  
          interface (EPO)
- E17.016 ..Menu driven systems; graphical  
          querying; query-by-example  
          (EPO)
- E17.017 ..Query optimization (EPO)
- E17.018 .In geographical information  
          databases (EPO)
- E17.019 .In image databases (EPO)
- E17.02 ..Based on image content (EPO)
- E17.021 ...Using color (EPO)
- E17.022 ...Using extracted text (EPO)

**E-SUBCLASSES**

The following subclasses beginning with the letter E are E-subclasses. Each E-subclass corresponds in scope to a classification in a foreign classification system, for example, the European Classification system (ECLA). The foreign classification equivalent to an E-subclass is identified

- E17.023 ...Using a combination of image content features (EPO)
- E17.024 ...Using shape and object relationship (EPO)
- E17.025 ...Using texture (EPO)
- E17.026 ..Based on bibliographical data of images (EPO)
- E17.027 ..The images having vectorial formats (EPO)
- E17.028 ..The images being video sequences (EPO)
- E17.029 ..By browsing (EPO)
- E17.03 ..By graphical querying (EPO)
- E17.031 ..Data organization and access thereof (EPO)
- E17.032 .Using distributed data base systems, e.g., networks, etc. (EPO)
- E17.033 .Processing unordered data (EPO)
- E17.034 ..Random access (EPO)
- E17.035...Using parallel associative memories (EPO)
- E17.036 ...By address calculation or conversion, e.g., hashing, etc. (EPO)
- E17.037 ...Using directory or table look-up (EPO)
- E17.038 ....Using more than one table in sequence, i.e., systems with three or more layers, etc. (EPO)
- E17.039 ..Sequential access, e.g., string matching, etc. (EPO)
- E17.04 ...On static storage (EPO)
- E17.041 ...Comparing simultaneously a plurality of search arguments with a simple file data, finite state machine (EPO)
- E17.042 ...Comparing simultaneously search arguments with more than one file data (EPO)
- E17.043 ....Comparing simultaneously search arguments with more than one file data (EPO)
- E17.044 .In structured data stores (EPO)
- E17.045 ..Relational databases (EPO)
- E17.046 ...Clustering or classification (EPO)
- E17.047 ....Including cluster or class visualization or browsing (EPO)
- E17.048 ...Entity relationship models (EPO)
- E17.049 ...Physical indexing structures (EPO)
- E17.05 ....Trees, e.g., B+ trees, etc. (EPO)
- E17.051 ....Vectors, bitmaps or matrices (EPO)
- E17.052 ....Hash tables (EPO)
- E17.053 ....Index managing details (EPO)
- E17.054 ...Relational operators, e.g., joins, transitive closure, partitioning, etc. (EPO)
- E17.055 ..Object oriented databases (EPO)
- E17.056 ..Multidimensional databases (EPO)
- E17.057 ...Indexing (EPO)
- E17.058 .Of unstructured textual data (EPO)
- E17.059 ..Filtering based on additional data, e.g., user or group profiles, etc. (EPO)
- E17.06 ...Profile generation, learning or modification (EPO)
- E17.061 ..Querying (EPO)
- E17.062 ...Query formulation (EPO)
- E17.063 ....Reformulation based on results of preceding query (EPO)
- E17.064 ....Using relevance feedback from the user, e.g., relevance feedback on documents, documents sets, document terms or passages, etc. (EPO)
- E17.065 .....Using graphical result space presentation or visualization (EPO)
- E17.066 ...Using system suggestions (EPO)
- E17.067 ....Using document space presentation or visualization, e.g., category, hierarchy or range presentation and selection, etc. (EPO)
- E17.068 ...Natural language query formulation or dialogue systems (EPO)
- E17.069 ...Query processing (EPO)
- E17.07 ....Query translation (EPO)
- E17.071 .....Selection or weighting of terms from queries, including natural language queries (EPO)
- E17.072 .....Syntactic pre-processing steps, e.g., stopword elimination, stemming, etc. (EPO)

- E17.073 .....Translation of the query language, e.g., Chinese to English, etc. (EPO)
- E17.074 .....Query expansion (EPO)
- E17.075 ....Query execution (EPO)
- E17.076 .....Using Boolean model (EPO)
- E17.077 .....Using phonetics (EPO)
- E17.078 .....Using natural language analysis (EPO)
- E17.079 .....Using probabilistic model (EPO)
- E17.08 .....Using vector based model (EPO)
- E17.081 ....Reuse of stored results of previous queries (EPO)
- E17.082 ...Presentation or visualization of query results (EPO)
- E17.083 ..Indexing (EPO)
- E17.084 ...Selection or weighting of terms for indexing (EPO)
- E17.085...Physical indexing structures (EPO)
- E17.086 ....Inverted lists (EPO)
- E17.087 ....Trees (EPO)
- E17.088 ....Index managing details (EPO)
- E17.089 ..Clustering or classification (EPO)
- E17.09 ...Into predefined classes (EPO)
- E17.091 ...Including class or cluster creation or modification (EPO)
- E17.092 ...Including cluster or class visualization or browsing (EPO)
- E17.093 ..Browsing or visualization (EPO).
- E17.094 ...Summarization for human users (EPO)
- E17.095 ..Based on associated metadata or manual classification, e.g., bibliographic data, etc. (EPO)
- E17.096 ...Using identifiers, e.g., barcodes, radio frequency identifications, etc. (EPO)
- E17.097 ...Using citations (EPO)
- E17.098 ..Creation of semantic tools (EPO)
- E17.099 ...Ontology (EPO)
- E17.1 ...Thesaurus (EPO)
- E17.101 .Of audio data (EPO)
- E17.102 ..Based on associated metadata, e.g., bibliographic data, images associated with audio data, etc. (EPO)
- E17.103 ...Wherein the metadata is a transcript of the audio data (EPO)
- E17.104 ..Processing sequentially ordered data, e.g., alpha-numerically ordered, etc. (EPO)
- E17.105 ..Binary access (EPO)
- E17.106 ..Sequential access (EPO)
- E17.107 ..Retrieval from the Internet, e.g., browsers, etc. (EPO)
- E17.108 ..By querying, e.g., search engines or meta-search engines, crawling techniques, push systems, etc. (EPO)
- E17.109 ...With filtering and personalization (EPO)
- E17.11 ...Spatially dependent indexing and retrieval, e.g., location dependent results to queries, etc. (EPO)
- E17.111 ..By navigation, e.g., using categorized browsing, portals, synchronized browsing, visual networks of documents, virtual worlds or tours, etc. (EPO)
- E17.112 ..By using information identifiers, e.g., encoding URL in specific indicia, browsing history, etc. (EPO)
- E17.113 ...By using bar codes (EPO)
- E17.114 ...Bookmark management (EPO)
- E17.115 ...URL specific, e.g., using aliases, detecting broken or misspelled links, etc. (EPO)
- E17.116 ..Web site content organization and management, e.g., publishing, automatic linking or maintaining pages, etc. (EPO)
- E17.117 ...Access to data in other repository systems, e.g., legacy data or dynamic web page generation, etc. (EPO)
- E17.118 ...Document structures and storage, e.g., HTML extensions, etc. (EPO)
- E17.119 ..Browsing optimization (EPO)
- E17.12 ...Of access to content, e.g., by caching, etc. (EPO)
- E17.121 ...Optimizing the visualization of content, e.g., distillation of HTML documents, etc. (EPO)

- E17.122 .Of semistructured data, the underlying structure being taken into account, e.g., mark-up language structure data, etc. (EPO)
- E17.123 ..Indexing, e.g., of XML tags, etc. (EPO)
- E17.124 ..Mapping or conversion (EPO)
- E17.125 ...Mapping to a database (EPO)
- E17.126 ...Mark-up to mark-up conversion (EPO)
- E17.127 ..XML native databases, structures and querying (EPO)
- E17.128 ...Query formulation (EPO)
- E17.129 ...Query processing (EPO)
- E17.13 ....Query translation (EPO)
- E17.131 ....Query optimization (EPO)
- E17.132 ....Query execution (EPO)
- E17.133 ...Results presentation (EPO)
- E17.134 .Details of database functions independent of the retrieved data type (EPO)
- E17.135 ..Querying (EPO)
- E17.136 ...Query formulation (EPO)
- E17.137 ....Using system suggestions (EPO)
- E17.138 .....Using search space presentation or visualization, e.g., category or range presentation and selection, etc. (EPO)
- E17.139 ....Natural language query formulation or dialogue systems (EPO)
- E17.14 ....Query processing (EPO)
- E17.141 ...Presentation or visualization of query results (EPO)
- E17.142 ..Browsing or visualization (EPO)
- E17.143 ..Retrieval based on associated metadata (EPO)

**FOREIGN ART COLLECTIONS**FOR 000 **CLASS-RELATED FOREIGN DOCUMENTS**