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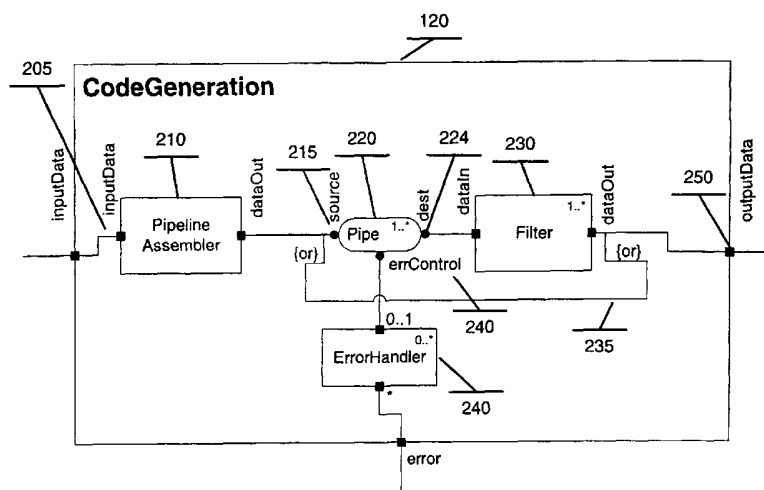
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— with international search report

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR GENERATING SOURCE CODE



(57) Abstract: Source code generation tools (120) rely upon an architecture where the source to be generated is embedded in the application code. These tools may use a GUI layer to capture user's information (205), and transform the user's information (205) into source by patching pieces of source code that is embedded in the application code and produce the source code. Because the code pieces used to generate the output are embedded in the application code itself, code modification requires programmers to edit the source code of the application itself and modify it. The invention provides a method and apparatus for generating source code for computer programs. The method in the invention provides a set of tasks that are carried out to transform data in successive steps of data conversion. For example, a user may enter a set of data rules (205) using a first specification language to describe a desired computer program. The invention provides a method to apply a suite of transformations to data resulting in the generation of source code (215) capable of running in specific environments. The invention provides means for generating source code for whole new software applications, and for integrating newly generated source with existing projects and environments.



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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US02/16712

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC(7) :G06F 9/44  
US CL : 717/106  
According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**  
Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 717/106; 717/114,116, 118, 119, 106, 108; 707/518; 845/601,594

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
WEST, ACM, IEEE, STN

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,842,017 A (HOOKAY et al) 24 NOVEMBER 1998, see entire document	1-34
A	US 5,930,509 A (YATES et al) 27 JULY 1999, see entire document	1-34
A	US 6,141,012 A (BOLLMAN et al) 31 OCTOBER 2000, see entire document	1-34
A	Title: Techniques for Obtaining High Performance in Java Programs, author: Kazi et al, ACM, September 2000, see entire document	1-34
A	Title: Developing a Practical Parallel Multi-pass Renderer in Java and C++, author: Yamauchi et al, ACM, June 2000, see entire document	1-34

Further documents are listed in the continuation of Box C.  See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

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Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer Peggy Harold CHAMELI C. DAS Telephone No. (703) 305-1339

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US02/16712**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- The additional search fees were accompanied by the applicant's protest.  
 No protest accompanied the payment of additional search fees.