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COLUMNS

Guest Column: Pattern Integration

Pattern Integration: Emphasizing the De-Coupling of Software Subsystems in Conjunction with the Use of Design Patterns	7
<i>By Sarnath Ramnath and Brahma Dathan</i>	

Two patterns that we have had occasion to discuss in the classroom are the Command pattern and the State pattern. In one possible organization of an object-oriented design course, one would briefly discuss the concepts of reuse and decoupling before introducing design patterns and related examples. The examples should impress upon the student the benefits of reuse and decoupling.

Classification Theory

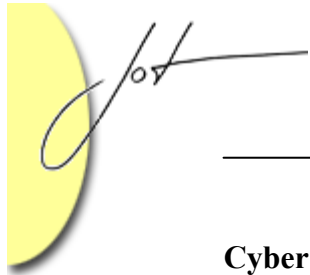
The Theory of Classification, Part 6: The Subtyping Inquisition	17
<i>By Anthony J.H. Simons</i>	

How well do popular object-oriented languages follow the rules of subtyping? Not too well in most cases. How type secure are they generally? A quick survey may reveal hidden weaknesses or unappreciated strengths in your favorite language.

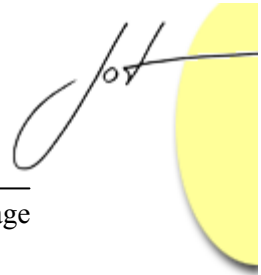
Business Objects

Pattern Driven Solution Engineering	27
<i>By Mahesh H. Dodani</i>	

The primary objective of the patterns for e-business is to provide a consistent set of patterns that can help drive business priorities and requirements into proven technical solutions. Experience in this area has shown that only 20 percent of an application development project is unique to the business; 80 percent of a project can be approached with proven best practices and established techniques.



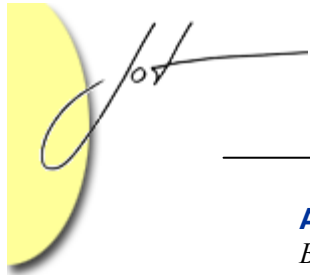
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A Retrospection On Niche Database Technologies <i>By Won Kim</i>	35
<p>Today there are various niche database vendors, offering data integrity tools, database performance boosters, main-memory database systems, database performance monitoring tools, spatial data managers and temporal data managers. Major RDBs offer rich functionality and are supported by a wide variety of tools, and run on most platforms, and customers expect even niche database engine products to match the functionality and platforms of the major RDBs.</p>	
Objects and Agents	
Modeling Agents and their Environment: The Physical Environment <i>By James Odell, H. Van Dyke Parunak, Mitchell Fleischer and Sven Brueckner</i>	43
<p>Without an environment, an agent is effectively useless. Cut off from the rest of its world, the agent can neither sense nor act. An environment provides the conditions under which an entity (agent or object) can exist. It defines the properties of the world in which an agent will function.</p>	
OO Requirements Engineering	
Modern Requirements Specification <i>By Donald Firesmith</i>	53
<p>Improvements in requirements tools have not only enabled better requirements management; they have also enabled the automatic generation of consistent, current, audience-specific requirements specifications that far better meet the needs of their individual audiences.</p>	
Educator's Corner	
Branch and Bound Implementations for the Traveling Salesperson Problem - Part 1: A solution with nodes containing partial tours with constraints <i>By Richard Wiener</i>	65
<p>This first in a series of several columns outlines a well known branch and bound algorithm for solving the Traveling Salesperson Problem (TSP). A single-threaded Java implementation of this algorithm is presented and discussed along with some results on several moderate sized potentially intractable problems. The implementation provides an opportunity to discuss several important Java implementation issues.</p>	



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Proving Pointer Program Properties. Part 1: Context and overview	87
<i>By Bertrand Meyer</i>	
First part of a general mathematical framework to describe and prove properties of object-oriented programs with pointers.	
Eiffel	
On an open issue of programming language phonetics	109
<i>By Bertrand Meyer</i>	
Particular in-season for this March-April issue: a novel contribution to the underrated field of programming phonetics, with poetic application to tuples.	

REFEREED ARTICLES

Specifying Use Case Interaction: Types of Alternative Courses	111
<i>By Pierre Metz, John O'Brien, and Wolfgang Weber</i>	
Use cases are a powerful and widely recognised tool for the elicitation of functional requirements and the specification of prospective software applications. However, major problems and gaps still exist; practitioners frequently encounter these. One of these is the specification of alternative use case interaction courses.	
Quality Characteristics for Software Architecture	133
<i>By Francisca Losavio, Ledis Chirinos, Nicole Lévy, and Amar Ramdane-Cherif</i>	
Quality requirements captured as non-functional requirements in the early stages of software development greatly influences the software system's architecture.	
Using an Object-Oriented Methodology Called TAD in Business Process Reengineering	151
<i>By Talib Damij</i>	
TAD methodology consists of six phases and uses several tables to represent the real world of the enterprise. The first and second phases deal with identifying the reality of the system. The third phase focuses on carrying out business process reengineering in order to create a competitive and successful enterprise. The last three phases are used to develop the information system of the reengineered organization.	



Architectural Quality in Development Processes: A Case Study <i>By Anna Grimán and María Pérez</i>	169
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Software quality can be expressed through various attributes, many of which are architectural by nature. This means evaluating software architecture early in the development process and emphasizing on the architecture definition and specification. Therefore an architecture-focused development process, with an integrated self-evaluation, must be selected.

Extending ODMG Metadata to Define External Schemas <i>By Manuel Torres and José Samos</i>	183
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The extension to ODMG metadata proposed in this paper maintains the structure of the ODMG schema repository as an object-oriented schema, and can be used by most of the existing external schema definition methodologies.

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