Course Outline

Data & Business Process Modeling

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Watch this lecture and download the slides from

http://jarrar-courses.blogspot.com/2015/01/dataandbusinessprocessmodelling.html
Reading


هنداسة البيانات، مخطط بيانات المفاهيمية، النمذجة المفاهيمية للبيانات، هندسة العملية، إعادة هندسة العمليات، إعادة هندسة العمليات الإدارية
The course is divided into two parts:

<table>
<thead>
<tr>
<th>Part I: Conceptual Data Modeling, using ORM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part II: Business Process Management</td>
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</tbody>
</table>

There is no perfect design, there is a better design!

Help you to learn science and art!

⇒ Better salary, better communication with people
Part I: Conceptual Data Modeling, using ORM

Topics

<table>
<thead>
<tr>
<th>Information Modeling and Conceptual Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project-1</td>
</tr>
<tr>
<td>Uniqueness and Mandatory Rules</td>
</tr>
<tr>
<td>Project-2</td>
</tr>
<tr>
<td>Subtype Relations, and Other business rules</td>
</tr>
<tr>
<td>Schema Equivalence, Optimization, and Engineering</td>
</tr>
<tr>
<td>Project-3</td>
</tr>
<tr>
<td>Medterm Exam</td>
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</tbody>
</table>
Learning Objectives (Part I)

Knowledge and Understanding

• *Notations and concepts* used in conceptual modeling
• *Object Role Modeling (ORM)* Methodology.
• *Data integrity and business rules*.

Intellectual Skills:

• Analyze application requirements at the conceptual level, and formalize it using ORM.
• Analyze entity identities
• Map conceptual models into DB databases & other models.
• Optimize/transform/(re-)engineer conceptual models.
• Detect/resolve contradictions and implications

Professional and Practical Skills:

• Use ORM modeling tools, such as NORMA.
• Generate databases normalized at the 5th normal form
Representing information graphically

<table>
<thead>
<tr>
<th>Movie</th>
<th>Year</th>
<th>Director</th>
<th>Stars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awakenings</td>
<td>1991</td>
<td>Penny Marshall</td>
<td>Robert De Niro</td>
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<td></td>
<td></td>
<td></td>
<td>Robin Williams</td>
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<td>William Baldwin</td>
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<td>Robert De Niro</td>
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<td></td>
<td></td>
<td></td>
<td>Kurt Russell</td>
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<td></td>
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<td>Kevin Kostner</td>
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<td></td>
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<td>Mary McDonnell</td>
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</table>
Object-Role Modeling (ORM)

ORM is conceptual modeling language.
ORM has an expressive graphical notation.
ORM is designed for modeling DB schemes at the conceptual level.

You build an ORM schema and then click a button to automatically generate a database.

Our goal in this course is to use ORM as a general Conceptual Modeling language, rather than only as a database modeling language.

ORM can be used for modeling business rules, ontology, XML schemes, and others.
ORM Usage Scenarios

XML Schema
Warehouse
Business Rules
Web (x)Forms
Requirements Engineering
Record my recipes!

Originally
Database
Later
Ontology
eGov Ontology (using ORM)
Part I: Business Process Modeling

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<tr>
<td>Business Process implementation</td>
</tr>
<tr>
<td>Project-3</td>
</tr>
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Learning Objectives (Part II)

Knowledge and Understanding
• business process modeling and mapping.
• business process optimization and (re-)engineering.

Intellectual Skills:
• Model and map business processes (BPMN 2.0)
• Optimize and re-engineer business processes.

Professional and Practical Skills:
• Use process modeling tools, such as Activiti, Visio and Piazza.
• Implement and execute process models using JAVA frameworks, and integrate in service oriented Architecture.

Other and Soft Skills:
• Communicate with domain experts and business owners.
• Deliver technical presentations.
• Work in teams.
# Part I: Business Process Modeling

## Topics

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Example


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Evaluation

Midterm exam 20%
Assignments 10%
Projects 35%
Interaction & contribution 5%
Final Exam 30%
Students Responsibility

Bing your laptop: As this is a practical oriented course, practical sessions will take place in the classroom, and students are required to bring their laptops every lecture, and they are responsible on installing the tools that will be used through out the course.

Class participation and independent work. Students are expected to actively participate in all classes and allows perform independent work.

Class Etiquette. Please keep all cell phones and other electronic devices turned off during class. If your activities during class are deemed disruptive, you will be asked to leave. Use of a personal computer during class is prohibited except for note taking with Instructor permission.
Ritaj and Facebook: official communication through Ritaj. Students are assumed to check Ritaj several times a day. A Facebook Group is created for (informal) communication:
https://www.facebook.com/groups/577156732420027/

Attendance. Attendance is mandatory. University regulations regarding this matter will be strictly enforced.

Academic Honesty. Individual work must be each student’s own work. Plagiarism or cheating will result in official University disciplinary review.

Missed Exams. There are no makeup exams.