

CSC343 A3

# ER MODELLING AND DATABASE DESIGN

Ross Gatih      Trong Truong  
997 92 311 8      995 94 222 6

Sunday 18 November 2012

## Contents

<b>I</b>	<b>Assumptions</b>	<b>2</b>
1	Setup and login phase	2
2	Submission phase	2
3	Reviewing phase	3
4	Decision and publishing phase	3
<b>II</b>	<b>ER diagram</b>	<b>3</b>
<b>III</b>	<b>Relational schema</b>	<b>5</b>

## Part I

# Assumptions

## 1 Setup and login phase

**Number of reviewers.** Each conference has a fixed number of reviewers assigned per paper.

**Conference participant multiplicity.** Every user can participate in at most one role per conference, otherwise we have a conflict of interest. (E.g. a chair has the power to choose who gets to review a paper, so she might choose herself.)

**Conference topic multiplicity.** Every conference can define its own topics, or use existing topics from other conferences.

**File storage.** We'll only store filenames of papers, forms, and letters in the database. The files themselves will be stored on a hard drive somewhere outside the database.

## 2 Submission phase

**Author conference participation.** An author may have an account without being registered in any conference. She may upload a paper without submitting it to any one.

**Different submissions are different papers.** An author has the option to update an existing submission instead of submitting an identical copy, but that's application, not database-level design, so we don't have to worry

about that.

**Author VS coauthor.** We don't distinguish between authors and coauthors: everyone author of a paper is a coauthor.

### 3 Reviewing phase

**Reviewer preference: bidding process.** To bid on a paper, a reviewer expresses her level of interest by assigning an integer between 0 (low) and 5 (high).

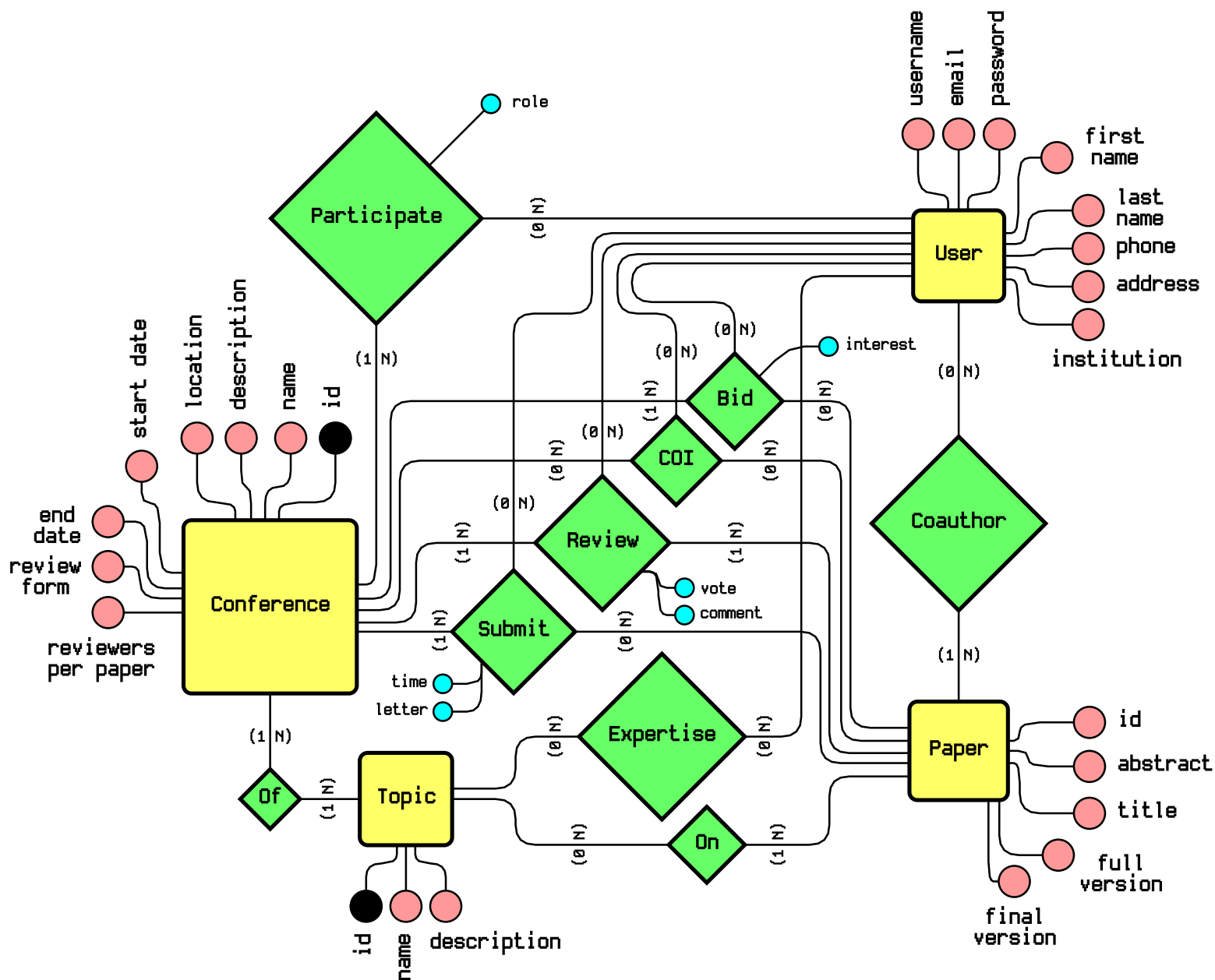
**Reviewer's choice.** A reviewer casts a vote of YES or NO on whether or not she thinks the paper should be published.

### 4 Decision and publishing phase

**One letter per paper.** The chair sends only one acceptance notification letter per paper, to the coauthor who submitted it.

## Part II

# ER diagram



## Part III

# Relational schema

**Users:** (User name, E-mail, Password, First name, Last name, Institution, Address, Phone number)

**User's expertise:** (User name, Topic ID)

**User's bid for paper:** (User name, Paper ID, Conference ID, Interest)

**User's COI:** (User name, Paper ID, Conference ID)

**User's review:** (User name, Paper ID, Conference ID, Vote, Comment)

**User's submission:** (User name, Paper ID, Conference ID, Time, Letter)

**Papers:** (Paper ID, Abstract, Title, Full version, Final version)

**Paper's co-authors:** (Paper ID, User name)

**Paper's topic:** (Paper ID, Topic ID)

**Conferences:** (Conference ID, Name, Description, Location, Start date, End date, Review form, Reviewers per paper)

**Committee:** (Conference ID, User name, Role)

**Conference's topics:** (Conference ID, Topic ID)

**Topics:** (Topic ID, Name, Description)

## Part IV

# PostgreSQL database definition

```
CREATE TABLE Expertise
(
  User_id          VARCHAR(255) NOT NULL,
  Topic_idb       VARCHAR (255) NOT NULL,
  CONSTRAINT Expertise_User FOREIGN KEY (User_id) REFERENCES User (Id),
  CONSTRAINT Expertise_Topic FOREIGN KEY (Topic_id) REFERENCES Topic (Id),
  CONSTRAINT pk_Expertise PRIMARY KEY (User_id, Topic_id)
);
```

```
CREATE TABLE COI
(
  User_id          VARCHAR (255) NOT NULL,
  Paper_id         INT NOT NULL,
  Conference_id     INT NOT NULL,
  CONSTRAINT COI_User FOREIGN KEY (User_id) REFERENCES User (Id),
  CONSTRAINT COI_Paper FOREIGN KEY (Paper_id) REFERENCES Paper (Id),
  CONSTRAINT COI_Conference FOREIGN KEY (Conference_id)
  REFERENCES Conference (Id),
  CONSTRAINT pk_COI PRIMARY KEY (User_id, Paper_id, Conference_id)
);
```

```

CREATE TABLE Submission
(
User_id          VARCHAR (255) NOT NULL,
Paper_id         INT NOT NULL,
Conference_id     INT NOT NULL,
Time             TIME NOT NULL,
Letter           VARCHAR (255) NOT NULL,
CONSTRAINT Submission_User FOREIGN KEY (User_id) REFERENCES User (Id),
CONSTRAINT Submission_Paper FOREIGN KEY (Paper_id) REFERENCES Paper (Id),
CONSTRAINT Submission_Conference FOREIGN KEY (Conference_id)
REFERENCES Conference (Id),
CONSTRAINT pk_Submission PRIMARY KEY (User_id, Paper_id, Conference_id)
);

```

```

CREATE TABLE Author
(
User_id          VARCHAR (255) NOT NULL,
Paper_id         INT NOT NULL,
CONSTRAINT Author_User FOREIGN KEY (User_id) REFERENCES User (Id),
CONSTRAINT Author_Paper FOREIGN KEY (Paper_id) REFERENCES Paper (Id),
CONSTRAINT pk_Author PRIMARY KEY (User_id, Paper_id)
);

```

```

CREATE TABLE Conference
(
Id              INT NOT NULL AUTO_INCREMENT,
Name            VARCHAR (255) NOT NULL,
Description     VARCHAR (255) NOT NULL,
Location        VARCHAR (255),
Start_date      DATE,
End_date        DATE,
Review_form     VARCHAR (255),
Num_reviewer    INT,
PRIMARY KEY (Id)
);

```

```
CREATE TABLE ConferenceTopic
(
Conference_id      INT NOT NULL,
Topic_id           INT NOT NULL,
CONSTRAINT Submission_Ctopic FOREIGN KEY (Conference_id)
REFERENCES Conference (Id),
CONSTRAINT Ctopic_Topic FOREIGN KEY (Topic_id) REFERENCES Topic (Id),
CONSTRAINT pk_Ctopic PRIMARY KEY (Conference_id, Topic_id)
);
```