MTAT.03.105
Introduction to Databases

Lecture #13
Index, Documentation, Web Services
Revision

Ljubov Jaanuska
(ljubov.jaanuska@ut.ee)
Lecture 12.  Summary

• User administration
Lecture 13. What will you learn

• Index
• Documentation
• SQL Anywhere HTTP web server, web services, web services through a web browser
• Revision
Index

CREATE INDEX index_name ON table_name
({column_name ASC|DESC})

CREATE INDEX ix_begin ON Game (beginning DESC)

CREATE INDEX ix_name ON Player (surname ASC, p_name ASC)

DROP INDEX index_name
Documentation

Create a new folder for the documentation

Central -> Tools -> Generate Database Documentation
WEB Services

SQL Anywhere contains a built-in HTTP web server that allows to create online web services in SQL Anywhere DB.

Web Services (in SQL Anywhere) - DB ability to listen, process and answer to HTTP request.

On the database server, web services are defined by URL. (a unique link for each web service, e.g.:  
  port/database_name/webservice_name )
Start DBLauncher

Start a SQL Anywhere HTTP web server database via Network Server (for Windows) or DBLauncher (for OS X):

`-xs http(port=8082)`
Connect to DB

Connect to the database.
NB! In Action box choose:

*Connect to a running database on this computer*
HTTP web service syntax

CREATE SERVICE service_name
TYPE { 'RAW' | 'HTML' | 'JSON' | 'XML' }
  [ URL [PATH] { ON | OFF | ELEMENTS } ]
  [ attributes]
  [ AS { sql | NULL } ]

attributes:
  [ AUTHORIZATION { ON | OFF } ]
  [ ENABLE | DISABLE ]
  [ METHODS 'methods,...' ]
  [ SECURE { ON | OFF } ]
  [ USER { user_name| NULL } ]

method:
  DEFAULT, POST, GET, HEAD, PUT, DELETE, NONE
Create general HTTP web service

CREATE SERVICE HelloWorld
TYPE 'RAW'
AS SELECT 'Hello world!';
View web service in browser

In browser:

http://localhost:8082/HelloWorld

User Name: dba
Password: sql
Web service and query

CREATE SERVICE ChessPlayer
  TYPE 'HTML'
  AUTHORIZATION OFF
  USER DBA
AS SELECT * FROM player;
View web service in browser

In browser:

http://localhost:8082/ChessPlayer
Web service with parameters

CREATE SERVICE player_id_nr
TYPE 'HTML'
AUTHORIZATION OFF
USER DBA
AS SELECT *
  FROM player
  WHERE p_id LIKE :nr1
  OR p_id LIKE :nr2;

localhost:8082/player_id_nr?nr1=8%&nr2=7%
Web service with parameters

CREATE SERVICE player_id
TYPE 'HTML'
URL ELEMENTS
AUTHORIZATION OFF
USER DBA
AS SELECT *
    FROM player
    WHERE p_id LIKE HTTP_VARIABLE('URL1')
    OR p_id LIKE HTTP_VARIABLE('URL2');
Web service with function

CREATE SERVICE club_size
TYPE 'HTML'
AUTHORIZATION OFF
USER DBA
AS SELECT f_club_size(:club_id)
Web service with procedure

CREATE SERVICE p_info
TYPE 'HTML'
AUTHORIZATION OFF
USER DBA
AS call p_info()
Revision

Design an E-R diagram for the thesis defense procedure.

There are several committees in the institute. In each committee there are several members (each person can belong only to one committee). Students present their theses. The data about the students and the theses must be stored into the database. Each thesis is assigned an opponent. The data about opponents must also be stored in the database. A committee member can be an opponent, also an opponent can be found outside the institute. The database should help answer the following questions:

• Which committee listened to Teet Tubli’s thesis?
• How many theses were presented to committee #3 this year?
• Which committee is opponent Toivo Mets a member?

If needed, add extra attributes.
Revision

Is it a good relation? Check for the third normal form.

Thesis (first_name, last_name, title, field, pages, opponent_name, opponent_surname)