

# RFID Microapplication



**i-Muse**

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# Application GUI

Programming  
Language: **Java**

ItemID	RFIDTag	Material	ShowCase	Room
25		ξυλο καρυδιας χρωμ...	456	pteriga2
26	30003005FB63AC1...	ξυλο καρυδιας χρωμ...	1234	pteriga2
24	30003005FB63AC1...	Περιγραφή Πηλού	12345	pteriga

Showcase :  From :  To:

Material :

Room :

These are data  
Retrieved from  
the Remote  
Database  
**Kabamaru.csd.auth.gr**



# SQL Query & View

- ```
SELECT itm.id AS ItemID,RFID.rfid AS RFIDTag,t.content AS Material,
ShCas.Code AS ShowCase,rooms.code AS Room
FROM descriptions_relMaterialsTexts relMatTxt
INNER JOIN materials mat ON relMatTxt.materials_id = mat.id
INNER JOIN texts t ON relMatTxt.texts_id = t.id
INNER JOIN relItemsMaterials relItmMat ON relMatTxt.materials_id =
relItmMat.materials_id
INNER JOIN items itm ON relItmMat.items_id = itm.id
INNER JOIN relShowcasesItems relSitm ON itm.id=relSitm.items_id
INNER JOIN showcases ShCas ON relSitm.showcases_id=ShCas.id
INNER JOIN relShowcasesRfidtags relShRF ON relShRF.showcases_id = ShCas.id
INNER JOIN rfidtags RFID ON RFID.id=relShRF.rfidtags_id
INNER JOIN relRoomsShowcases relRmSh ON relRmSh.showcases_id=ShCas.id
```

INNER JOIN rooms ON rooms.id=relRmSh.rooms\_id

- Created Mysql view (name:“RFID”) in order not to repeat this complex query.

The screenshot shows the MySQL Workbench interface. On the left sidebar, the 'Views' folder is expanded, and the 'RFID' view is highlighted with a red box. The main window displays the data for this view, showing a table with columns: ItemID, RFIDTag, Material, ShowCase, and Room. The data is as follows:

| ItemID | RFIDTag                      | Material         | ShowCase | Room   |         |
|--------|------------------------------|------------------|----------|--------|---------|
| 21     | 30003005FB63AC1F3841EC880467 | ξυλο καρυδιας... | 81B      | 12345  | pteriga |
| 21     | 30003005FB63AC1F3841EC880469 | ξυλο καρυδιας... | 81B      | 12345  | pteriga |
| 21     | 30003005FB63AC1F3841EC880470 | ξυλο καρυδιας... | 81B      | 12345  | pteriga |
| *      | 0 (NULL)                     | (NULL)           | OK       | (NULL) | (NULL)  |



# Refine Search

The screenshot shows a software window with a menu bar (File, Help) and tabs (View, Print). A table displays search results with columns for ItemID, RFIDTag, Material, ShowCase, and Room. Below the table are filter dropdowns for Showcase, Material, and Room, along with From and To input fields. At the bottom are buttons for Unassigned EPC, Search, and Print. A small iMuse logo is visible in the top right corner of the window.

| ItemID | RFIDTag | Material                                     | ShowCase | Room     |
|--------|---------|----------------------------------------------|----------|----------|
| 25     |         | ξυλο καρυδιας χρωματος κοκκινο-καφε κλπ κλπ. | 456      | pteriga2 |

Results

Refine search using dynamic generated Filters to minimize errors

Showcase : 456 From : To :

Material : ξυλο καρυδιας χρωματος κοκκινο-κα...

Room : pteriga2

Unassigned EPC

Search Print

Unassigned Button retrieves all Showcases without RFID



# Refine Search

The screenshot shows a software window with a menu bar (File, Help) and sub-menus (View, Print). A table displays search results with columns for ItemID, RFIDTag, Material, ShowCase, and Room. Below the table are filter dropdowns for Showcase, Material, and Room, along with 'From' and 'To' input fields. At the bottom are buttons for 'Unassigned EPC', 'Search', and 'Print'. A small iMuse logo is visible in the top right corner of the window.

| ItemID | RFIDTag | Material                                     | ShowCase | Room     |
|--------|---------|----------------------------------------------|----------|----------|
| 25     |         | ξυλο καρυδιας χρωματος κοκκινο-καφε κλπ κλπ. | 456      | pteriga2 |

Results

Refine search using dynamic generated Filters to minimize errors

Showcase : 456 From : To :

Material : ξυλο καρυδιας χρωματος κοκκινο-κα...

Room : pteriga2

Unassigned EPC

Search Print

Unassigned Button retrieves all Showcases without RFID



# Rfid Printer Interface

- RFID Generate EPC option is implemented and activated.
- RFID print option is implemented and activated.
- RFID print must be tested with real RFID printer.  
(Printronix, **SL4M**)





# Printing RFIDs

| ItemID | Material                                     | RFIDTag           | ShowCase | Room     |
|--------|----------------------------------------------|-------------------|----------|----------|
| 25     | ξύλο καρυδιάς χρώματος κοκκινο-καφε κλπ κλπ. |                   | 456      | pteriga2 |
| 26     | ξύλο καρυδιάς χρώματος κοκκινο-καφε κλπ κλπ. | 30003005FB63AC... | 1234     | pteriga2 |
| 24     | Περιγραφή Τηλού                              | 30003005FB63AC... | 12345    | pteriga  |

From : 24 To : 26

Print

Multiple selections / prints of Showcases can be executed

From / To fields completed automatically or manually

On print press all selected fields are printed while **unassigned** Showcases are assigned an EPC by the Generator.



# Settings.xml

|                                        |                                           |
|----------------------------------------|-------------------------------------------|
| ?? xml                                 | version="1.0" encoding="UTF-8"            |
| <b>e</b> settings                      | (printerSettings, databaseSettings?)      |
| <b>a</b> xmlns:xsi                     | http://www.w3.org/2001/XMLSchema-instance |
| <b>a</b> xsi:noNamespaceSchemaLocation | settings.xsd                              |
| <b>e</b> printerSettings               | (ip, port, path)                          |
| <b>e</b> ip                            | 169.254.85.20                             |
| <b>e</b> port                          | 9100                                      |
| <b>e</b> path                          | resources/pgls/AWS.pgl                    |
| <b>e</b> databaseSettings              | (ip, port, username, password, schema)    |
| <b>e</b> ip                            | kabamaru.csd.auth.gr                      |
| <b>e</b> port                          | 3306                                      |
| <b>e</b> username                      | volos                                     |
| <b>e</b> password                      | ██████████                                |
| <b>e</b> schema                        | Arch                                      |

Rfid Printer settings

Database settings





# Database discussion!

- Transformation of SQL View in TopLink Essentials JPA query is problematic due to the fact that SQL view to JTable binding is not supported.
- The design of the database leads to complex queries (10 joins for data from 5 different tables) that leads to slow data retrieval process for a large number of entries.
- (Foreign keys can be used instead of XreLY tables)