

# Time Monitoring Tool Use-Case Specifications

**Version <5.0>**

# Revision History

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## Preface

The following case study has been modified from its original content. The case study is meant to be used as a starting point to help you understand how to use the artifact. Thus, information has been shrunk to avoid navigating an enormous document (in size and pages).

You can also refer to the related template (in HTML format or WORD format) in the UPEDU Artifacts Templates Requirements Section.

Regards,

Unified Process for Education Team

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**Use-Case Specifications**

### Use-Case Model

* 1. **Introduction**

The system involves Internet-Distributed Timestamps. Thus, it must be available from any remote terminal that might be used by the targeted users. User types are: *Developer* and Administrator. A user accesses the system by providing his username and password which were previously defined by the system administrator. The *Developer* uses the system though a Graphical User Interface (GUI) hosted on a web site from which he can fill in his latest timestamps. Developers are also required to modify mistaken timestamps identified by the *Administrator.* The *Administrator* also uses the system through a similar GUI but offered options are different: Creation of new users, modification of an existing user profile, timestamps sorting and listing, timestamps exportation and importation to/from external applications. All data is stored in a database accessed by Server Module upon execution of queries.

* 1. **General Actors Descriptions**
     1. *Developer*

An employee. Enters timestamps in the database for validation by the *Administrator.* Might be required to modify or mistaken old entries*.* Has a personal username and password to access the system.

* + 1. *Administrator*

The administrator mission is to manage all entered timestamps in the system. The administrator creates the usernames and passwords for other system users. Moreover, the administrator can list and sort the timestamps using different criteria, can import or export timestamps data from/to external applications such as Microsoft Excel and Microsoft Project.

* + 1. *DBMS*

The Database Management System is an external actor. It stores data in the database and executes internal database queries.

* + 1. *MS EXCEL*

Microsoft EXCEL is an external actor. It is one of the locations where data is exported to or imported from. Exportation involves the creation of a statistical spreadsheet or report. Importation involves adding new database entries from a spreadsheet.

* + 1. *MS PROJECT*

Microsoft PROJET is an external actor. It is one of the locations where data is exported to or imported from. Exportation involves the creation of Gantt Diagrams. Importation involves adding new database entries from a Gantt Diagram.

* 1. **Use-Case Model Hierarchy**
     1. *Mngmt - Connections*
* **Description**

This package is only a container package. It references to the sub packages mentioned in the “packages owned” list point.

* **Use Cases**
  + **Load MCM**
  + **Load DCM**
  + **Login**
  + **Logout**
  + **Show TMT Status**
  + **Identify errors**
  + **Correct errors**
  + **Show TMT Window**
  + **Close TMT Window**
* **Actors**
  + **Administrators**
  + **Developers**
  + **DBMS (Database Management System)**
* **Relationships**

This package is only a container package. It references to the sub packages mentioned in the following list point.

* **Packages Owned**
  + **Load Client Modules**
  + **Login/Logout Mngmt**
    - 1. Packages Diagram

Load Client Modules

Login/Logout Mngmt

Mngmt - Connections

(from Mngmt - Client/Server)

**Figure 1 Mngmt – Connections / Use Packages**

* + - 1. Load Client Modules
         * **Description**

Activates a Client Session

* + - * + **Use Cases**

**Load MCM**

**Load DCM**

* + - * + **Actors**

**Administrator**

**Developer**

* + - 1. Login/Logout Mngmt
         * **Description**

All users’ connections management functionalities

* + - * + **Use Cases**

**Login**

**Logout**

**Show TMT Status**

**Identify errors**

**Correct errors**

**Show TMT Window**

**Close TMT Window**

* + - * + **Actors**

**Administrator**

**Developer**

**SGDB**

* + 1. *Mngmt - Developer*
* **Description**

This package contains all management functionalities that a developer can exert.

* **Use Cases**
  + **Add Timestamp**
  + **Update Timestamp**
  + **Validate Query**
  + **Execute Query**
  + **Access Database**
* **Actors**
  + **Developer**
  + **DBMS (Database Management System)**
* **Relationships**
  + **None**
* **Packages Owned**
  + **None**

1.3.2.1 Packages Diagram

Mngmt - Devel oper

**Figure 2 Mngmt - Developer**

* + 1. *Mngmt - Administrator*
* **Description**

This package contains all management functionalities that an administrator can exert.

* **Use Cases**
  + **Deactivate User**
  + **Add User**
  + **Validate Timestamps**
  + **Modify User**
  + **List Alphabetically**
  + **List by Project**
  + **List by Supervisor**
  + **Export to EXCEL**
  + **Export to MSPROJECT**
  + **Add Project**
  + **Add Task**
  + **Validate Query**
  + **Execute Query**
  + **Access Database**
* **Actors**
  + **Administrator**
  + **EXCEL**
  + **MSPROJECT**
  + **DBMS (Database Management System)**
* **Relationships**
  + **None**
* **Packages Owned**
  + **Developers Mngmt**
  + **External Data Mngmt**
  + **Project Mngmt**
    - 1. Packages Diagram

List and Sort Mngmt

(from Developers Mngmt)

Project Mngmt

External Data Mngmt

Developers Mngmt

Mngmt - Administrator

(from Mngmt - Client/Server)

**Figure 3 Mngmt - Administrator**

* + - 1. Developers Mngmt
         * **Description**

This package contains all developer management functionalities that an administrator can exert.

* + - * + **Use Cases**

**Deactivate User**

**Add User**

**Validate Timestamps**

**Modify User**

**List Alphabetically**

**List by Project**

**List by Supervisor**

**Validate Query**

**Execute Query**

**Access Database**

* + - * + **Actors**

**Administrator**

**DBMS (Database Management System)**

* + - * + **Packages Owned**

**List and Sort Mngmt**

**List and Sort Mngmt**

* + - * + **Description**

This package contains all developers’ lists management functionalities that an administrator can exert.

* + - * + **Use Cases**

**List Alphabetically**

**List by Project**

**List by Supervisor**

**Validate Query**

**Execute Query**

**Access Database**

* + - * + **Actors**

**Administrator**

**DBMS (Database Management System)**

* + - * + **Relationships**

**None**

* + - * + **Packages Owned**

**None**

* + - 1. External Data Mngmt
         * **Description**

This package contains all data management functionalities that an administrator can exert.

* + - * + **Use Cases**

**Export to EXCEL**

**Export to MSPROJECT**

**Validate Query**

**Execute Query**

**Access Database**

* + - * + **Actors**

**Administrator**

**EXCEL**

**MSPROJECT**

**DBMS (Database Management System)**

* + - * + **Packages Owned**

**None**

* + - 1. Project Mngmt
         * **Description**

This package contains all project management functionalities that an administrator can exert.

* + - * + **Use Cases**

**Add Project**

**Add Task**

**Validate Query**

**Execute Query**

**Access Database**

* + - * + **Actors**

**Administrator**

**DBMS (Database Management System)**

* + - * + **Relationships**

**None**

* + - * + **Packages Owned**

**None**

* 1. **Diagrams of the Use-Case Model**

Diagrams of the use case model (use-case diagrams) are presented in each Section (Package) of use cases below.

## Load Client Modules

Administrator

(f rom Mngmt - Client/Serv er)

Developer

(f rom Mngmt - Client/Serv er)

Load MCM

Load DCM

**Figure 4 Load Client Modules**

* 1. **Brief Description**

Loading the Manager Client Module so the *Administrator* can access the options the system allows him to perform. The loading of the module is made through a Browser.

* 1. **Flow of Events**
     1. *Basic Flow*

After entering correct username and password, the Browser ensures that the MCM is loaded correctly and shows the corresponding GUI to the A*dministrator*

* + 1. *Alternative*

None.

* 1. **Preconditions**
     1. *<Internet Connection>*

The user must be connected to the internet.

* + 1. *<Java Technology Compatible Browser>*

The user must use a Java-Supported Browser such as Internet Explorer or Netscape Navigator

* 1. **Postconditions**

None.

* 1. **Extension Points**

None.

* 1. **Use-Case Diagrams**

Refer to the Section Use-Case Diagram (Figure 4)

* 1. **Other Diagrams**

None.

### Load DCM

* 1. **Brief Description**

Loading the Developer Client Module so the *Developer* can access the options the system allows him to perform. The loading of the module is made through a Browser.

* 1. **Flow of Events**
     1. *Basic Flow*

After entering correct username and password, the Browser ensures that the DCM is loaded correctly and shows the corresponding GUI to the *Developer*

* + 1. *Alternative*

None.

* 1. **Preconditions**
     1. *<Internet Connection>*

The user must be connected to the internet.

* + 1. *<Java Technology Compatible Browser>*

The user must use a Java-Supported Browser such as Internet Explorer or Netscape Navigator

* 1. **Postconditions**

None.

* 1. **Extension Points**

None.

* 1. **Use-Case Diagrams**

Refer to the Section Use-Case Diagram (Figure 4)

* 1. **Other Diagrams**

None.

Access Database

(f rom Mngmt - Client/Serv er)

<<extend>>

Close TMT Window

Execute Query

(f rom Mngmt - Client/Serv er)

If Query is Login

Show TMT Status

Show TMT Window

<<include>>

<<include>>

If Query is Logout

<<extend>>

Identify Errors

Correct Errors

<<extend>>

DBMS

(f rom Mngmt - Client/Serv er)

<<communicate>>

<<include>>

<<extend>>

Logout

Developer

(f rom Mngmt - Client/Serv er)

Validate Query

(f rom Mngmt - Client/Serv er)

<<include>>

Login

Administrator

(f rom Mngmt - Client/Serv er)

<<include>>

## Login/Logout Mngmt



**Figure 5 Login/Logout Mngmt**

### Login

* 1. **Brief Description**

Allowing all user types to access their respective client module depending on the username and password entered.

* 1. **Flow of Events**
     1. *Basic Flow*

The user provides the username and password strings to the Login interface and activates the login process. Entries are validated through a database query and results are returned to the user.

* + 1. *Alternative*
       1. <User is *Developer*>

Username and password match a developer entry in the database, DCM loading is launched.

* + - 1. <User is *Administrator*>

Username and password match an administrator entry in the database, MCM loading is launched.

* 1. **Preconditions**
     1. *<Predefined user profile>*

**The *Administrator* must have, previously, defined a user account.**

* + 1. *<Possession of user login information>*

All users must have in hand their respective username and password.

* 1. **Postconditions**
     1. *<Server Module Response>*

The Login Query cannot be terminated before the Server Module sends its response to the Client Module.

* 1. **Extension Points**
     1. *<Validate Query - include>*

The application validates the entered information: username and password

* 1. **Use-Case Diagrams**

Refer to the Section Use-Case Diagram (Figure 5)

* 1. **Other Diagrams**

None.

### Logout

* 1. **Brief Description**

Allow users to terminate a client session

* 1. **Flow of Events**
     1. *Basic Flow*

Users send the logout query to the application through their respective GUI. The system disconnects and logs out the user.

* + 1. *Alternative*

None.

* 1. **Preconditions**

None

* 1. **Postconditions**
     1. *<Server Module Response>*

The Logout Query cannot be terminated before the Server Module sends its response to the Client Module.

* 1. **Extension Points**
     1. *<Validate Query - include>*

The application validates the entered information: username and password

* 1. **Use-Case Diagrams**

Refer to the Section Use-Case Diagram (Figure 5)

* 1. **Other Diagrams**

None.

### Show TMT Status

* 1. **Brief Description**

Any error of execution, communication, validation or else is identified during an opened session. If the Server Module cannot correct the identified error, an appropriate comment is displayed.

* 1. **Flow of Events**
     1. *Basic Flow*

At any time, the Server Module verifies the TMT status and identifies errors, if any. Errors are shown to the users using a pop-up window with a text-based comment or the standard HTTP error messages pages.

* + 1. *Alternative*

None.

* 1. **Preconditions**

None.

* 1. **Postconditions**

None.

* 1. **Extension Points**
     1. *<Identify errors - include>*

If any error is present, the Server Module identifies the error specific information.

* + 1. *<Correct errors - extend>*

If the error is known and can be managed, the Server Module corrects it without showing any message to the user. This process is user-transparent.

* 1. **Use-Case Diagrams**

Refer to the Section Use-Case Diagram (Figure 5)

* 1. **Other Diagrams**

None.

### Identify errors

* 1. **Brief Description**

The Server Module identifies all possible errors (execution, communication, validation or else) upon managing all requested operations. If possible, the Server Module autocorrects the error else it calls the appropriate dialog box and show the error to the user.

* 1. **Flow of Events**
     1. *Basic Flow*

The server module identifies the errors, if any.

* + 1. *Alternative*

None.

* 1. **Preconditions**

None.

* 1. **Postconditions**

None.

* 1. **Extension Points**
     1. *<Correct errors - extend>*

The server module corrects the error, if possible.

* 1. **Use-Case Diagrams**

Refer to the Section Use-Case Diagram (Figure 5)

* 1. **Other Diagrams**

None.

### Correct errors

* 1. **Brief Description**

Upon identifying system errors, the Server Module determines if that error is fatal or if abnormal termination can be avoided by auto correction. If yes, the Server Module corrects the error and the process remains transparent to the user.

* 1. **Flow of Events**
     1. *Basic Flow*

The non-critical error has already been identified. Then, the Server Module corrects the error.

* + 1. *Alternative*

None.

* 1. **Preconditions**
     1. *<Non-Critical Error Presence>*

The Server Module can autocorrect all non-critical errors. This use-case will not occur if no error has been identified.

* 1. **Postconditions**
     1. *<First Postcondition>*

The application runs normally.

* 1. **Extension Points**

None.

* 1. **Use-Case Diagrams**

Refer to the Section Use-Case Diagram (Figure 5)

* 1. **Other Diagrams**

None.

### Show TMT Window

* 1. **Brief Description**

If either a Developer or an Administrator is using the TMT, the right window must be loaded. Thus, when the DCM is loaded, the TMT Window for Developer is also generated by the Browser. If the MCM is loaded, the TMT Window for Administrator is also generated by the Browser.

* 1. **Flow of Events**
     1. *Basic Flow*

Depending on what username and password have been entered, the Browser ensures that the DCM or MCM are loaded (Load DCM or Load MCM) correctly and then loads the corresponding GUI to the *Developer or Administrator*. All GUI components are members of the TMT Window.

* + 1. *Alternative*
       1. <Developer Window>

If the user is a Developer, it loads the Developer GUI.

* + - 1. <Administrator Window>

If the user is a Developer, it loads the Administrator GUI.

* 1. **Preconditions**

None.

* 1. **Postconditions**

None.

* 1. **Extension Points**

None.

* 1. **Use-Case Diagrams**

Refer to the Section Use-Case Diagram (Figure 5)

* 1. **Other Diagrams**

None.

### Close TMT Window

* 1. **Brief Description**

On a logout query, the TMT Window closes.

* 1. **Flow of Events**
     1. *Basic Flow*

The user requires a Logout, the query is validated and the TMT Window is closed, closing also all opened modules (SM, DCM or MCM)

* + 1. *Alternative*

None.

* 1. **Preconditions**
     1. *<Logout query>*

A Logout query must have been launched.

* 1. **Postconditions**

None.

* 1. **Extension Points**

None.

* 1. **Use-Case Diagrams**

Refer to the Section Use-Case Diagram (Figure 5)

* 1. **Other Diagrams**

None.