

Time Monitoring Tool Use-Case Specifications

Version <5.0>

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

Revision History

Date	Version	Description	Author
15-01-2001	1.0	First Draft	James Prevost
15-01-2001	2.0	Use-Case Diagrams added	James Prevost
14-02-2001	3.0	Use-Case Specifications finished	James Prevost
16-02-2001	4.0	Major revision	James Prevost
30-03-2001	5.0	Final Revision and addition of the « Timestamp Validation » functionality	James Prevost

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

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

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu_ex_ucspec	

Table of Content

1.	Use-Case Model	7
1.1	Introduction	7
1.2	General Actors Descriptions	7
1.3	Use-Case Model Hierarchy	8
1.4	Diagrams of the Use-Case Model	14
 Load Client Modules		 15
2.	Load MCM	16
2.1	Brief Description	16
2.2	Flow of Events	16
2.3	Preconditions	16
2.4	Postconditions	16
2.5	Extension Points	16
2.6	Use-Case Diagrams	16
2.7	Other Diagrams	16
3.	Load DCM	17
3.1	Brief Description	17
3.2	Flow of Events	17
3.3	Preconditions	17
3.4	Postconditions	17
3.5	Extension Points	17
3.6	Use-Case Diagrams	17
3.7	Other Diagrams	17
 Login/Logout Mngmt		 18
4.	Login	19
4.1	Brief Description	19
4.2	Flow of Events	19
4.3	Preconditions	19
4.4	Postconditions	19
4.5	Extension Points	19
4.6	Use-Case Diagrams	19
4.7	Other Diagrams	19
5.	Logout	20
5.1	Brief Description	20
5.2	Flow of Events	20
5.3	Preconditions	20
5.4	Postconditions	20
5.5	Extension Points	20
5.6	Use-Case Diagrams	20
5.7	Other Diagrams	20

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu_ex_ucspec	

6.	Show TMT Status	21
6.1	Brief Description	21
6.2	Flow of Events	21
6.3	Preconditions	21
6.4	Postconditions	21
6.5	Extension Points	21
6.6	Use-Case Diagrams	21
6.7	Other Diagrams	21
7.	Identify errors	22
7.1	Brief Description	22
7.2	Flow of Events	22
7.3	Preconditions	22
7.4	Postconditions	22
7.5	Extension Points	22
7.6	Use-Case Diagrams	22
7.7	Other Diagrams	22
8.	Correct errors	23
8.1	Brief Description	23
8.2	Flow of Events	23
8.3	Preconditions	23
8.4	Postconditions	23
8.5	Extension Points	23
8.6	Use-Case Diagrams	23
8.7	Other Diagrams	23
9.	Show TMT Window	24
9.1	Brief Description	24
9.2	Flow of Events	24
9.3	Preconditions	24
9.4	Postconditions	24
9.5	Extension Points	24
9.6	Use-Case Diagrams	24
9.7	Other Diagrams	24
10.	Close TMT Window	25
10.1	Brief Description	25
10.2	Flow of Events	25
10.3	Preconditions	25
10.4	Postconditions	25
10.5	Extension Points	25
10.6	Use-Case Diagrams	25
10.7	Other Diagrams	25

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

Figures

Figure 1	Mngmt – Connections / Use Packages.....	9
Figure 2	Mngmt - Developer	10
Figure 3	Mngmt - Administrator.....	12
Figure 4	Load Client Modules	15
Figure 5	Login/Logout Mngmt	18

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

Use-Case Specifications

1. Use-Case Model

1.1 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.

1.2 General Actors Descriptions

1.2.1 *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.

1.2.2 *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.

1.2.3 *DBMS*

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

1.2.4 *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.

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

1.2.5 *MS PROJECT*

Microsoft PROJCT 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.

1.3 Use-Case Model Hierarchy

1.3.1 *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

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

1.3.1.1 Packages Diagram

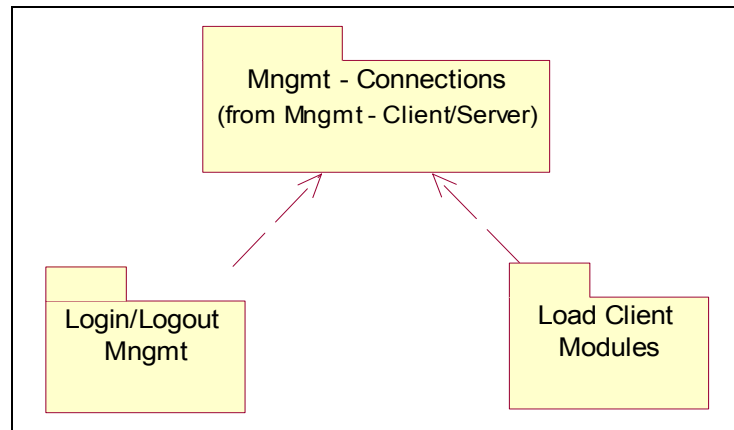


Figure 1 Mngmt – Connections / Use Packages

1.3.1.2 Load Client Modules

- **Description**
Activates a Client Session
- **Use Cases**
 - Load MCM
 - Load DCM
- **Actors**
 - Administrator
 - Developer

1.3.1.3 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

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

1.3.2 *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

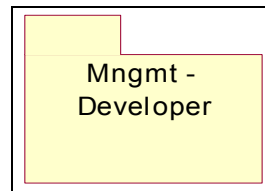


Figure 2 Mngmt - Developer

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

1.3.3 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

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu_ex_ucspec	

1.3.3.1 Packages Diagram

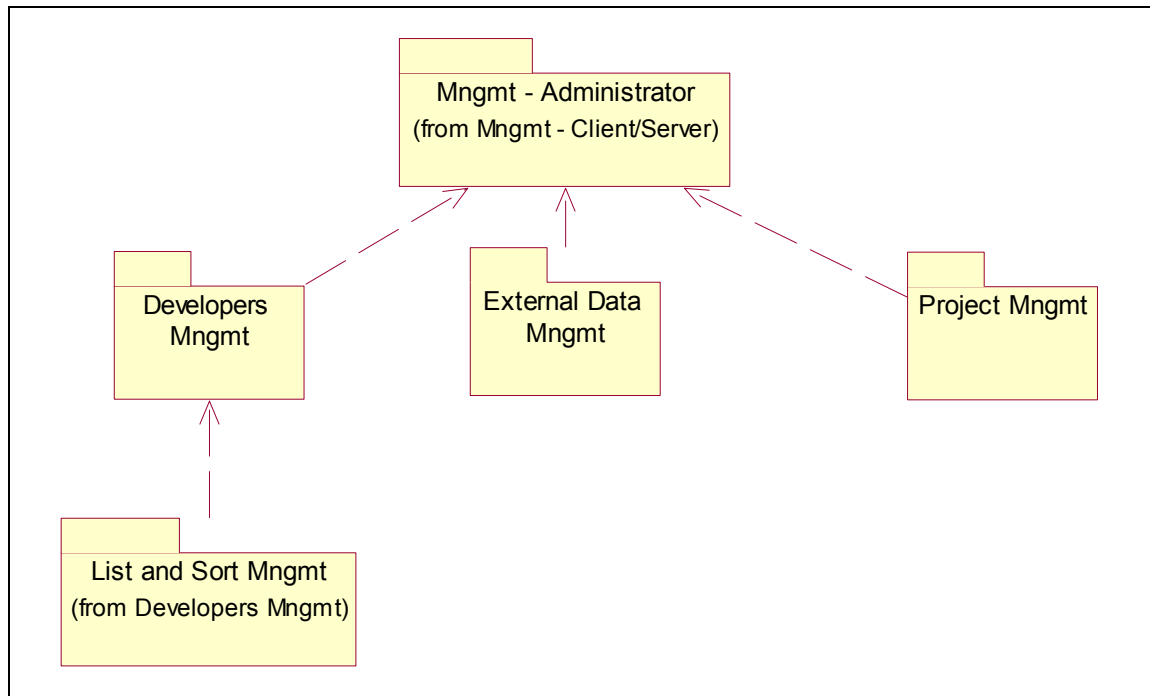


Figure 3 Mngmt - Administrator

1.3.3.2 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)

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

- **Relationships**
 - None
- **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

1.3.3.3 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)

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

- **Relationships**
 - None
- **Packages Owned**
 - None

1.3.3.4 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

1.4 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.

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

Load Client Modules

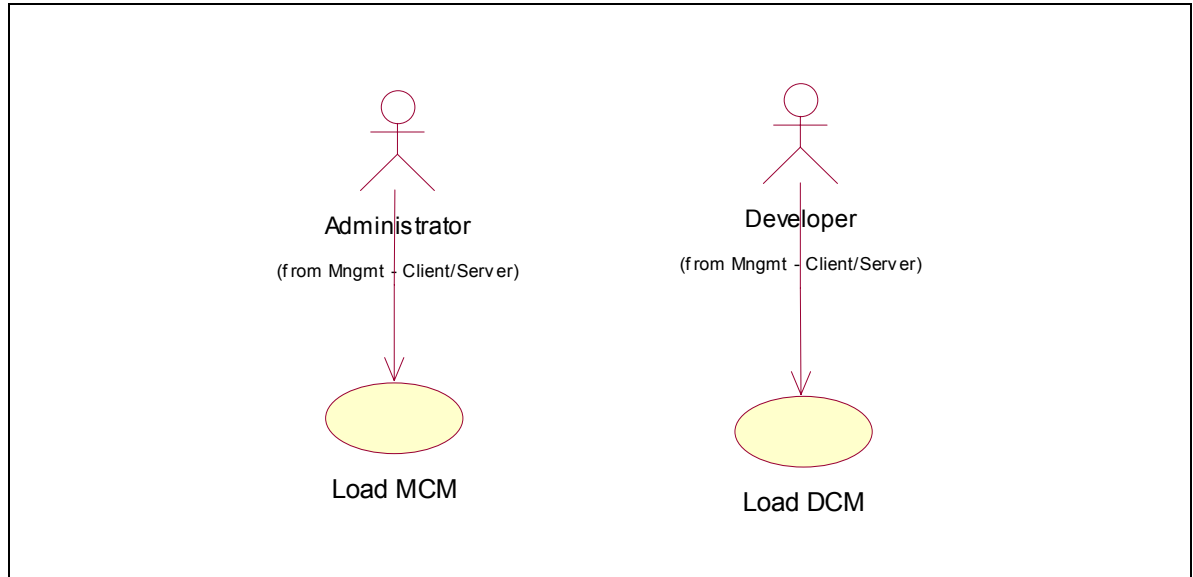


Figure 4 Load Client Modules

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

2. Load MCM

2.1 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.

2.2 Flow of Events

2.2.1 Basic Flow

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

2.2.2 Alternative

None.

2.3 Preconditions

2.3.1 <Internet Connection>

The user must be connected to the internet.

2.3.2 <Java Technology Compatible Browser>

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

2.4 Postconditions

None.

2.5 Extension Points

None.

2.6 Use-Case Diagrams

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

2.7 Other Diagrams

None.

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

3. Load DCM

3.1 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.

3.2 Flow of Events

3.2.1 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*

3.2.2 Alternative

None.

3.3 Preconditions

3.3.1 <Internet Connection>

The user must be connected to the internet.

3.3.2 <Java Technology Compatible Browser>

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

3.4 Postconditions

None.

3.5 Extension Points

None.

3.6 Use-Case Diagrams

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

3.7 Other Diagrams

None.

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

Login/Logout Mngmt

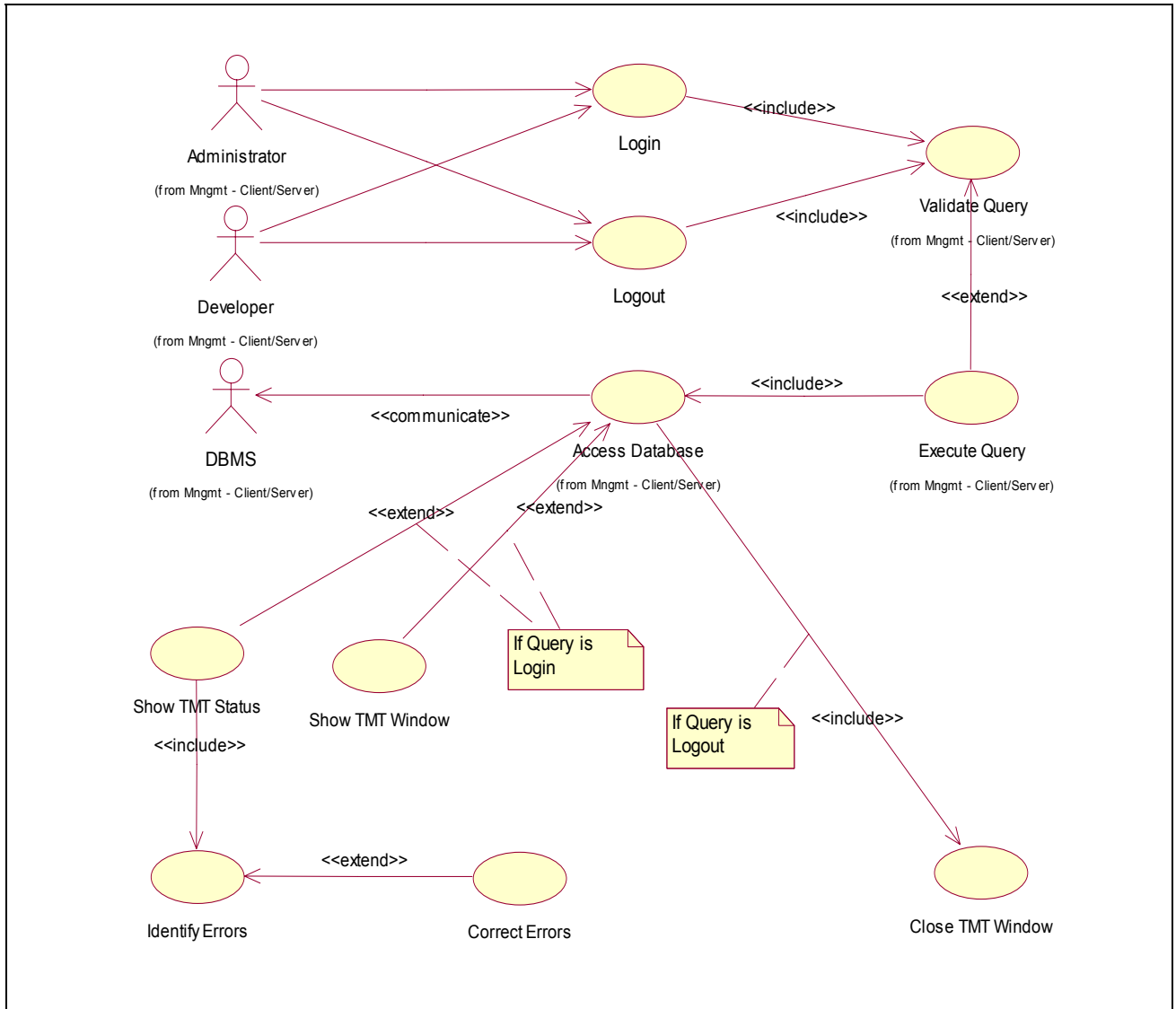


Figure 5 Login/Logout Mngmt

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

4. Login

4.1 Brief Description

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

4.2 Flow of Events

4.2.1 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.

4.2.2 Alternative

4.2.2.1 <User is Developer>

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

4.2.2.2 <User is Administrator>

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

4.3 Preconditions

4.3.1 <Predefined user profile>

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

4.3.2 <Possession of user login information>

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

4.4 Postconditions

4.4.1 <Server Module Response>

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

4.5 Extension Points

4.5.1 <Validate Query - include>

The application validates the entered information: username and password

4.6 Use-Case Diagrams

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

4.7 Other Diagrams

None.

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

5. Logout

5.1 Brief Description

Allow users to terminate a client session

5.2 Flow of Events

5.2.1 Basic Flow

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

5.2.2 Alternative

None.

5.3 Preconditions

None

5.4 Postconditions

5.4.1 <Server Module Response>

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

5.5 Extension Points

5.5.1 <Validate Query - include>

The application validates the entered information: username and password

5.6 Use-Case Diagrams

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

5.7 Other Diagrams

None.

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

6. Show TMT Status

6.1 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.

6.2 Flow of Events

6.2.1 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.

6.2.2 Alternative

None.

6.3 Preconditions

None.

6.4 Postconditions

None.

6.5 Extension Points

6.5.1 <Identify errors - include>

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

6.5.2 <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.

6.6 Use-Case Diagrams

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

6.7 Other Diagrams

None.

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

7. Identify errors

7.1 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.

7.2 Flow of Events

7.2.1 Basic Flow

The server module identifies the errors, if any.

7.2.2 Alternative

None.

7.3 Preconditions

None.

7.4 Postconditions

None.

7.5 Extension Points

7.5.1 <Correct errors - extend>

The server module corrects the error, if possible.

7.6 Use-Case Diagrams

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

7.7 Other Diagrams

None.

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

8. Correct errors

8.1 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.

8.2 Flow of Events

8.2.1 Basic Flow

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

8.2.2 Alternative

None.

8.3 Preconditions

8.3.1 <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.

8.4 Postconditions

8.4.1 <First Postcondition>

The application runs normally.

8.5 Extension Points

None.

8.6 Use-Case Diagrams

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

8.7 Other Diagrams

None.

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

9. Show TMT Window

9.1 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.

9.2 Flow of Events

9.2.1 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.

9.2.2 Alternative

9.2.2.1 <Developer Window>

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

9.2.2.2 <Administrator Window>

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

9.3 Preconditions

None.

9.4 Postconditions

None.

9.5 Extension Points

None.

9.6 Use-Case Diagrams

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

9.7 Other Diagrams

None.

Time Monitoring Tool	Version: <5.0>
Use-Case Specifications	Date: <30/03/2001>
upedu ex ucspec	

10. Close TMT Window

10.1 Brief Description

On a logout query, the TMT Window closes.

10.2 Flow of Events

10.2.1 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)

10.2.2 Alternative

None.

10.3 Preconditions

10.3.1 <Logout query>

A Logout query must have been launched.

10.4 Postconditions

None.

10.5 Extension Points

None.

10.6 Use-Case Diagrams

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

10.7 Other Diagrams

None.