**Scientific report generator**

Main objective of this system is to simplify report generation for employees of Ivan Franko National University of Lviv. System provides easy way of adding information about scientific work during report period.

**Roles:** teacher, head of department, administrator.

**Teacher:** registers an account, provides additional personal information. Also he can add data about his scientific work, generate individual reports, create and edit publications and mark scientific work themes he worked on.

**Head of department:** edits data of his department’s users, i.e. approving them, sets position and modifies their information. Head of department can register and update themes for scientific work, manage his department’s staff, generate and edit department reports.

**Administrator:** can approve users, can edit roles and other information of his faculty’s workers, can generate and modify faculty reports, can create departments.

**Subsystems**

**User Management**

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| --- | --- | --- | --- | --- | --- |
| **№** | **Role** | **Use Case** | **Description** | **Action Method** | **Tests** |
| 1 | Head of Department | Edit user | Edits information of his department’s users | Edit(Guid id, UserProfileEditModel model) | *TST2*  *TST5*  *TST6* |
| 2 | Approve registration | Approves new registered user of his department | Edit(Guid id, UserProfileEditModel model) | *TST2*  *TST5*  *TST6* |
| 3 | Set user role | Edits the position of his department’s users | Edit(Guid id, UserProfileEditModel model) | *TST2*  *TST5*  *TST6* |
| 4 | Delete user | Deletes user completely | Delete(Guid id) |  |
| 5 | Activate/deactivate user | Enables or disables user account | SetActive(Guid id, bool isActive) |  |
| 6 | Teacher | Register | Registers a new account | Register(RegisterModel model) | *TST1*  *TST7* |
| 7 | Edit personal information | Fills personal information fields | Edit(Guid id, UserProfileEditModel model) |  |
| 8 | Change password | Changes account’s password |  |  |

**Report Management**

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| **№** | **Role** | **Use Case** | **Description** | **Action Method** | **Tests** |
| 1 | Administrator | Edit faculty report | Edits data of faculty report |  |  |
| 2 | Generate faculty report | Generates report of his faculty |  |  |
| 3 | Head of department | Generate department report | Head of department can create report of his department based on teachers’ reports |  |  |
| 4 | Edit department report | Head of department can edit his department’s report |  |  |
| 5 | Teacher | Fill report fields | Teacher can fill additional fields according to his personal report | Edit(Guid id, TeacherReport report) | *TST9*  *TST12*  *TST13* |
| 6 | Edit teacher report | Teacher can edit information of his personal report | Edit(Guid id, TeacherReport report) | *TST9*  *TST12*  *TST13* |
| 7 | Generate teacher report | Teacher can generate personal report of his work during the year | Create(TeacherReport model) |  |

**Department Management**

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| --- | --- | --- | --- | --- | --- |
| **№** | **Role** | **Use Case** | **Description** | **Action Method** | **Tests** |
| 1 | Administrator | Create department | Creates a new department | Create(DepartmentCreateModel model) |  |
| 2 | Delete department | Removes existing department | Delete(Guid id) |  |
| 3 | Head of Department | Edit department | Changes department’s information | Edit(Guid id, DepartmentEditModel model) |  |
| 4 | Delete department | Removes department | Delete(Guid id) |  |
| 5 | Manage staff | Adds and removes users from department |  |  |

**Publication Management**

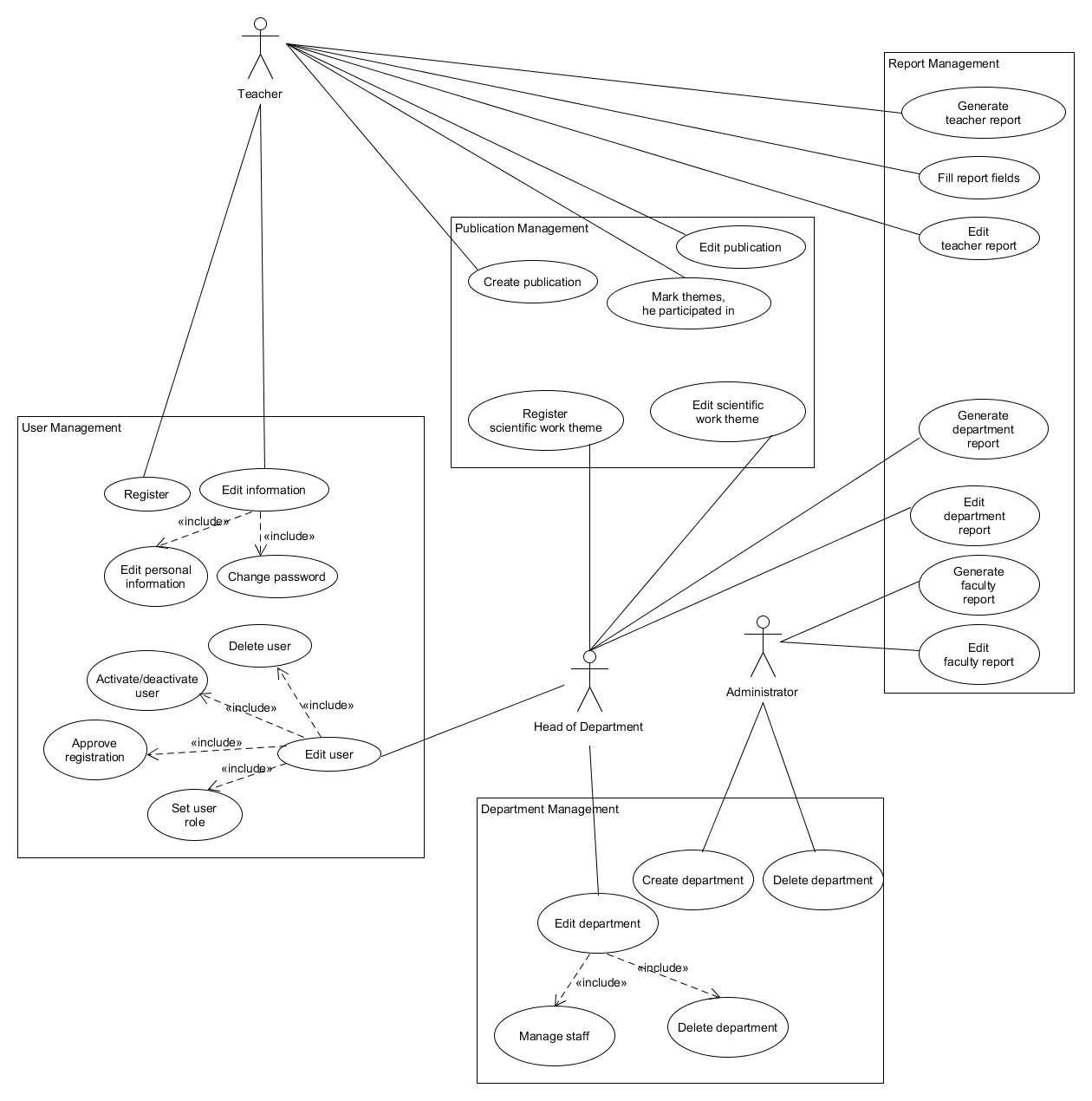
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| --- | --- | --- | --- | --- | --- |
| **№** | **Role** | **Use Case** | **Description** | **Action Method** | **Tests** |
| 1 | Head of department | Register  scientific work theme | Registers scientific work themes of his department | Create(ScientificWorkModel model) | *TST22*  *TST28* |
| 2 | Edit scientific  work theme | Edits registered scientific work themes | Edit(Guid id, ScientificWorkModel model) | *TST23*  *TST26*  *TST27* |
| 3 | Teacher | Create publication | Adds publications as single or co-author | Create(PublicationModel model) | *TST15*  *TST21* |
| 4 | Edit publication | Edits created publications | Edit(Guid id, PublicationModel model) | *TST16*  *TST19*  *TST20* |
| 5 | Mark themes he participated in. | Sets himself as co-author of scientific works | Edit(Guid id, ScientificWorkModel model) | *TST23*  *TST26*  *TST27* |

**Tests**

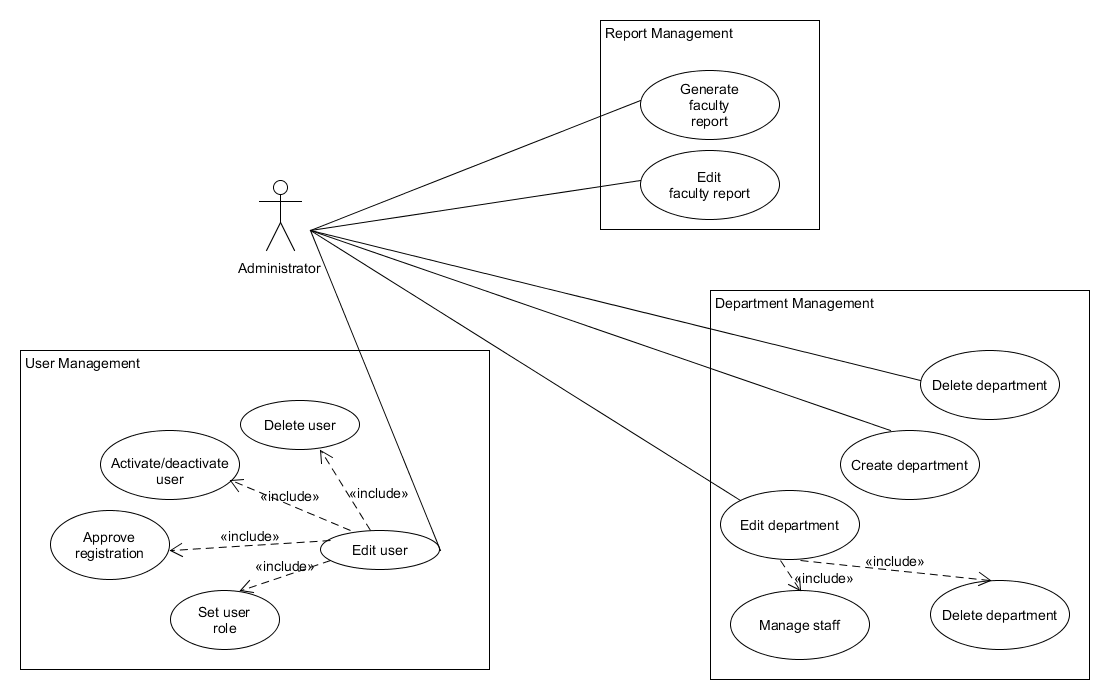
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| ***№*** | **Test class** | **Test method** | **Code coverage** |
| *TST1* | UserProfileServiceTests | CreateItemTest() | 18% |
| *TST2* | UpdateItemTest() |
| *TST3* | GetAllTest() |
| *TST4* | GetAllWhereTest() |
| *TST5* | GetByIdTest() |
| *TST6* | ExistsTest() |
| *TST7* | DoesNotExistTest() |
| *TST8* | TeacherReportServiceTests | CreateItemTest() | 91% |
| *TST9* | UpdateItemTest() |
| *TST10* | GetAllTest() |
| *TST11* | GetAllWhereTest() |
| *TST12* | GetByIdTest() |
| *TST13* | ExistsTest() |
| *TST14* | DoesNotExistTest() |
| *TST15* | PublicationServiceTests | CreateItemTest() | 50% |
| *TST16* | UpdateItemTest() |
| *TST17* | GetAllTest() |
| *TST18* | GetAllWhereTest() |
| *TST19* | GetByIdTest() |
| *TST20* | ExistsTest() |
| *TST21* | DoesNotExistTest() |
| *TST22* | ScientificWorkServiceTests | CreateItemTest() | 48% |
| *TST23* | UpdateItemTest() |
| *TST24* | GetAllTest() |
| *TST25* | GetAllWhereTest() |
| *TST26* | GetByIdTest() |
| *TST27* | ExistsTest() |
| *TST28* | DoesNotExistTest() |

**Diagrams**

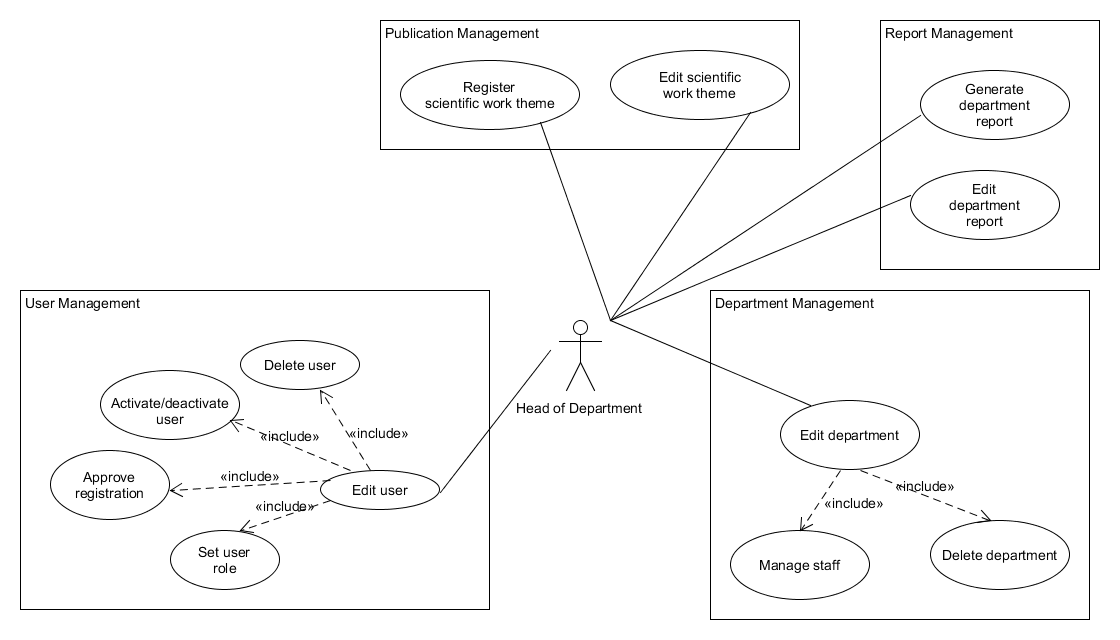
General use case diagram



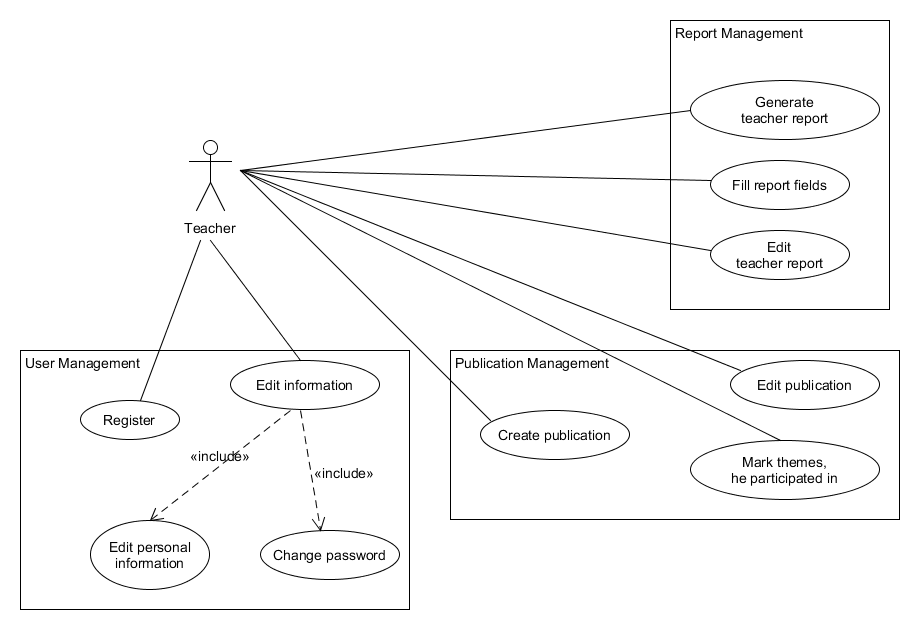
Use case for Administrator role



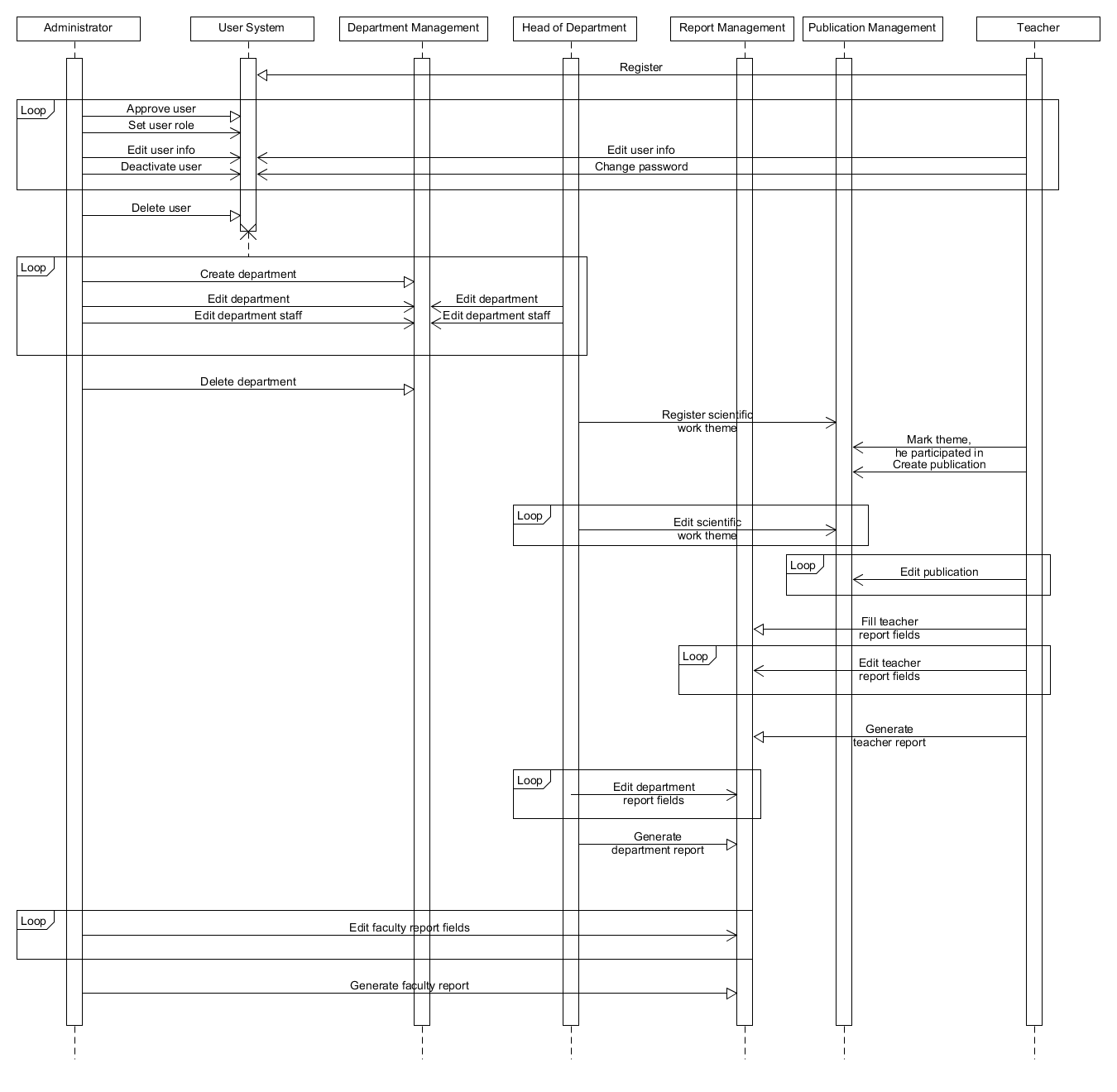
Use case for Head of Department role



Use case for Teacher role



Sequence diagram



Class diagram

